J. S. Jones and Associates, Inc.

Critical Area Study

of the

Alex & Alexa Hancock
14325 200th Ave. S.E.
Renton, Washington 98059

Tax Parcel Number: 172306-9043
Section 17, Township 23 N, Range 6 E

Prepared for:
Alex Hancock
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Dated:
August 29, 2025

Prepared by:
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1.0 Project Description

The applicant's propose to construct a fixed 396 square-foot dock in Lake McDonald.

2.0 Parcel Identification No. & Abbreviated Legal Descriptions

The tax parcel number is 172306-9043. The subject study area is located in Southwest quarter of Section 17, Township 23 North, Range 6 East, of the Willamette Meridian.

The subject property's legal description is as follows:
BAAP ON S LN OF SW 1/4 OF SW 1/4 150 FT W OF SE COR TH N 101 FT TH W 175 FT TH SWLY TAP ON SH LN 70 FT NWLY OF NXN WITH SD S LN MEAS ALG SD SH LN TH SELY TO SD S LN TH E TO BEG LESS C/M RGTS

3.0 Directions

Directions from the intersection of I-90 and Hwy. 18 are as follows:

1. Head westbound on I-90;
2. Take the Issaquah Front St. exit;
3. Turn left and proceed southbound on Front St. which becomes Issaquah-Hobart;
4. Turn right onto S.E. May Valley Rd.;
5. Turn left onto S.E. 128th Way;
6. Turn left onto 196th Ave. S.E.;
7. Turn left onto S.E. 142nd St.;
8. Turn right onto 200th Ave. S.E.;
9. Proceed to end of gravel road and park at house on the right.

4.0 Methodology

4.1 Federal and State Wetland Methodologies

The wetland assessment and delineation were performed using the 1997 Washington State Wetlands Identification and Delineation Manual (DOE, 1997) and the U.S. Army Corps of Engineers "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coastal Region, Version 2.0" (COE. 2010). The Routine Determination method was used. The Routine Determination methodology is "used when the project area is small, plant communities are homogeneous, plant community boundaries are abrupt, and the project is not controversial". There was "problematic" consideration for alterations to the plant community. The disturbed site methodology was not used because aerial photos adequately show the area of impacts, and the project is not controversial.

4.2 Field Work Date and Wetland Scientist

The original wetland delineation was performed on January 7, 2022. The wetland boundary was not re-delineated for the current proposed project.

5.0 Results and Discussion

There is one onsite wetland, identified as the Lake McDonald (LMD) wetland for purposes of this report. The USDA Soil Conservation Service (SCS) mapped the on-site soils as Alderwood gravelly sandy loam (AgC) and Tukwila muck (TU) (see attached Soils Map). Sample location 1 (SL-1) represents upland area above the wetland. Upland soils are Alderwood gravelly sandy loam on the gradual slope between the residence and wetland boundary, see the attached critical area sketch and data sheets. SL-1 does not have a saturated soils profile within 12 inches in the soil surface. The soils matrix is a four chroma at 10 inches, which does not meet the soils criteria. The soils profile is somewhat compacted.

The wetland is adjacent to the Lake McDonald shoreline, see the attached Critical Area Sketch. It includes the aquatic zone with plants growing in the water, emergent plants, and forested wetland. The forested wetland extends along the south property line east up the slope and has a seasonal stream. Soils at SL-2 are Tukwila muck under 2 inches of beach sand. The plant community is absent, however just offsite to the north and south of SL-2, there are wetland plant communities. The soil was inundated on January 7th, due to flooding from recent snow melt and heavy precipitation. Normally the hydrology at this sample location is seasonally saturated.

Wetland LMD is a Category I with a total score of 24 points and a habitat score of 7 points, see the attached wetland rating form and rating figures. The wetland buffer requirement is 110 feet for a Category I wetland with a habitat score of 7 points.

Lake McDonald is also regulated as an aquatic area. It is 16.5-18 acres which is too small to be classified as a lake. Fish are present in Lake McDonald, see the attached DNR FPARS map. Therefore, Lake McDonald is a Type F aquatic area. The aquatic buffer requirement is 165 feet.

The offsite stream to the south of the subject property is seasonal and non-fish bearing. It is a Type N stream. The stream buffer requirement is 65 feet. Critical area buffers already encumber the entire property.

6.0 Impact Assessment

The proposed dock is 396 square feet and meets the allowed dimensional requirements. The proposed mitigation is a ten-foot strip along the ordinary high water mark, with emergent and other vegetation. Plant selected are all natives and include five native trees. Monitoring is for a five year period. The dock mitigation plan is attached.

Mitigation will comply with KCC 21A.25.180.L.

"New, expanded, replacement, or repaired piers, docks, floats, boatlifts, boat canopies and moorage piles or buoys shall comply with the following:

1. Existing habitat features, such as large and small woody debris and substrate material, shall be retained and new or expanded moorage facilities placed to avoid disturbance of such features;
2. Invasive weeds, such as milfoil, may be removed as provided in K.C.C. chapter 21A.24; and
3. In order to mitigate the impacts of new or expanded moorage facilities, the applicant shall plant site-appropriate emergent vegetation and a buffer of vegetation a minimum of ten feet wide along the entire length of the lot immediately landward of ordinary high water mark. Planting shall consist of native shrubs and trees and, when possible, emergent vegetation. At least five native trees will be included in a planting plan containing one or more evergreen trees and two or more trees that like wet roots, such as willow species. Such planting shall be monitored for a period of five years consistent with a monitoring plan approved in accordance with K.C.C. chapter 21A.24. This subsection is not intended to prevent reasonable access through the shoreline critical area buffer to the shoreline, or to prevent beach use of the shoreline critical area;"

7.0 Summary

The applicants propose the construction of a fixed 400-square-foot dock on Lake McDonald, located at 14325 200th Avenue S.E., Renton, Washington (Tax Parcel No. 172306-9043). A wetland delineation was completed on January 7, 2022, using the Washington State Wetlands Identification and Delineation Manual (DOE, 1997) and the U.S. Army Corps of Engineers Regional Supplement (2010).

Field investigations identified one onsite wetland, designated as the Lake McDonald (LMD) Wetland, which is contiguous with the lake shoreline. The wetland includes aquatic, emergent, and forested communities and contains seasonally saturated soils. Based on the Washington State Wetland Rating System, the LMD Wetland is classified as a Category I wetland with a total rating of 24 points, including a habitat score of 7 points. This rating establishes a 110-foot standard buffer.

Lake McDonald itself is regulated as a Type F aquatic area because it supports fish populations, requiring a 165-foot buffer. Additionally, an offsite, non-fish-bearing seasonal stream south of the property was identified as a Type N stream, which requires a 65-foot buffer. Collectively, these overlapping critical area buffers encompass the property.

The proposed dock meets dimensional requirements and will be mitigated in accordance with King County Code (KCC) 21A.25.180.L. The mitigation plan includes planting a ten-foot vegetated buffer along the ordinary high water mark, consisting of native emergent vegetation, shrubs, and at least five native trees (including evergreens and water-tolerant species such as willow). The mitigation area will be monitored for five years to ensure establishment and compliance with County standards.
Critical area determinations remain subject to review and approval by King County and applicable regulatory agencies.

8.0 Limitations

Critical area determinations and delineations are not final until approved by regulatory agencies and/or local jurisdictions. *J. S. Jones and Associates, Inc.* does not guarantee acceptance or approval by regulatory agencies, or that any intended use will be achieved.

9.0 Literature Citations

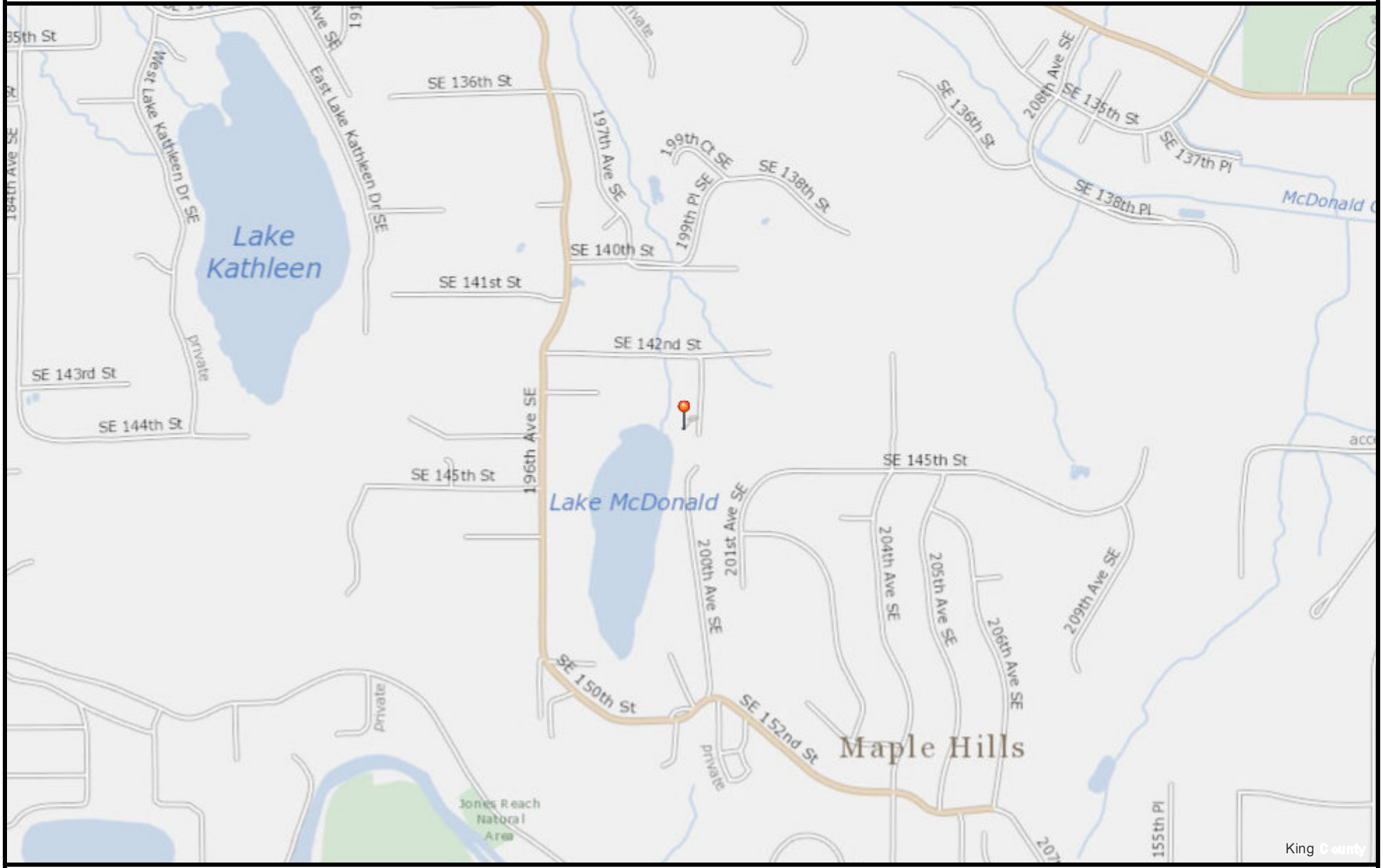
COE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S.
Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

DOE. 1997. Washington State Wetlands Identification and Delineation Manual. Publ. # 96-94. Washington D.C.

Hruby T. 2014. Washington State Wetland Rating System for Western Washington: 2014 Update (Publication #14-06-029). Olympia, Washington: Washington Department of Ecology.

Attachments

Vicinity Map

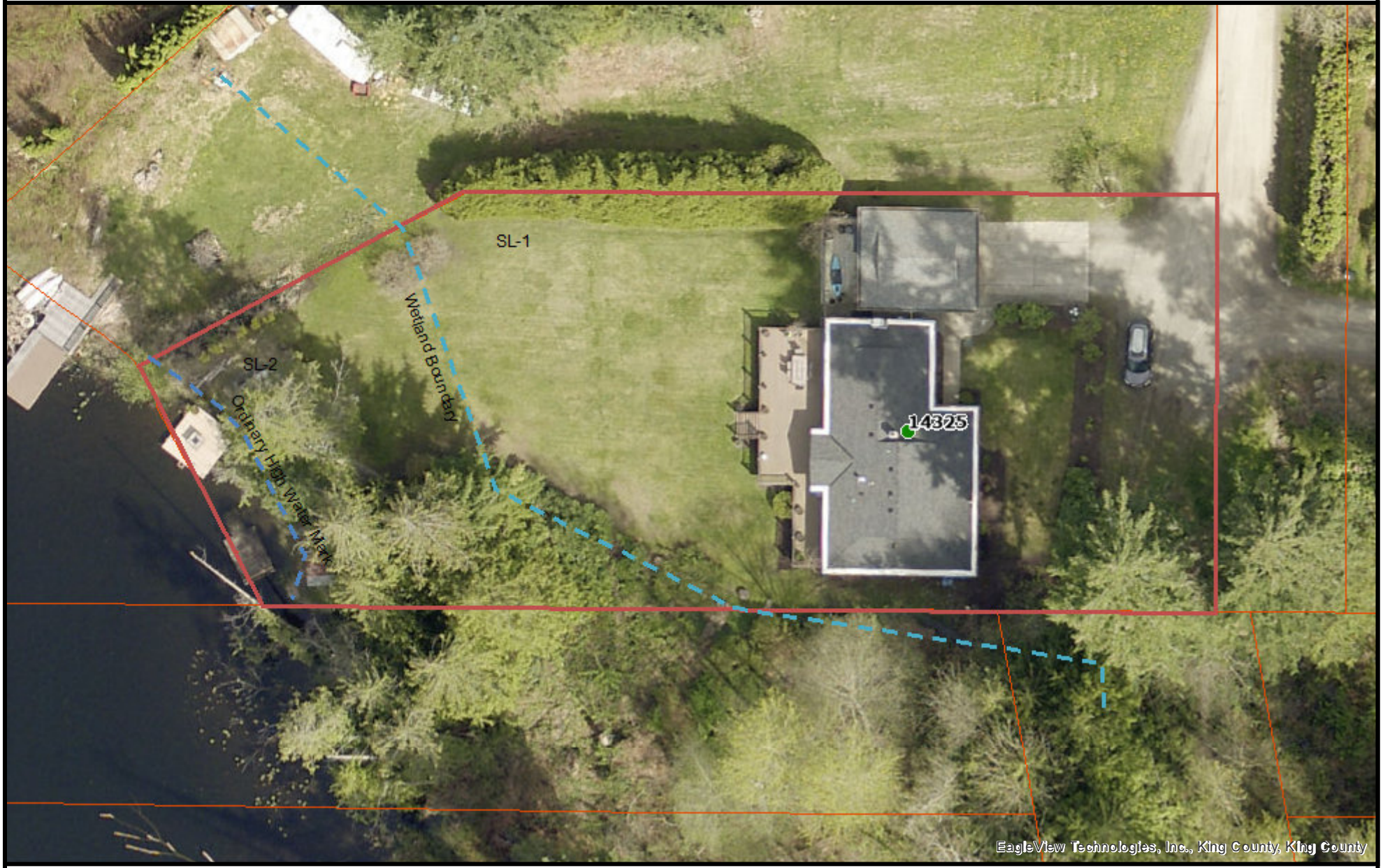


Date: 1/4/2022 Notes:

N

King County

Critical Area Sketch



Date: 8/28/2025 Notes:

N

King County

King County
Department of Permitting and Environmental Review

Residential Site Plan Template

Ref: KCC 21a.12.030

Max. Impervious Surface Allowed _____

Max. Bldg. Height Allowed _____

Ref: KCC 21a.12.170

Min. Blg. Setback From Street _____

Min. Garage Setback From Street _____

Min. Blg. Setback From Interior _____

Permit Center validation:

- Zoning
- Site Review Not Applicable

Validated Signature _____

Login Initials _____ Date: _____

Engineering / Drainage Approval

Signature: _____

Date: _____

Critical Areas Approval

Signature: _____

Date: _____

Clearing / Grading Approval

Signature: _____

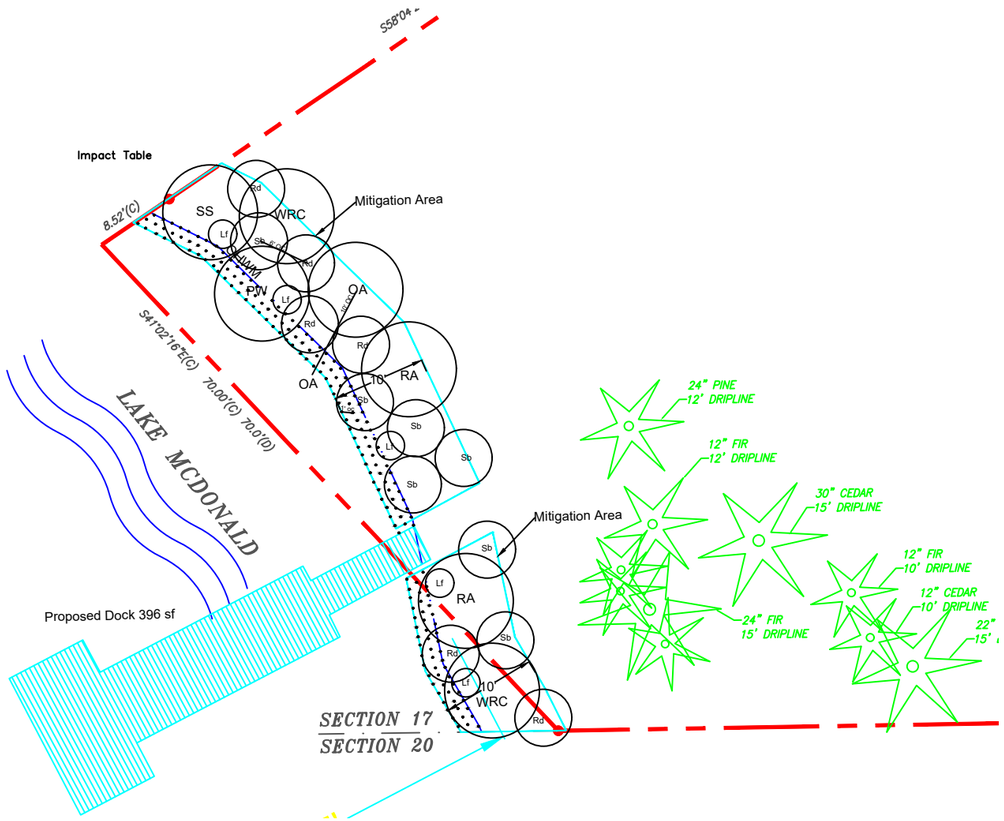
Date: _____

Fire Approval

Signature: _____

Date: _____

Hancock Dock Mitigation Plan



Plant Schedule

SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	North Mitigation Area (440 sf)	South Mitigation Area (198 sf)
SS	SITKA SPRUCE	*Picea sitchensis*	1 GAL	1	0
WRC	WESTERN RED CEDAR	*Thuja plicata*	1 GAL	1	1
RA	RED ALDER	*Alnus rubra*	1 GAL	1	1
OA	OREGON ASH	*Fraxinus latifolia*	1 GAL	1	0
PW	PACIFIC WILLOW	*Salix lucida*		1	0
	Total Trees			5	2
Sb	SALMONBERRY	*Rubus spectabilis*	1 GAL	5	2
Rd	RED-OSIER DOGWOOD	*Cornus sericea*	1 GAL	4	2
Lf	LADY FERN	*Athyrium filix-femina*	1 GAL	3	2
•	SLOUGH SEDGE	*Carex obnupta*	1 GAL	132	51
	Total Shrubs & Groundcovers			144	57

LEGAL DESCRIPTION:

THAT PORTION OF THE SOUTH HALF OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 17, TOWNSHIP 23 NORTH, RANGE 6 EAST, W.M. IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTH LINE OF SAID SUBDIVISION, AT A POINT 150.0 FEET WEST OF THE SOUTHEAST CORNER THEREOF; THENCE NORTH, PARALLEL WITH THE EAST LINE OF SAID SUBDIVISION, 101.0 FEET; THENCE WEST, PARALLEL WITH THE SOUTH LINE OF SAID SUBDIVISION, 175.0 FEET; THENCE SOUTHWESTERLY TO A POINT ON THE NORTHEASTERLY SHORE OF LAKE MCDONALD AT A POINT 70.0 FEET NORTHWESTERLY OF, AS MEASURED ALONG SAID SHORE, FROM THE INTERSECTION OF SAID SHORE WITH THE SOUTH LINE OF SAID SUBDIVISION; THENCE SOUTHEASTERLY, ALONG SAID SHORE, 70.0 FEET TO THE SOUTH LINE OF SAID SUBDIVISION; THENCE EASTERLY, ALONG SAID SOUTH LINE, TO THE POINT OF BEGINNING.

TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS OVER EASEMENT "X" AS DESCRIBED IN AND DELINEATED ON THE FACE OF KING COUNTY SHORE PLAT NO. 879060, RECORDED UNDER RECORDING NO. 8006090882, BEING A PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 17, TOWNSHIP 23 NORTH, RANGE 6 EAST, W.M., IN KING COUNTY, WASHINGTON.

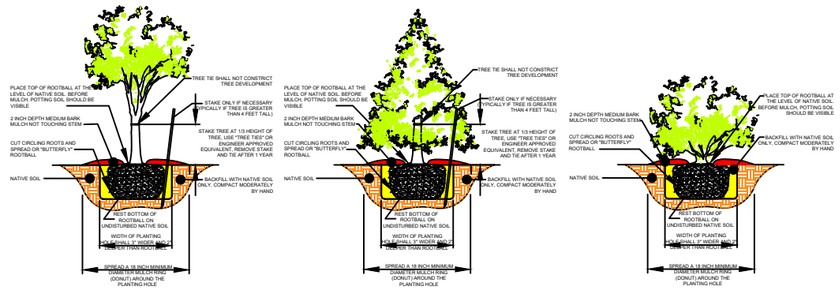
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

SURVEYOR LEGEND:

- *FOUND REBAR/PIPE, AS SHOWN*
- *SET 5/8" REBAR & CAP, LS 29537*
- *SET NAIL & DISK, LS 29537*
- *(C) INDICATES CALCULATED VALUE*
- *(D) INDICATES VALUE OF RECORD PER DEED*
- *TBM TEMPORARY SITE BENCHMARK*
- *CHAINLINK FENCELINE*
- *POWER POLE*
- *EX. CONIFEROUS TREE*
- *Ex. DECIDUOUS TREE*
- *WATER METER*

THAT PORTION OF THE SW 1/4, SW 1/4, SECTION 17 TOWNSHIP 23 NORTH, RANGE 6 EAST, W.M.

PLANTING DETAILS



Environmental Consultant
J. S. Jones and Associates, Inc.
Attn: Jeffery S. Jones, Wetland Scientist
PO Box 1908
Issaquah, Washington 98027
253-905-5736

7/24/2025

Permit Number: Dock Appl. #1662685 Parcel Number: 172306-9043 Applicant Name: Alex & Alexa Hancock Site Address: 14325 200th Ave. S.E.

Engineering Scale: 1" = 16'

Sheet 1 of 2

King County
Department of Permitting and Environmental Review

Residential Site Plan Template

Ref: KCC 21a.12.030

Max. Impervious Surface Allowed _____

Max. Bldg. Height Allowed _____

Ref: KCC 21a.12.170

Min. Blg. Setback From Street _____

Min. Garage Setback From Street _____

Min. Blg. Setback From Interior _____

Permit Center validation:

- o Zoning
- o Site Review Not Applicable

Validated Signature _____

Login Initials _____ Date: _____

Engineering / Drainage Approval

Signature: _____

Date: _____

Critical Areas Approval

Signature: _____

Date: _____

Clearing / Grading Approval

Signature: _____

Date: _____

Fire Approval

Signature: _____

Date: _____

Hancock Dock Mitigation Plan

A. General Information/Background

The applicant proposes to construct a 396 square foot dock. The property is King County Tax Parcel No. 172306-9043. The site address is 14325 200th Ave. S.E., Renton, WA 98059.

B. Summary of Existing Conditions

Lawn extends to the shoreline, except there are a number of existing conifers shown on sheet 1 of 2. There are also existing native groundcovers and shrubs at the north end of the mitigation area

C. Impact Analysis

Two small docks will be removed and replaced with a new dock as shown on sheet 1 of 2. The new dock is 396 square feet.

D. Proposed Mitigation

The proposed mitigation is to plant native plant species a minimum of a 10-foot width along the ordinary high water mark. The mitigation area north of the dock is 440 square feet and the mitigation area south of the dock is 198 square feet. Five tree species will be used, including two evergreen trees and three trees that like wet roots. Woody debris and the existing substrate material will be left in place. Invasive plants will be removed, although none are known to be present. These measures comply with King County Code 21A.25.180.L.

E. Goal of Mitigation

The goal of mitigation is as follows:

Improve the condition of the shoreline by reestablish native plants.

F. Implementation

1) Planting shall be done in accordance with illustrated details in the mitigation/restoration plan set and accepted industry standards.
2) Unless otherwise approved by King County staff, all planting occur at any time of the year.
3) Locations shall be as depicted in the approved plan set.
4) Plant will be obtained from a licensed native plant nursery.

G. Maintenance

Invasive plant species will be removed by hand from the mitigation area, several times a year for the monitoring period.

The Permittee shall replace any plants that are failing, weak, defective in a manner of growth, or dead. Replacement plants shall meet the same standards for size and type as those specified for original installation unless. Replacement plants may be inspected as described above for the original installation.

Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by the Wetland Scientist, and/or King County staff.

Chemical controls shall not be used in the mitigation/restoration area, sensitive areas or their buffers.

H. Performance Standards

Plant survival and cover standards are established to measure mitigation success as follows:

Performance Standards

	Year 1	Year 3	Year 5
Shrub and Sapling Tree Cover*	>10%	>15%	>20%
Shrub and Sapling Tree Survival	100%	>85%	>80%
Groundcover Cover*	>10%	>20%	>30%
Groundcover Survival	100%	>80%	>80%

*Includes beneficial native plants in that category that are naturally recruiting volunteers.

I. Monitoring

Monitoring shall be conducted annually for **5** years in accordance with the approved mitigation/restoration monitoring plan.

All plant installed shall be counted each monitoring event. Monitoring of vegetation plots shall occur annually between August 31 and September 30 (prior to leaf drop), unless otherwise specified.

Two (2) permanent photo points will be established within the mitigation/restoration area. Photographs will be taken from these points to visually record the condition of the mitigation/restoration area.

Monitoring reports shall be submitted by December 31 of each year during the monitoring period.

J. Bond/Financial Guarantee

Prior to beginning any work, the Permittee must provide a mitigation/restoration bond or assignment of funds per King County procedures. Upon approval of the mitigation plan, a bond quantity worksheet will completed based on all elements of the mitigation/restoration plan.

K. Notice on Title

A critical area Notice on Title, recorded at King County Records, may be required by King County DPER.

L. As-built Reports

An as-built report will be provided to King County DPER within 30 days of the completion of installation of this plan.

7/24/2025

Permit Number: Dock Appl. #1662685 Parcel Number: 172306-9043 Applicant Name: Alex & Alexa Hancock Site Address: 14325 200th Ave. S.E.

Engineering Scale: 1" = 20'

Sheet 2 of 2

Map Scale: 1:431 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 17, Aug 23, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

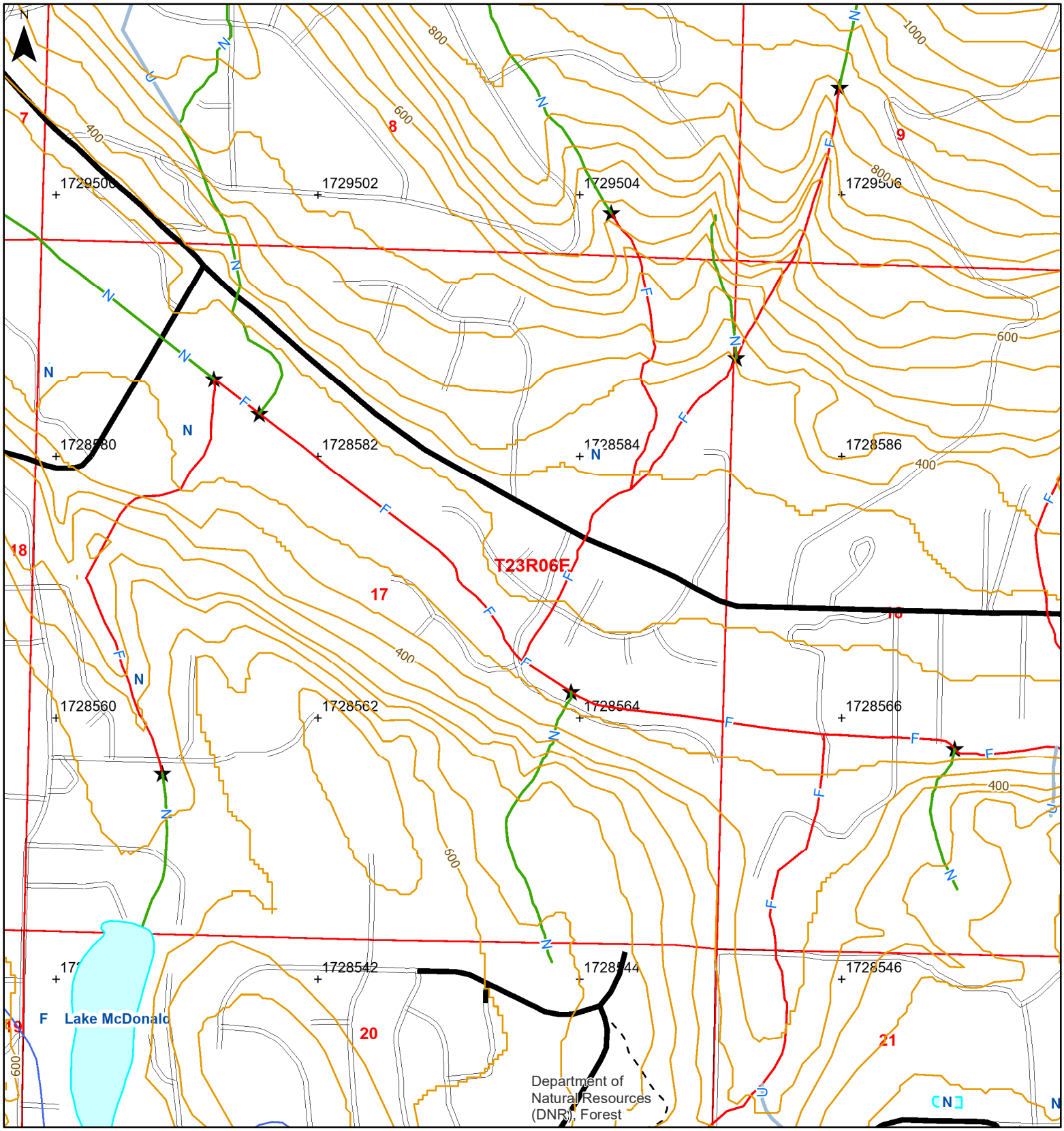
Date(s) aerial images were photographed: Jul 1, 2019—Jul 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgC	Alderwood gravelly sandy loam, 8 to 15 percent slopes	0.5	98.5%
Tu	Tukwila muck	0.0	1.5%
Totals for Area of Interest		**0.5**	**100.0%**

Forest Practices Activity Map - Application #_____



Map Symbols

- Harvest Boundary
- Road Construction
- Stream
- RMZ / WMZ Buffers
- Rock Pit
- Landing
- Waste Area
- Clumped WRTS/GRTS
- Existing Structure

Additional Information

Legal Description

S07 T23.0N R06.0E, S21 T23.0N R06.0E
S16 T23.0N R06.0E, S17 T23.0N R06.0E
S18 T23.0N R06.0E, S20 T23.0N R06.0E
S19 T23.0N R06.0E, S08 T23.0N R06.0E
S09 T23.0N R06.0E

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

0 0.25 Miles

Date: 1/7/2022 Time: 4:41:22 PM

U.S. Fish and Wildlife Service
National Wetlands Inventory

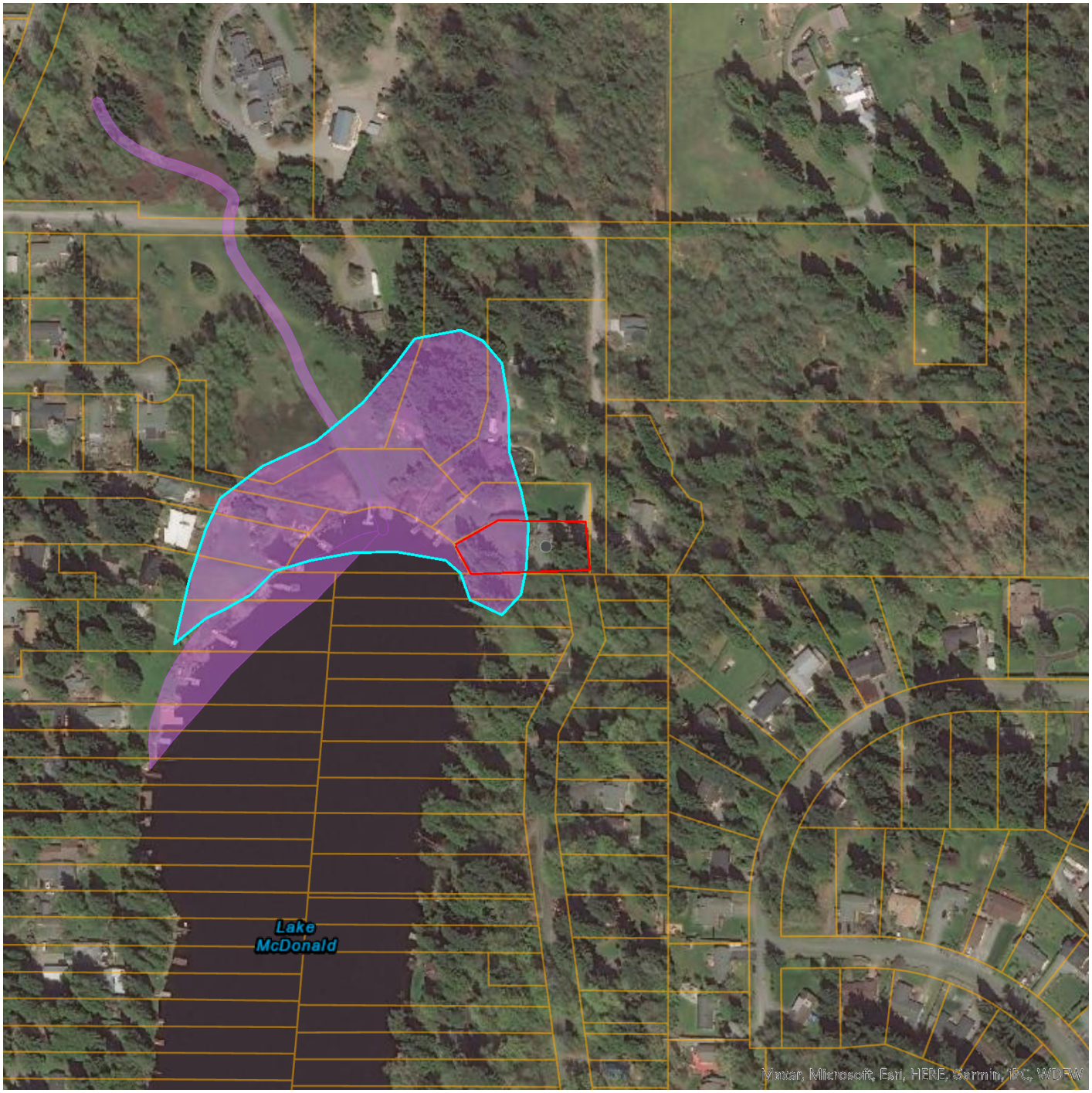
National Wetland Inventory

January 3, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Priority Habitats and Species on the Web



Report Date: 01/03/2022

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Wetlands	N/A	N/A	No

PHS Species/Habitats Details:

Wetlands	
Priority Area	Aquatic Habitat
Site Name	MAY CREEK WETLANDS.
Accuracy	1/4 mile (Quarter Section)
Notes	SCRUB-SHRUB, FORESTED, AND EMERGENT MARSH WETLANDS ALONG MAY CREEK AND IT'S TRIBUTARIES, INCLUDING LAKE BOREN.
Source Record	902508
Source Dataset	PHSREGION
Source Name	MULLER, TED
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Management Recommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: 14325 200th Ave. S.E. City/County: King County Sampling Date: 2022-01-07

Applicant/Owner: Alex & Alexa Hancock State: Washington Sampling Point: SL-1

Investigator(s): Jeffery Jones Section, Township, Range: 17, 23N, 6E

Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR/MLRA): A 1 Lat: 47.4736 Long: -122.0755 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Phalaris arundinacea	100	✔	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

SOIL

Sampling Point: SL-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 7	10YR 3/2	100					Sandy Loam	gravelly
7 - 18	10YR 4/4	100					Sandy Loam	gravelly
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No ✔	Depth (inches): ___
Water Table Present?	Yes ___	No ✔	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✔	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SL-1

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
	100 =Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size.

Woody Vine – All woody vines, regardless of height.

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: 14325 200th Ave. S.E. City/County: King County Sampling Date: 2025-01-07

Applicant/Owner: Alex & Alexa Hancock State: Washington Sampling Point: SL-2

Investigator(s): Jeffery Jones Section, Township, Range: 17, 23N, 6E

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR/MLRA): A 1 Lat: 47.4736 Long: -122.0755 Datum: WGS 84

Soil Map Unit Name: Tukwila muck NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ✔, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:
Bare soil at time of data collection, assumed positive based on offsite vegetation to north Currently seeded grasses, assume positive

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Gramineae	100	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
✔ 2 - Dominance Test is >50%
✔ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ____

Remarks:

SOIL

Sampling Point: SL-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2								Sand fill
2 - 18	10YR 4/1	100					Muck	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No ✔	Depth (inches): ___
Water Table Present?	Yes ___	No ✔	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ✔	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SL-2

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
	100 =Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size.

Woody Vine – All woody vines, regardless of height.

Remarks:

Wetland name or number LMD

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Lake McDonald (LMD) Date of site visit: 11/7/2022

Rated by Jeff Jones Trained by Ecology? ✓ Yes ___ No Date of training 12/14

HGM Class used for rating Depressional Wetland has multiple HGM classes? ✓ Y ___ N

NOTE: Form is not complete without the figures requested *(figures can be combined).*
Source of base aerial photo/map Imp

OVERALL WETLAND CATEGORY I (based on functions ___ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

✓ **Category I** – Total score = 23 - 27

___ **Category II** – Total score = 20 - 22

___ **Category III** – Total score = 16 - 19

___ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	(H) M L	H (M) L	
Landscape Potential	(H) M L	(H) M L	H (M) L	
Value	(H) M L	(H) M L	(H) M L	TOTAL
Score Based on Ratings	8	9	7	24

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number LMD

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	4
Map of the contributing basin	D 4.3, D 5.3	5
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	6
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	7
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	8

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number LMD

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

NO – go to 5 **YES** – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number LMD

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LMD

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 (2) Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. (Yes = 4) No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area (points = 1) Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	1
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland (points = 2) Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 — Add the points in the boxes above	9

Rating of Site Potential If score is: ___**12-16 = H** ✓ **6-11 = M** ___**0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? (Yes = 1) No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes = 1) No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? (Yes = 1) No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 (No = 0)	0
Total for D 2 — Add the points in the boxes above	3

Rating of Landscape Potential If score is: ✓ **3 or 4 = H** ___**1 or 2 = M** ___**0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? (Yes = 1) No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? (Yes = 1) No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality *(answer YES if there is a TMDL for the basin in which the unit is found)*? (Yes = 2) No = 0	2
Total for D 3 — Add the points in the boxes above	4

Rating of Value If score is: ✓ **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number LMD

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	2
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	7
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	3
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	

Total for D 4	Add the points in the boxes above	12

Rating of Site Potential If score is: ✓ **12-16 = H** ___ **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	3

Rating of Landscape Potential If score is: ✓ **3 = H** ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	2
• Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the sub-basin.	points = 1	
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: ✓ **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number LMD

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ✓ Aquatic bed
- ✓ Emergent
- ____ Scrub-shrub (areas where shrubs have > 30% cover)
- ✓ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points = 1
1 structure: points = 0

If the unit has a Forested class, check if:

- ✓ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

4

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ✓ Permanently flooded or inundated
- ✓ Seasonally flooded or inundated
- ✓ Occasionally flooded or inundated
- ____ Saturated only
- ____ Permanently flowing stream or river in, or adjacent to, the wetland
- ✓ Seasonally flowing stream in, or adjacent to, the wetland
- ____ **Lake Fringe wetland** **2 points**
- ____ **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 type present: points = 0

3

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

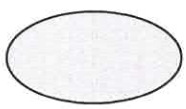
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species — points = 2
5 - 19 species — points = 1
< 5 species — points = 0

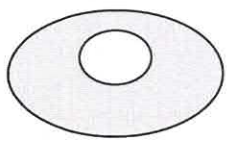
1

H 1.4. Interspersion of habitats

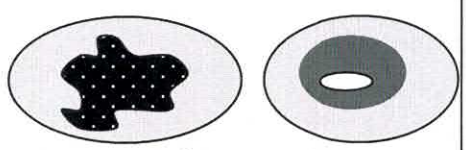
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

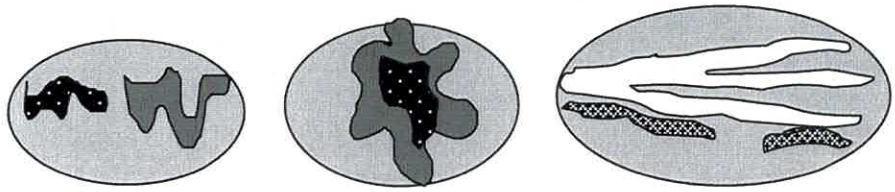


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



3

Wetland name or number LMD

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ✓ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ✓ Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ✓ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 — Add the points in the boxes above	14

Rating of Site Potential If score is: ___ **15-18 = H** ✓ **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). 25/2 12.5 *Calculate:* 0 % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]___ = ___% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = (1) < 10% of 1 km Polygon — points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. 30/2 = 15 *Calculate:* 25 % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]___ = 40 % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = (2) Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	2
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = (0)	0
Total for H 2 — Add the points in the boxes above	3

Rating of Landscape Potential If score is: ___ **4-6 = H** ✓ **1-3 = M** ___ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = (2) ✓ It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If score is: ✓ **2 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number LMD

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

✓ — **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

✓ — **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

✓ — **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LMD

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** (No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** (No)– Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** (No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** (No)– Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** (No)= **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number LMD

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** (No) = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** (No) = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** (No) = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number LMD

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Figure 1 - Cowardin Classes

N

King County

Date: 1/7/2022 Notes:

Figure 2 - Hydroperiods

N

King County

Date: 1/7/2022 Notes:

Figure 3 - Outlet

Date: 1/7/2022 Notes:

N

King County

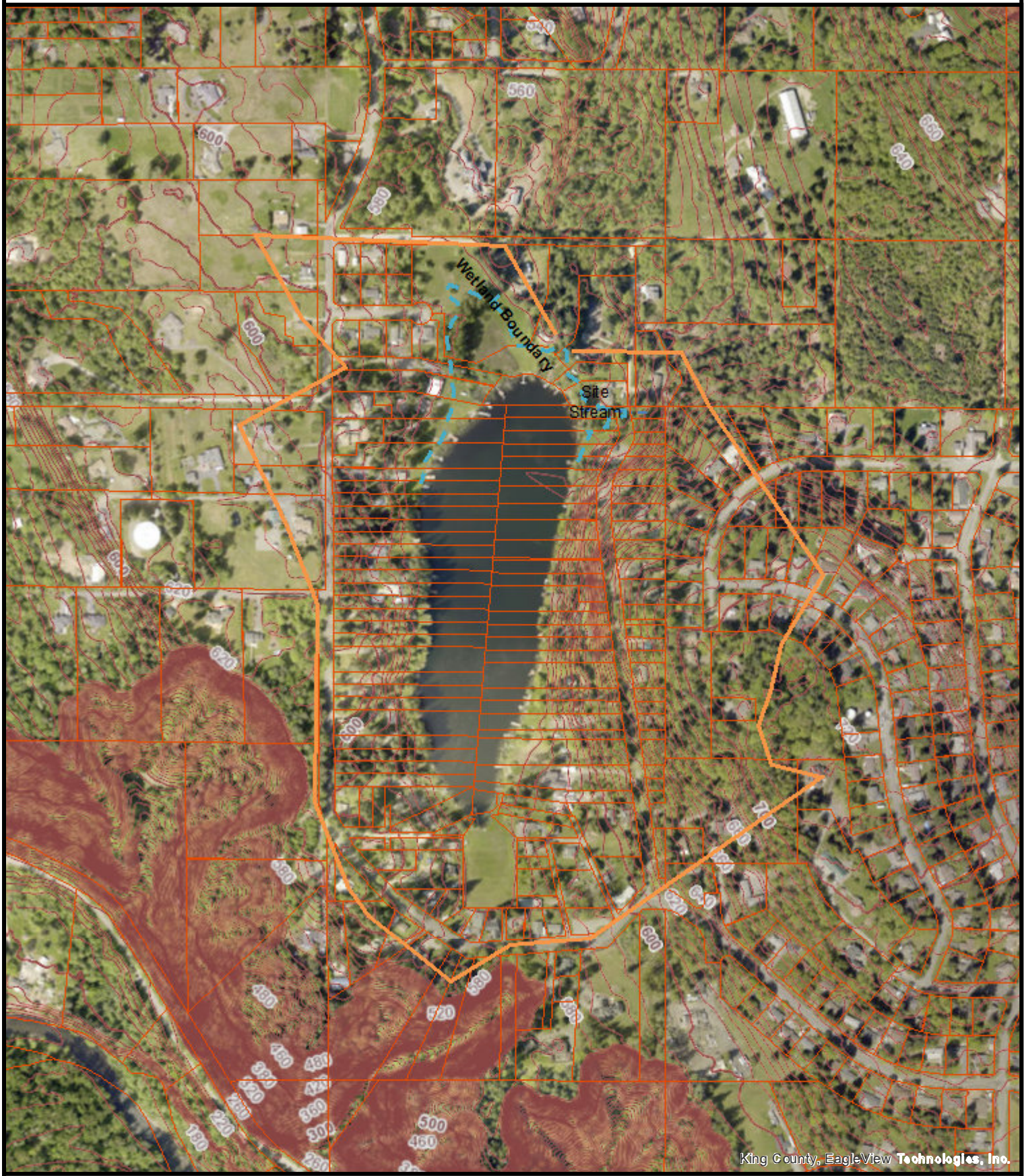
Figure 4 - 150' Boundary

Date: 1/7/2022 Notes:

N

King County

Figure 5 - Contributing Basin



N

King County

Date: 1/7/2022 Notes:

Figure 6 - 1 KM Polygon

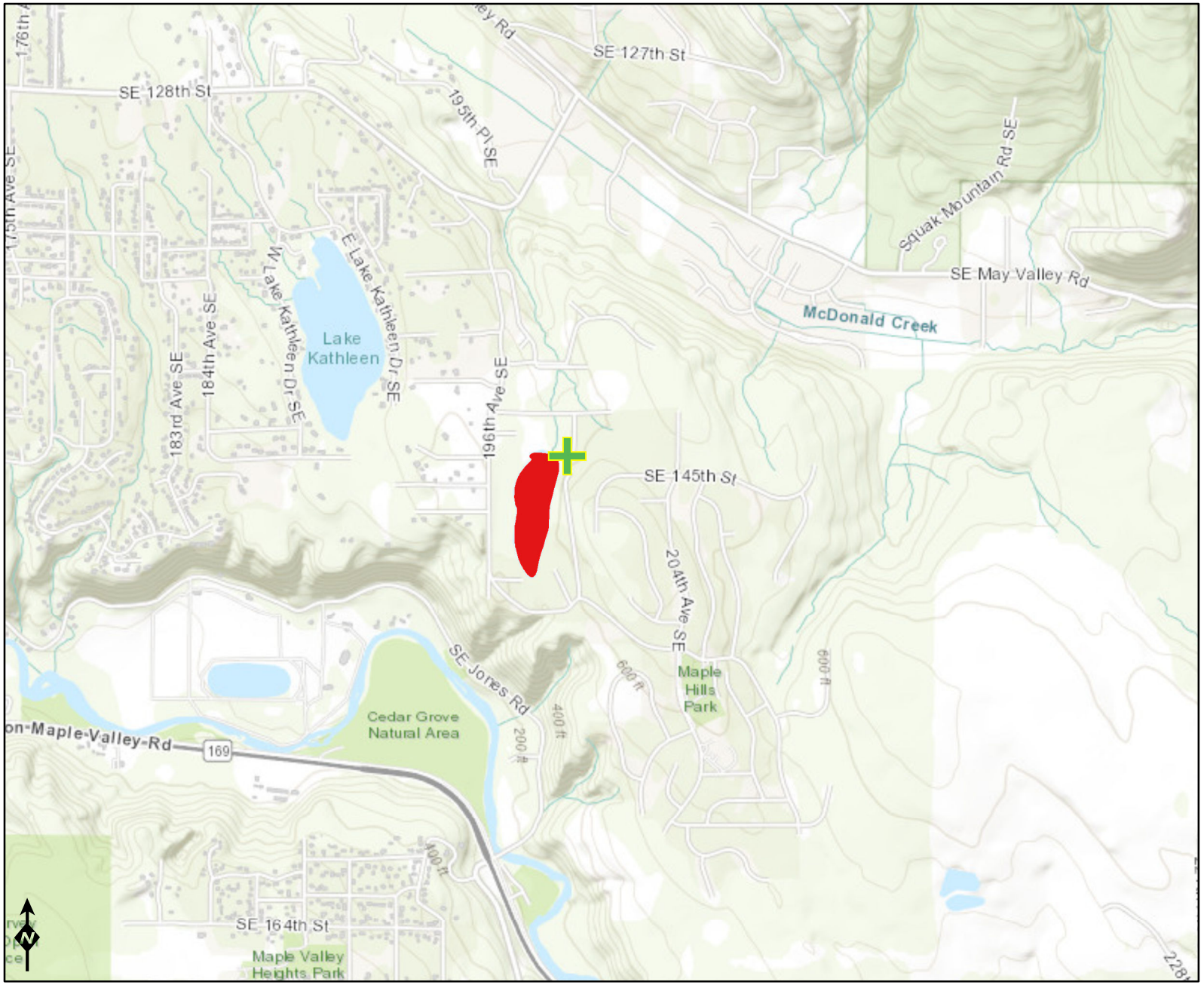
N

King County

Date: 1/7/2022 Notes:

January 7, 2022

Figure 7 - 303d Waters



Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles
0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

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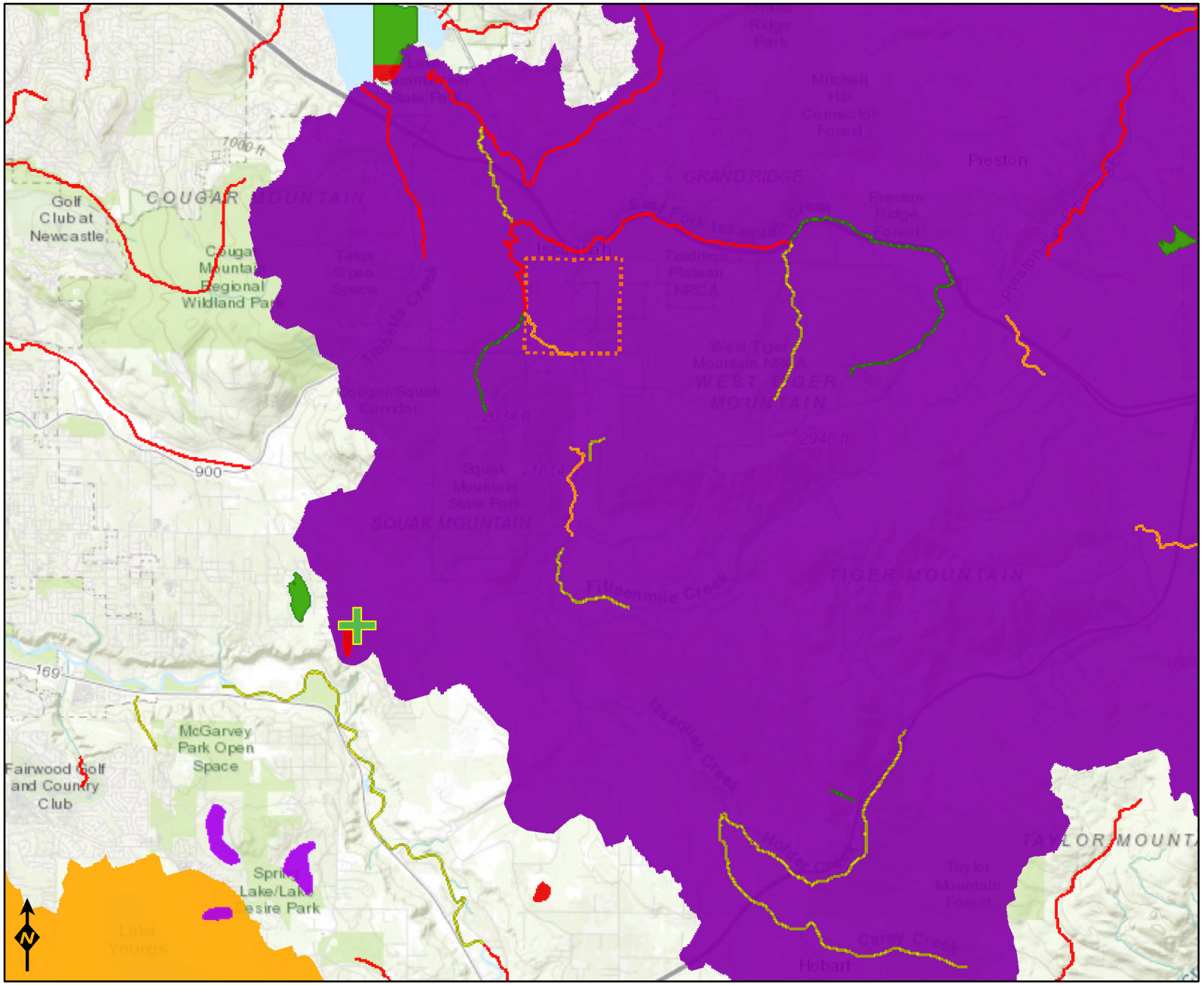
State of Washington

January 7, 2022

Figure 8 - TDML's



Assessed Water/Sediment

Water

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

WQ Improvement Projects

- Approved
- In Development

Miles
0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

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