Debbie Beadle

From: David Gee <dgee@gsblaw.com>
Sent: Thursday, February 21, 2013 7:30 PM
To: Debbie Beadle
Cc: David Gee; meggee@comcast.net
Subject: FW: Please add to Public Record for ECA Review the Attached Wetland Rating Form -
Attachments: Wetland Rating Form Gee Proporty.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Debbie—We were going through the exhibits posted at the ECA site, and noticed that this report was not posted as intended. I looked through Megan's email and discovered that although it was referenced and promised to the Planning Commission, it apparently did not get attached. Would you please do so at this time. Thanks.

Unless expressly stated otherwise, any federal tax advice contained in this communication (including attachments) is not intended to be used, and cannot be used, for the purpose of avoiding federal tax penalties.

This e-mail is for the sole use of the intended recipient(s). It contains information that is confidential and/or legally privileged. If you believe that it has been sent to you in error, please notify the sender by reply e-mail and delete the message. Any disclosure, copying, distribution or use of this information by someone other than the intended recipient is prohibited.

DAVID W. GEE

Owner | Tel: 206.464.3939 ext 1351 | Mobile: 425.760.9312 | Fax: 206.464.0125 | dgee@gsblaw.com

GARVEY SCHUBERT BARER | 18th Floor | 1191 Second Avenue | Seattle, WA 98101 | ▶ GSBLaw.com

---

From: "Debbie Beadle" <dbeadle@ci.sammamish.wa.us>
To: meggee@comcast.net
Sent: Monday, October 22, 2012 8:33:18 AM
Subject: RE: Please add to Public Record for ECA Review the Attached Wetland Rating Form -

Can you add the attachment please.

Thank you

EXHIBIT NO. 281

Debbie Beadle

Administrative Assistant to the Community Development Director/Deputy Director

Community Development Department

City of Sammamish

(T) 425-295-0525

(F) 425-295-0600

From: meggee@comcast.net [mailto:meggee@comcast.net]
Sent: Friday, October 19, 2012 9:20 PM
To: Debbie Beadle
Cc: David Gee; Megan gee
Subject: Please add to Public Record for ECA Review the Attached Wetland Rating Form -

discussed by the Planning Commission last night. Note that this is the one Environ prepared for our Beaver Lake property, but it is also illustrative of the point made by Staff regarding the existing requirement in the form to assess connection to a wetland mosaic.

Please be aware that email communication with Council Members or City staff is a public record and is subject to disclosure upon request.

ENVIRON

RECEIVED
MAY 20 2009
City of Sammamish

Letter of Transmittal

To:	Ms. Kathy Curry City of Sammamish 801 228th Ave SE Sammamish, WA 98075	**From:**	Scott Luchessa
Project:	Gee Wetland Delineation Report Errata (BLD 2008-00825)	**Date:**	May 21, 2009
Contents:	**3 copies**	**cc:**	File

☑ As requested ☑ For Review ☐ Please Comment ☐ Please Reply ☑ For Your Use

Kathy:

Attached are 3 copies each of replacement pages 1 and 14 for Appendix D, the wetland rating form. A preliminary estimate of the area of the wetland based on my initial reconnaissance was included in the version sent to the City on May 19, 2009. The attached estimate and comments on p. 14 reflect the conditions within the delineated wetland boundaries. Please replace the pages in the two hard copies delivered to Amy Jeffrey with these ones.

Thanks,

Scott

605 First Ave, Suite 300, Seattle, WA 98104 Tel: 206.336.1654 Fax: 206.336.1651

www.environcorp.com

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland A Date of site visit: 4/9/09

Rated by Scott Luchessa Trained by Ecology? Yes ✓ No___ Date of training May 2003

SEC: 2 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes___ No ✓

Map of wetland unit: Figure ____ Estimated size 3,800 sf

RECEIVED
MAY 20 2009
City of Sammamish

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III ✓ IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	28
Score for Hydrologic Functions	7
Score for Habitat Functions	12
TOTAL score for Functions	47

Category based on SPECIAL CHARACTERISTICS of wetland

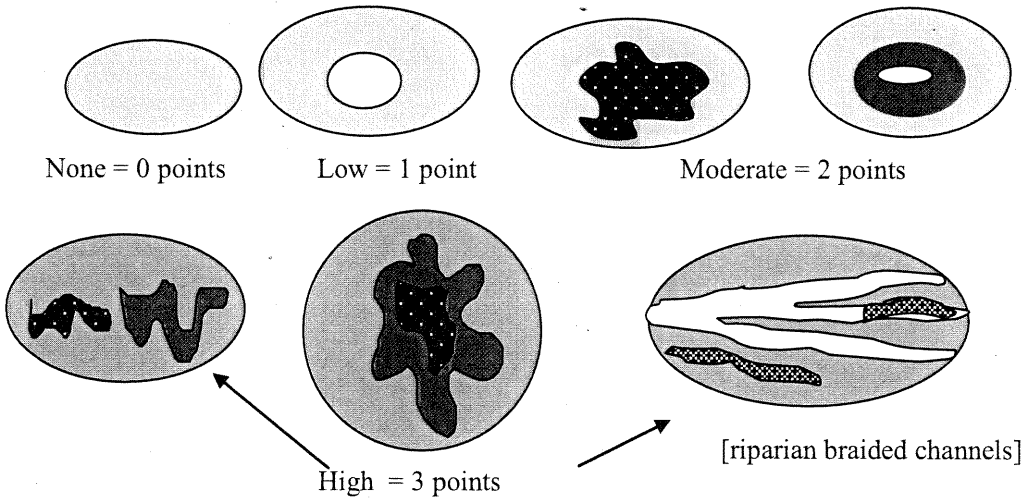
I___ II___ Does not Apply ✓

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	✓
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	✓	Check if unit has multiple HGM classes present	

Wetland name or number _____

H 1.4. Interspersion of habitats ***(see p. 76)*** Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  None = 0 points Low = 1 point Moderate = 2 points High = 3 points [riparian braided channels] NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes	**Figure ___** 0
H 1.5. Special Habitat Features: ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ✓ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ____Standing snags (diameter at the bottom > 4 inches) in the wetland ____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	4

Comments

Portions of the depression appear to be seasonally flooded; other portions are only saturated. At least some of this appears to be from stormwater runoff from Beaver Lake Dr SE and possibly gravel driveways. There is some emergent and scrub-shrub vegetation but these are beneath the forest canopy; so, there is only one vegetation class (forested).
There are a couple of downed logs in the wetland;
Many of the western red cedar trees in the wetland are quite large;
There is some English holly but it covers <25% of the estimated size of the wetland.

Gee Properties
Critical Areas Study

FILE COPY

Prepared for:
David and Megan Gee
Sammamish, Washington

CORRECTIONS

Prepared by:
Scott Luchessa
ENVIRON International Corporation
Seattle, Washington

Date:
May 2009

RECEIVED BY PERMIT CENTER

MAY 19 2009

CITY OF SAMMAMISH

Project Number:
03-22736

ENVIRON

R08-00825

Gee Properties
Critical Areas Study

Prepared for:
David and Megan Gee
Sammamish, Washington

Prepared by:
Scott Luchessa

ENVIRON International Corporation
Seattle, Washington

Date:
May 2009

Project Number:
03-22736

Contents

		Page
1	Introduction	1
1.1	Site Topography and History	1
2	Methods	3
3	Wetland Determination	4
3.1	Mature Evergreen Forest (Upland)	4
3.2	Mature Evergreen Forest (Wetland)	5
3.2.1	Wetland Classification and Rating	7
3.2.2	Wetland Functions	7
3.3	Broad-leaved Deciduous Forest (Upland)	9
4	Regulatory Constraints	10
4.1	Application of Sammamish Municipal Code	10
5	Conclusions	11
6	References	12

List of Tables

Table 1. Summary of sample plot data and wetland determinations, classifications, ratings and buffer requirements

Table 2. Summary of estimated wetland functions, rating scores, and rating

List of Figures

Figure 1. Site vicinity map.

Figure 2. Approximate delineated wetland boundaries

List of Appendices

Appendix A – NRCS-mapped Soils in the Vicinity of the Site

Appendix B – Wetland Delineation Data Forms

Appendix C – Site Photographs

Appendix D – Wetland Rating Forms

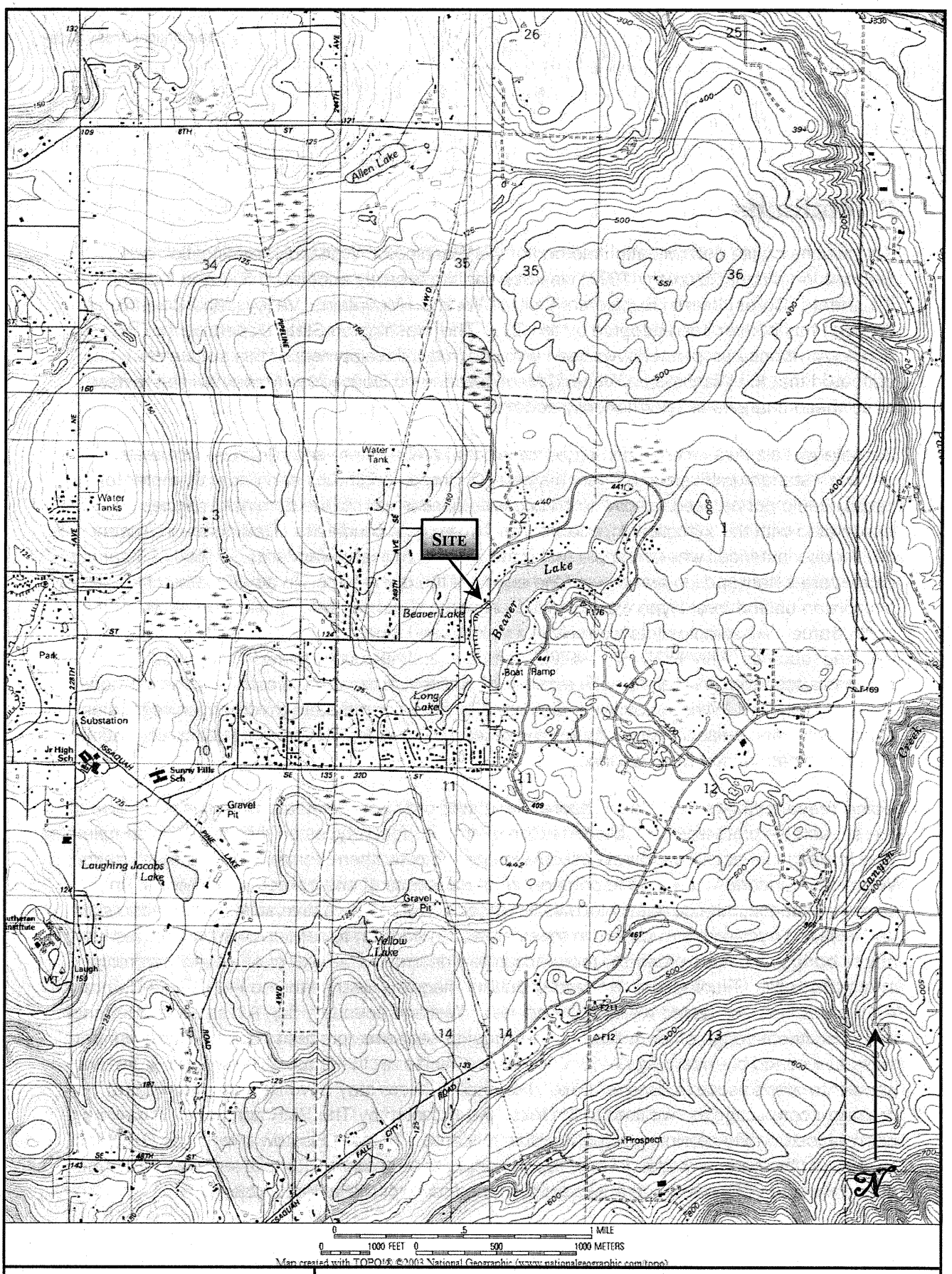
1 Introduction

This critical areas report has been prepared to satisfy the City of Sammamish Critical Areas Study (SMC 21A.50) report requirements and is being submitted as part of an application for a residential development permit on properties owned by David and Megan Gee. The two subject properties are King County Tax parcels 0224069024 and 0224069025. Both parcels are located on the west shore of Beaver Lake within the City of Sammamish (Figure 1). An existing single family residence and stand along garage are found at 2112 W Beaver lake Drive SE. The other parcel to the south is undeveloped. The current pending application is for modifying the existing single family residence on the more northerly of the two parcels.

Several previous studies have been conducted by others, including the SNR Company, The Watershed Company, and ESA Adolfson. ENVIRON completed a third party review of these studies before conducting an initial site reconnaissance on April 9, 2009. Following the initial reconnaissance, ENVIRON concluded that there is an existing closed depressional wetland on the southern parcel and a subsequent wetland delineation was completed on May 4 to identify the wetland boundaries. The methods and findings of the wetland delineation are provided in this report. In addition, the ordinary high water mark (OHWM) was flagged based on observations made on April 9 and May 4 using the City's definition of OHWM (SMC 21A.15.825).

1.1 Site Topography and History

Most of the site is covered by evergreen upland forest. Portions of the site have been cleared and disturbed as part of the construction of the existing driveway and single family residence. The owners have indicated that there is an existing septic system and there is a drain line within a depression located in approximately the center of the more southern parcel. Topography is otherwise more or less hummocky and higher on both the east and west ends of the properties with elevations ranging from a low of about 414 feet at the OHWM of the lake to approximately 425 feet on higher ground near W Beaver Lake Rd and in the vicinity of the existing house. Properties to both the north and south also are developed as is much of the shoreline around Beaver Lake. Some fills are evident in and around the depression where an isolated, closed depressional wetland is located. Along the northern boundary of the depression on the south parcel, there are some mounds that may have been part of an ATV course that are up to about 6 feet in height. Fills of gravelly material associated with what appears to be a 6-inch ABS drain line that are about a foot thick run along portions of the delineated wetland boundary. Very gravelly sandy loam fill material also appears to be present on top of native soils along the south edge of the depression at the southern parcel property boundary where a deciduous forest community composed of small diameter red alder (*Alnus rubra*). Red alder and other associated species that in this area that are often the first to colonize disturbed areas appear to be indicative of a relatively recent disturbance.



ENVIRON

Figure 1. Location of the Gee site in Sammamish, Washington.

2 Methods

The routine onsite determination method of the Washington Wetlands Identification and Delineation Manual (Ecology 1997) was used as the recently adopted U.S. Army Corps of Engineers (Corps) Interim Supplement for the Western Mountains, Valleys, and Coast Region (2008a) has not yet been adopted by the City. The Washington State Department of Ecology (Ecology), whose personnel have been involved in the development of this supplement, has indicated that the Washington Wetland Identification and Delineation Manual will be revised once these changes are permanently adopted.

Sample plot size was modified in some transitional areas where sampling was completed because standard plot sizes (30 feet diameter for trees and shrubs and 5 feet diameter for herbs) could not be used to provide an accurate assessment of the dominant species associated with the topographic, edaphic, and hydrologic conditions. Data forms in Appendix B note those instances where sample plot sizes differ from these standards. A total of 6 sample plots were established in and around the edges of the depression. In addition, the characteristic evergreen upland forest type was described around a backhoe test pit near the center of the north parcel. All sample plots were clearly marked and labeled in the field with blue surveyor flagging, such as "ENVIRON SP-1 4/9/09" and so on. It was determined that normal circumstances were present on site and use of problem areas or atypical situations methods were not required. Where positive indicators of all three parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) were present, the sample plot and vegetation community type were determined to be wetland.

Using these methods, one closed depressional wetlands was delineated (Wetland A). Five of the six sample plots were established in the evergreen forest types on the site. One sample plot was located in a deciduous forest association near the southern boundary of the south parcel. Wetland boundaries were based primarily on the absence of one or more parameters. In several instances, the boundary follows fill placed on top of the native soils. Both hydric soils and wetland hydrology are absent in these areas. In addition to sample plots, numerous hand auger borings also were made to more accurately determine the extent of wetland hydrology and hydric soils. Fluorescent "wetland boundary" flagging clearly labeled A-1, A-2, A-3, through A-13 marks the delineated wetland boundaries. Wetland boundary flag A-1 is tied to the fence at the southeast edge of the wetland. The flagging sequence proceeds counterclockwise and ends at wetland boundary flag A-13, which is also tied to at the fence. The wetland does not appear to extend south to Beaver Lake. Historically, there may have been an intermittent drainage connecting the wetland to the lake. As indicated by The SNR company, fill may have been placed on the adjoining property within this area. This area is now lawn. The OHWM of the lake at the southern edge of the property appears to be about 1.5 to 2 feet lower than the ground surface of the wetland at the southern boundary of the subject property.

Wetland vegetation classes were classified according to the U.S. Fish and Wildlife Service's classification system (Cowardin et al. 1979). As required by SMC, the wetland was rated using

the western Washington wetland rating system (Hruby 2004a). This rating form was recently updated by Ecology (Hruby 2008) to reflect changes in the Washington Department of Fish and Wildlife's priority habitat and species definitions, which apply to habitat question H2.3. Functions were estimated based on the completed rating forms.

The OHWM of the lake was flagged using clearly labeled blue surveyors flagging. Water level at the time of the April 9 site reconnaissance appeared to coincide with the OHWM. This level generally coincides with the western extent of emergent wetland plants that form a lacustrine fringe wetland at the lake shore. Emergent vegetation does not generally extend east of the OHWM. The flagging sequence OHWM-1 through OHWM-13 marks the OHWM along the subject properties. As described in the ESA Adolfson letter report, the OHWM is clearly identifiable by shoreline erosion, abrupt topographic breaks, and vegetation changes. Photographs in Appendix C show the wetland and upland plant associations, delineated wetland boundary, and OHWM.

3 Wetland Determination

Most of the site is forested. There are two forested plant communities on the site. Mature evergreen forest and a small patch of immature deciduous forest. Evergreen forest is characterized by mesic (upland) and more hydric (wet) type. As stated above, an immature deciduous forest occurs adjacent to the southern boundary of the south parcel in an area that likely appears to have been filled in the not too distant past. A summary of the dominant species, soils, and hydrologic conditions observed within each of these types are summarized in the following sections.

3.1 Mature Evergreen Forest (Upland)

Five sample plots (Backhoe TP SL-12, SP-1, SP-4, and SP-5) were established in the mature evergreen forest type that covers most of the site. Dominant trees in this forest type include western red cedar (*Thuja plicata*) and Douglas fir (*Pseudotsuga menziesii*). These generally form a more or less closed canopy. Across much of the site, the understory is very open and park like with rather sparse vegetation, including sword fern (*Polystichum munitum*) and dull Oregon grape (*Mahonia nervosa*). Closer to Beaver lake, salal (*Gaultheria shallon*) becomes a dominant plant in the understory and forms a very dense thicket, particularly on the south parcel. Other dominant plans in these sample plots included red huckleberry (*Vaccinium parvifolium*) and English holly (*Ilex aquifolium*). In addition, lady fern (*Athyrium filix-femina*) was a dominant in one of these plots. Most of the dominant plants in these plots have FACU and UPL wetland indicator statuses and this forest type is not considered hydrophytic.

Not surprisingly, soils that support this non-hydrophytic vegetation are non-hydric. Soils that support this forest type were confirmed to be Everett gravelly sandy loam, a non-hydric soil. The entire site is mapped by the NRCS as this soil type. The open test pit (SL-12) provides a good visual example of this series containing a relatively thin surface horizon of darker (10YR 2/2) gravelly sandy underlain by brighter gravelly sandy loam material (see Photograph 1 in

Appendix C). Most of the ENVIRON test pits were dug in areas that were close to the wetland boundary. These contained soils somewhat transitional between the typical pedon of the Everett series and hydric soils found in the wetland. SP-1 had hydric soils consisting of more than 16 inches of black (10YR 2/1) mucky silt loam. Soils In both SP-4 and SP-5 were non-hydric. In the test pit at SP-4, soils consisted of a three inch thick layer of duff beneath which was a surface horizon of dark grayish brown (10YR 3/2) gravelly sandy loam. The subsurface horizon in SP-4 was a brown (10YR 5/3) very gravelly sandy loam. This soil is similar to the Everett series soil. Soils in the SP-5 test pit consisted of a 5-inch thick layer of black (10YR 2/1) mucky silt loam over more than 7 inches of dark yellowish brown (10YR 4/4) very gravelly sandy loam. These are also non-hydric soils.

Hydrologic characteristics within the sample plots were similar to patterns of the observed soil characteristics. There were no positive indicators of wetland hydrology in the area of the SL-12 backhoe test pit or in SP-4. Saturated soils and shallow groundwater, positive indicators of wetland hydrology, were observed at the edge of the depression where SP-1 was established. Though shallow groundwater was observed at a depth of 12 inches in the very gravelly sandy loam subsurface horizon in SP-5, it was concluded that it was unlikely that saturation to the surface likely persists for sufficient duration to meet the wetland hydrology criterion.

Because positive indicators of one or more wetland parameters was absent in all sample plots, all were considered to be upland. There were no positive indicators of any wetland parameters in the SL-12 test pit area, SP-4 or SP-5. Hydrophytic vegetation was absent in SP-1. A summary of the sample plot data and wetland determinations is provided in Table 1.

3.2 Mature Evergreen Forest (Wetland)

Two sample plots were established in the wetland (SP-2 and SP-3). SP-2 is near the wetland boundary on ground that is about a half foot above the bottom of the depression. Dominant plants in these two sample plots includes western red cedar, Oregon ash (*Fraxinus latifolia*), and slough sedge (*Carex obnupta*). In both sample plots, all of the dominant plants have FAC, FACW, and/or OBL wetland indicator statuses and the vegetation is hydrophytic.

Soil characteristics in the two sample plots reflect the differences in topography. Soils in SP-2 contained a relatively thick surface horizon of very dark gray (10YR 3/1) gravelly sandy loam over more than 7 inches of very compact light olive brown (2.5Y 5/4) gravelly sandy loam. The accumulation of organic matter in the surface horizon and an apparent aquic moisture regime were considered positive indicators of hydric soil. Soils in SP-3 included a 14-inch thick surface horizon of black (10YR 2/1). A similar compacted subsurface horizon with a mixed matrix of dark grayish brown (10YR 4/2) light olive brown (2.5Y 5/4) gravelly sandy loam. This subsurface horizon appeared to be glacial till. Organic matter accumulation (muck) and a histic epipedon are positive indicators of hydric soil.

Table 1. Summary of sample plot data and wetland determinations, classifications, ratings and buffer requirements.

Sample Plot	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Wetland Determination	Wetland Rating/Buffer
Backhoe TP SL-12	No – 67% FACU and UPL	No indicators; Confirmed mapped soil	No indicators effectively drained	Upland evergreen forest	
1	No – 75% FACU and UPL	Yes – muck; Histisol, histic epipedon	Yes – surface saturation, shallow groundwater	Upland evergreen forest	
2	Yes – 100% FAC, FACW, and OBL	Yes – aquic moisture regime	Yes – drainage patterns; shallow groundwater	Wetland A; closed depression HGM; Forested wetland (PFO4C)	Category III; 50-ft buffer
3	Yes – 100% FAC and FAC+	Yes – muck; Histisol, histic epipedon	Yes – surface saturation, shallow groundwater	Wetland A; closed depression HGM; Forested wetland (PFO4C)	Category III; 50-ft buffer
4	No – 75% FACU and UPL	No indicators; Confirmed mapped soil	No indicators	Upland evergreen forest	
5	No – 60% FACU and UPL	No – very gravelly sandy loam	No – soils not likely saturated to surface for sufficient duration to meet criterion	Upland evergreen forest	
6	Yes – 50% FAC and FACW (marginal)	No – very gravelly sandy loam	No – soils not likely saturated to surface for sufficient duration to meet criterion	Upland deciduous forest	

Hydric soil and wetland hydrology indicators follow the nomenclature in the interim supplement (USACE 2008a). Rating and buffer requirements follow SMC 21A.50. Wetland determinations and ratings are preliminary and subject to verification by the City of Sammamish and Ecology. The wetland does not appear to fall within the jurisdiction of the Corps.

Wetland hydrology also was apparent in both sample plots. Water appears to be seasonally perched on top of the compacted subsurface horizon for sufficient duration to meet the hydrology criterion in SP-2. Shallow groundwater and saturated soils were observed in SP-3. Surface saturation and shallow groundwater are positive indicators of wetland hydrology.

Positive indicators of all three wetland parameters are present in both sample plots. Therefore, SP-2 and SP-3 are wetland and the community is considered an evergreen forested wetland. Photographs 2, 7, and 13 show this wetland. The estimated size of the delineated wetland is approximately 3,800 square feet (sq. ft.).

3.2.1 Wetland Classification and Rating

The U.S. Fish and Wildlife classification (Cowardin et al. 1979) for this closed depressional wetland hydrogeomorphic type is PFO4C. Using the western Washington rating system (Hruby 2004), this wetland is rated Category III. Although some of the trees within the wetland meet the definition of mature growth as defined by the Washington Department of Fish and Widlife, the wetland is much less than an acre. So, it does not meet the definition of a mature forested wetland as described in the rating form. Approximate boundaries of this wetland and sample plot locations are shown in Figure 2.

3.2.2 Wetland Functions

Table 2 summarizes the estimated functions from the completed wetland rating form (Appendix D). It must be noted that the rating and the estimated functions denoted by the related scores appear to overestimate the potential function and is thought to be unreliable. Hruby (2004b) indicates in the annotated version of the rating system that the rating system for wetlands smaller than 4,356 sq. ft. (0.1 acre) "will not work well." I concur with Mr. Hruby's position to a certain extent in that water quality functions are independent of the size of the wetland in so far as a unit of soil in a small wetland can provide the same potential treatment functions as in a large wetland. However, a small wetland has fewer units of soil and thus a much more limited capacity to provide water quality treatment (i.e., total volume). Likewise small wetlands can provide breeding habitat for amphibians provided the right conditions exist. They do not appear to exist in this case. Though a Pacific chorus frog (*Pseudacris regilla*) was captured in the slough sedge within the wetland, the entire stand of this sedge appears to be outside of the lowest lying portion of the depressional wetland that is seasonally inundated and there are no egg attachment sites within the seasonally inundated area. No tadpoles were observed in the shallow inundation within the wetland. For small wetlands, such as this, the rating system appears to overestimate the water quality functions.

Wetland A had total scores of 28, 7, and 12, respectively for water quality, hydrologic, and wildlife habitat functions. The wetland has the potential and opportunity to provide all of these functions. However, the physical, chemical, and biological structure, historical alterations, and location of Wetland A appear to limit hydrologic and wildlife habitat functions in particular. In addition, although the wetland clearly receives some stormwater runoff from existing gravel

roads and possibly a small portion of W Beaver Lake Road, the amount of pollutants delivered to the wetland from surface water runoff and atmospheric deposition appears to be small because the contributing impervious surface area is small. This combined with the fact that the size of the wetland is small, limits the potential amount of pollutants that it receives and thereby its treatment potential. Nonetheless, according to the rating form, the water quality function appears to be relatively high (28 of 32 points). Hydrologic functions are likewise similarly altered by historical alterations and appear to be moderately low (7 of 32 points), which makes sense given the topographic position in the landscape just upgradient of Beaver Lake. Though there are some large western red cedar trees and a three mature Oregon ash trees within the wetland, the structural complexity of habitat is low. Connectivity to other undisturbed habitats is poor because of habitat fragmentation from existing residential develop, and there are high levels of human activity. These factors would limit habitat use to those animals tolerant of high levels of human activity and that are more generalists. There also are some invasive species in the wetland and buffer, including English holly, Himalayan blackberry, and reed canarygrass. Wildlife habitat function appears to be likewise relatively low (12 of 36 points).

Table 2. Summary of estimated wetland functions, rating scores, and ratings.

Wetland	Function	Score[1]	Rating[2]	Comments
A	Water Quality	28		Closed depression but receives little pollutant loading
	Hydrology	7		Hydrologic functions appear limited by historical alterations
	Wildlife Habitat	12		Lack of structural complexity and diversity, high level of human activity, and poor connections to other undisturbed habitats
	Total	**47**	**III**	

[1] Depressional HGM types have maximum potential scores of 32, 32, and 36 respectively for water quality, hydrologic, and habitat functions, respectively.

[2] Overall rating for the combined scores of the wetland using the most recent version of the western Washington Rating System (Hruby 2004). The system is expected not to provide accurate ratings for wetlands smaller than 0.1 acre (see text for a more detailed explanation).

3.3 Broad-leaved Deciduous Forest (Upland)

As noted above, one sample plot (SP-6) was established in this area, which abuts the south end of the closed depressional wetland. Dominant plants in the sample plot were red alder (*Alnus*

rubra), Himalayan blackberry (*Rubus armeniacus*), bracken fern (*Pteridium aquilinum*), and creeping buttercup (*Ranunculus repens*). Half of the dominant plants have FAC and FACW wetland indicator statuses and the vegetation was considered to be marginally hydrophytic. More so, the vegetation appears to be indicative of disturbance from past fence building and other residential development.

Soils likewise reflect this past disturbance. The surface horizon consisted of 7 inches of very dark brown (10YR 2/2) gravelly sandy loam. Below this was a B horizon of compact light olive brown (2.5Y 5/3-5/4) gravelly sandy loam with some redox concentrations mostly at the interface between the two horizons. Dark yellowish brown (10YR 5/6) redox concentrations were common, medium to coarse, and distinct in the top two inches of this horizon. Below this from 14 to 16 inches was a very dark gray (10YR 3/1) sandy loam with charcoal fragments. Fragments of glass also were found in the soils within this area. Soils were clearly disturbed and possibly included fill. Positive indicators of hydric soil were lacking.

Evidence of hydrology was likewise lacking. The surface elevation is about 1.25 feet higher than the nearby ground surface in the adjacent depression where Wetland A is located. These relatively coarse soils appear to be relatively well drained and are unlikely to be saturated to the surface for sufficient duration to meet the hydrology criterion. Consequently, it was concluded that the wetland hydrology criterion was not met.

Only one of the three parameters was met and this was marginal (hydrophytic vegetation). As noted above, the vegetation is more likely indicative of past disturbance than hydrologic and edaphic conditions. Because indicators of hydric soils and wetland hydrology are not present, this sample plot and community were determined to be upland deciduous forest. Photographs 8 and 9 in Appendix C show this cover type.

4 Regulatory Constraints

Potential development of the south parcel is constrained by the presence of the existing wetland. This wetland would be regulated by the City's Critical Areas Regulations (SMC 21A.50) and by Ecology under an administrative order. The delineated wetlands dos not appear to be jurisdictional wetlands under the federal Clean Water Act in light of the 2006 U.S. Supreme Court decisions on Rapanos v. U.S (126 S. Ct. 2208) and Carabell v. U.S., which are collectively referred to as Rapanos. In that split decision, Justice Kennedy established a "significant nexus" test. There is no apparent significant nexus. There is no surface water connection between Wetland A and Beaver Lake, and it does not appear to exert much influence on the biological integrity of Beaver Lake. **This is a preliminary jurisdictional determination subject to verification by the Corps. In addition, the delineated wetland boundaries are also subject to verification.**

4.1 Application of Sammamish Municipal Code

A Category III wetland with a habitat score of less than 20 typically requires a standard buffer of 50 feet in SMC 21A.50.290(1) plus an additional 15 foot building setback (SMC 21A.50.210)

beyond the buffer leaves an area near the road potentially large enough for building a house. A preliminary estimate of the useable area from what appears to be the edge of pavement or perhaps the right of way for W Beaver Lake Drive is about 12,000 sq. ft. However, there is no sewage service available in this area and there appears to be insufficient room for a house and a septic drainfield (see Figure 2). There is no sewer service or plans to extend sewer service to this area at this time. In addition to the wetland buffer and building setback, SMC 21A.50.351(4) requires a 50-foot setback for new residences from the OHWM of the Beaver Lake. SMC does contain provisions for buffer reduction and buffer averaging but it does not appear that these can be used to advantage given the lot size. Thus, application of the code would appear to deny all reasonable economic use of the southern parcel.

ESA Adolfson indicated that there was a narrow lake fringe wetland. There are some emergent and scrub-shrub wetland plants including yellow-flag iris (*Iris pseudacorus*), slough sedge, and spiraea (*Spiraea douglasii*) along the shoreline extending from the northeast corner to perhaps 75 feet south of the existing dock. ENVIRON concurs with this assessment. However, as noted above, this lake fringe wetland appears to be entirely waterward of the OHWM. Per SMC 21A.50.290(2), the setback standard for lakes and ponds specified above would be applicable. Photographs 10, 11, and 12 in Appendix C show the OHWM and this narrow fringing wetland associated with Beaver Lake.

5 Conclusions

- There is one, small (<4,356 sq. ft.), closed depressional Category III wetland on the south parcel;
- As shown in Figure 2, the standard 50-foot buffer for this wetland is almost entirely on the more southerly parcel and would not constrain the proposed modification to the existing single family residence;
- The existing narrow fringing wetlands are entirely waterward of the OHWM; thus they are contained wholly within the 50-foot setback for the lake from the OHWM (SMC 21A.50.290(2).
- These findings are subject to verification by the City of Sammamish.

6 References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. US Fish and Wildlife Service, Office of Biological Services, Publication FWS/OBS-79/31, Washington, DC.

Ecology (see Washington State Department of Ecology)

Hruby, Tom. Personal Communication. October 16, 2008 email from Senior Ecologist, Washington State Department of Ecology, Lacey, WA.

Hruby, T. 2004a. Washington State wetland rating system for western Washington - Revised. Publication # 04-06-025. Washington State Department of Ecology, Olympia, WA.

Hruby, T. 2004b. Annotated version of the Washington State wetland rating system for western Washington - Revised. Publication # 04-06-025. Washington State Department of Ecology, Olympia, WA. Available online at http://www.ecy.wa.gov/programs/sea/wetlands/ratingsystems/index.html

U.S. Army Corps of Engineers (USACE). 2008a. Interim regional supplement to the Corps of Engineers wetland delineation manual: western mountains, valleys and coast region. ERDC/EL TR-08-13. U.S. Army Corps of Engineers Research and Development Center, Vicksburg, MS.

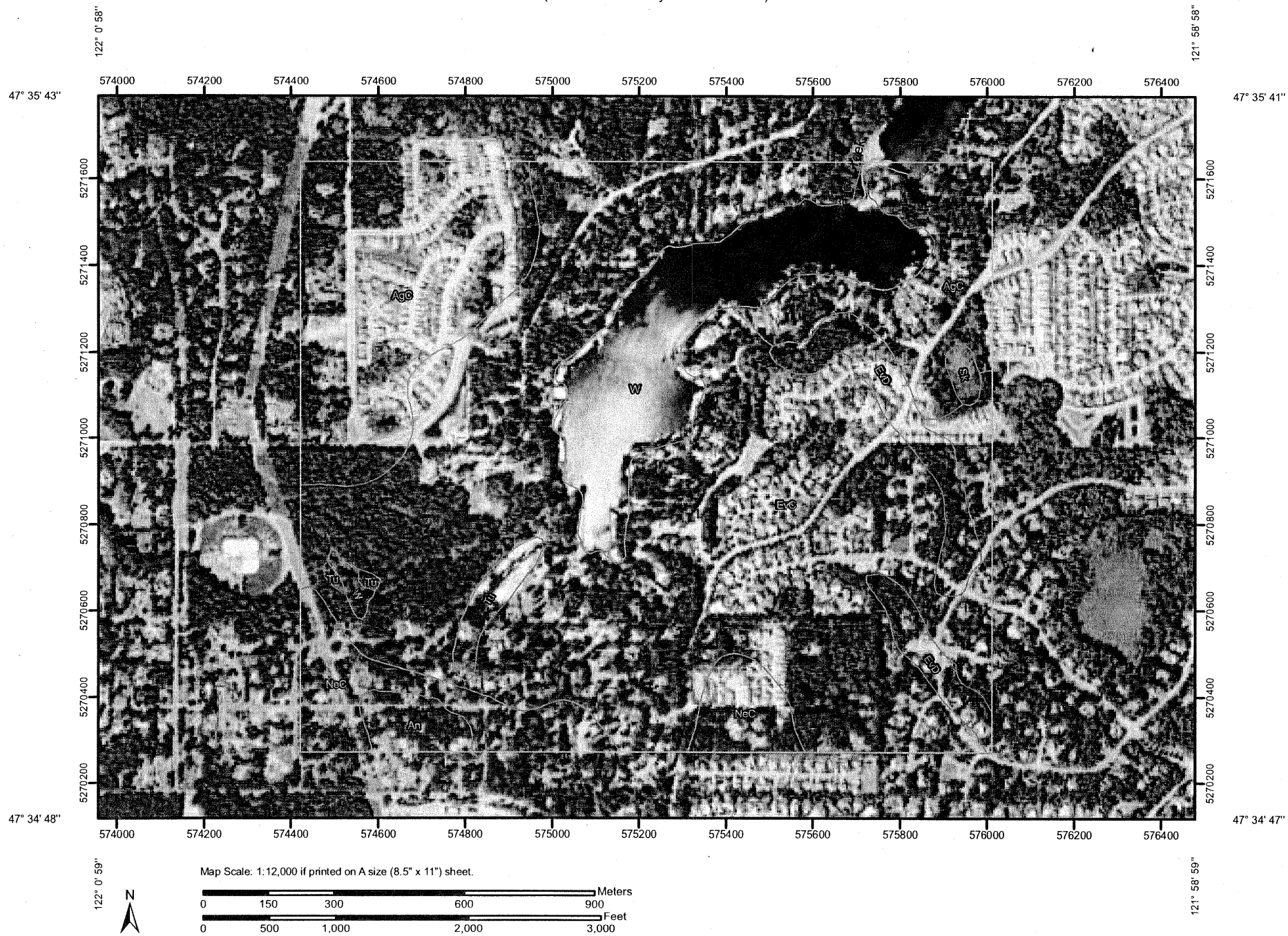
U.S. Army Corps of Engineers (USACE). 2008b. Special Public Notice dated May 28, 2008. Implementation of the western mountains, valley and coast interim regional supplement to the 1987 wetland delineation manual. Seattle District, Regulatory Branch, U.S. Army Corps of Engineers, Seattle, WA.

Washington State Department of Ecology, USACE Seattle District, and U.S. Environmental Protection Agency Region 10. 2006. Wetland mitigation in Washington state – Part 1: Agency policies and Guidance (Version 1). Washington State Department of Ecology Publication #06-06-011a. Olympia, WA.

Washington State Department of Ecology (Ecology). 1997. Washington State Wetlands Identification and Delineation Manual. Ecology, Publication No. 96-94, Olympia, WA. Available online at http://www.ecy.wa.gov/biblio/9694.html.

Appendix A:
NRCS-mapped Soils in the Vicinity of the Site

Soil Map—King County Area, Washington
(Soils in the Vicinity of the Gee Site)



USDA Natural Resources Conservation Service

Web Soil Survey 2.2
National Cooperative Soil Survey

5/12/2009
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

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

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Oceans
- Streams and Canals

MAP INFORMATION

Map Scale: 1:12,000 if printed on A size (8.5" × 11") sheet.

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

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 4, Nov 21, 2006

Date(s) aerial images were photographed: 7/24/2006

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

King County Area, Washington (WA633)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AgC	Alderwood gravelly sandy loam, 6 to 15 percent slopes	108.1	20.1%
An	Arents, Everett material	7.4	1.4%
EvC	Everett gravelly sandy loam, 5 to 15 percent slopes	296.2	55.1%
EvD	Everett gravelly sandy loam, 15 to 30 percent slopes	23.5	4.4%
NeC	Neilton very gravelly loamy sand, 2 to 15 percent slopes	34.3	6.4%
Sk	Seattle muck	2.0	0.4%
Tu	Tukwila muck	6.3	1.2%
W	Water	59.7	11.1%
Totals for Area of Interest		**537.5**	**100.0%**

Appendix B:
Wetland Delineation Data Forms

Routine Wetland Determination

(Adapted from the Washington State Wetlands Identification and Delineation Manual)

Project/Site: Gee Beaver Lake Residence	Date: 4/9/09
Applicant/owner: David and Megan Gee	County: King
Investigator(s): Scott Luchessa	State: WA
	S/T/R: SE ¼ S 2, T 24 N, R 6 E
Do normal circumstances exist on the site? ☒ Yes ☐ No	Community ID: Evergreen Forest (upland)
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No	Transect ID:
Is the area a potential problem area? ☐ Yes ☒ No	Plot ID: Backhoe Test Pit SL-12
Explanation of atypical or problem area:	

VEGETATION (* = dominant plant species using the 50/20 rule; midpoints are shown in parentheses following % cover)

Plant Species	Stratum	% cover	Indicator	Plant Species	Stratum	% cover	Indicator
**Thuja plicata*	T		FAC				
**Mahonia nervosa*	SH		UPL				
**Polystichum munitum*	H		FACU				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 33% (1 of 3)

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☒ Wetland plant database
- ☒ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No

Rationale for decision/Remarks: Two-thirds (67%) of the dominant plants have UPL and FACU wetland indicator statuses.

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
Based on: ☐ Soil temp (record temp) ☒ Other (explain) Date: plt. growth	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☐ Yes ☒ No
Depth of inundation: None	Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No
Depth to free water in pit: 34 inches	FAC Neutral: ☐ Yes ☒ No	Water-stained Leaves: ☐ Yes ☒ No
Depth to saturated soil: > 30 inches		
Check all that apply & explain below: ☐ Stream, lake or gage data ☐ Aerial photographs ☐ Other	Other (explain):	

Wetland hydrology present? ☐ **Yes** ☒ **No**

Rationale for decision/remarks: There were no positive indicators of wetland hydrology. Soils are effectively drained.

SOILS

Map Unit Name (Series and Phase) : Everett gravelly sandy loam

Drainage Class

Field observations confirm mapped type? ☒ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-2	A	10YR 2/2	None		Gravelly sandy loam	
2-16+	B	10YR 3/3-4/3	None		Gravelly sandy loam	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ **Yes** ☒ **No**

Rationale for decision/Remarks: There are no positive indicators of hydric soils.

Wetland Determination

Hydrophytic vegetation present?	☐ **Yes**	☒ **No**
Hydric soils present?	☐ **Yes**	☒ **No**
Wetland hydrology present?	☐ **Yes**	☒ **No**
Is the sampling point within a wetland?	☐ **Yes**	☒ **No**

Rationale/Remarks: None of the parameters were met. Therefore, the plant community and plot are upland.

NOTES: This association is typical of the mature upland evergreen forest that covers most of the site. A designated sample plot was not established here and dominant plants were determined using a plotless method. Understory dominants vary in this upland forest type. Across most of the site the understory is open and park like. Salal (*Gaultheria shallon*) is a dominant shrub and forms a very dense monotypic understory in areas closer to the shoreline of Beaver Lake.

Routine Wetland Determination

(Adapted from the Washington State Wetlands Identification and Delineation Manual)

Project/Site: Gee Beaver Lake Residence	Date: 4/9/09
Applicant/owner: David and Megan Gee	County: King
Investigator(s): Scott Luchessa	State: WA
	S/T/R: SE ¼ S 2, T 24 N, R 6 E
Do normal circumstances exist on the site? ☒ Yes ☐ No	Community ID: Evergreen Forest (upland)
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No	Transect ID:
Is the area a potential problem area? ☐ Yes ☒ No	Plot ID: SP-1
Explanation of atypical or problem area:	

VEGETATION (* = dominant plant species using the 50/20 rule; midpoints are shown in parentheses following % cover)

Plant Species	Stratum	% cover	Indicator	Plant Species	Stratum	% cover	Indicator
**Thuja plicata*	T	70	FAC	*Polystichum munitum*	H	T	FACU
Pseudotsuga menziesii	T	15	FACU				
**Vaccinium parvifolium*	SH	15	UPL				
**Ilex aquifolium*	SH	20	UPL				
**Gaultheria shallon*	SH	10	FACU				
Acer circinatum	SH	5	FAC-				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 25% (1 of 4)

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☒ Wetland plant database
- ☒ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No

Rationale for decision/Remarks: Most of the dominant plants have FACU and UPL wetland indicator statuses

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
Based on: ☐ Soil temp (record temp) ☒ Other (explain) Date; plt. growth	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☒ Yes ☐ No
Depth of inundation: None	Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No
Depth to free water in pit: 4 inches	FAC Neutral: ☐ Yes ☒ No	Water-stained Leaves: ☐ Yes ☒ No
Depth to saturated soil: At surface		
Check all that apply & explain below: ☐ Stream, lake or gage data ☐ Aerial photographs ☐ Other	Other (explain):	

Wetland hydrology present? ☒ **Yes** ☐ **No**

Rationale for decision/remarks: There were several positive indicators of wetland hydrology present.

SOILS

Map Unit Name (Series and Phase) : Everett gravelly sandy loam

Drainage Class

Field observations confirm mapped type? ☐ Yes ☒ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-16+	A	10YR 2/1	None		Mucky silt loam	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☒ **Yes** ☐ **No**

Rationale for decision/Remarks: Mucky silt loam is a hydric soil.

Wetland Determination

Hydrophytic vegetation present?	☐ **Yes**	☒ **No**
Hydric soils present?	☒ **Yes**	☐ **No**
Wetland hydrology present?	☒ **Yes**	☐ **No**
Is the sampling point within a wetland?	☐ **Yes**	☒ **No**

Rationale/Remarks: The hydrophytic vegetation criterion is not met. This small depression north of the seasonally flooded depression is just outside the delineated wetland boundary.

NOTES: On May 4, soils were saturated at a depth of about 8 inches and there was standing water in the test pit at 12 inches. The test pit is located near the edge of the depression close to the wetland boundary. Plot is 20-foot diameter for trees and shrubs and 5-foot diameter for herbaceous plants.

Routine Wetland Determination

(Adapted from the Washington State Wetlands Identification and Delineation Manual)

Project/Site: Gee Beaver Lake Residence	Date: 4/9/09
Applicant/owner: David and Megan Gee	County: King
Investigator(s): Scott Luchessa	State: WA
	S/T/R: SE ¼ S 2, T 24 N, R 6 E
Do normal circumstances exist on the site? ☒ Yes ☐ No	Community ID: Evergreen Forest (wetland)
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No	Transect ID:
Is the area a potential problem area? ☐ Yes ☒ No	Plot ID: SP-2
Explanation of atypical or problem area:	

VEGETATION (* = dominant plant species using the 50/20 rule; midpoints are shown in parentheses following % cover)

Plant Species	Stratum	% cover	Indicator	Plant Species	Stratum	% cover	Indicator
**Thuja plicata*	T	55	FAC				
**Fraxinus latifolia*	T	20	FACW				
Alnus rubra	T	10	FAC				
**Carex obnupta*	H	30	OBL				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 100% (3 of 3)

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☒ Wetland plant database
- ☒ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☒ Yes ☐ No

Rationale for decision/Remarks: All of the dominant plants have FAC, FACW, or OBL wetland indicator statuses

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
Based on: ☐ Soil temp (record temp) ☒ Other (explain) Date; plt. growth	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☒ Yes ☐ No
Depth of inundation: None	Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No
Depth to free water in pit: 9 inches	FAC Neutral: ☒ Yes ☐ No	Water-stained Leaves: ☐ Yes ☒ No
Depth to saturated soil: At surface		
Check all that apply & explain below: ☐ Stream, lake or gage data ☐ Aerial photographs ☐ Other	Other (explain):	

Wetland hydrology present? ☒ **Yes** ☐ **No**

Rationale for decision/remarks: Soils are likely saturated to the surface for sufficient duration to meet the hydrology criterion. In addition, there are some secondary indicators of wetland hydrology.

SOILS

Map Unit Name (Series and Phase) : Everett gravelly sandy loam

Drainage Class

Field observations confirm mapped type? ☐ Yes ☒ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-9	A	10YR 3/1	None		Gravelly sandy loam	
9-16	B	2.5Y 5/4	None		Compact gravelly sandy loam	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☒ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☒ **Yes** ☐ **No**

Rationale for decision/Remarks: Soils appear to have an aquic moisture regime. The low chroma and organic matter accumulation in the surface horizon appear to support this position. Test pit is at the edge of the sample plot and at the wetland boundary.

Wetland Determination

Hydrophytic vegetation present?	☒ **Yes**	☐ **No**
Hydric soils present?	☒ **Yes**	☐ **No**
Wetland hydrology present?	☒ **Yes**	☐ **No**
Is the sampling point within a wetland?	☒ **Yes**	☐ **No**

Rationale/Remarks: All parameters are met. The sample plot and community are forested wetland.

NOTES: This sample plot is 4 m x 6 m with the test pit located in the southwest corner of the plot. The long axis of the plot is oriented north to south. The test pit is ~8 ft E of the 12-inch dbh Oregon Ash at the boundary of the wetland. A patch of slough sedge is located within the wetland. A small disturbed area abuts this more mesic vegetation to the south and east (see SP-6 data form)

Routine Wetland Determination

(Adapted from the Washington State Wetlands Identification and Delineation Manual)

Project/Site: Gee Beaver Lake Residence Applicant/owner: David and Megan Gee Investigator(s): Scott Luchessa	Date: 4/9/09 County: King State: WA S/T/R: SE ¼ S 2, T 24 N, R 6 E
Do normal circumstances exist on the site? ☒ Yes ☐ No Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No Is the area a potential problem area? ☐ Yes ☒ No Explanation of atypical or problem area:	Community ID: Evergreen Forest (wetland) Transect ID: Plot ID: SP-3

VEGETATION (* = dominant plant species using the 50/20 rule; midpoints are shown in parentheses following % cover)

Plant Species	Stratum	% cover	Indicator	Plant Species	Stratum	% cover	Indicator
**Thuja plicata*	T	85	FAC				
Fraxinus latifolia	T	10	FACW				
**Athyrium filix-femina*	H	15	FAC+				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 100% (2 of 2)

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☒ Wetland plant database
- ☒ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☒ Yes ☐ No

Rationale for decision/Remarks: The dominant vegetation has FAC and FAC+ wetland indicator statuses.

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
Based on: ☐ Soil temp (record temp) ☒ Other (explain) Date: plt. growth	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☒ Yes ☐ No
Depth of inundation: None	Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No
Depth to free water in pit: 6 inches Depth to saturated soil: At surface	FAC Neutral: ☐ Yes ☒ No	Water-stained Leaves: ☐ Yes ☒ No
Check all that apply & explain below: ☐ Stream, lake or gage data ☐ Aerial photographs ☐ Other	Other (explain):	

Wetland hydrology present? ☒ **Yes** ☐ **No**

Rationale for decision/remarks: Saturation at the surface and standing water in the test pit at 6 inches are positive indicators of wetland hydrology.

SOILS

Map Unit Name (Series and Phase) : Everett gravelly sandy loam

Drainage Class

Field observations confirm mapped type? ☐ Yes ☒ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-14	A	10YR 2/1	None		Muck	
14-16+	B	10YR 4/2 & 2.5 Y 5/4	None		Gravelly sandy loam mixed matrix	

Hydric Soil Indicators: (check all that apply)

- ☒ Histosol
- ☒ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☒ **Yes** ☐ **No**

Rationale for decision/Remarks: There are strong positive indicators of hydric soil.

Wetland Determination

Hydrophytic vegetation present?	☒ **Yes**	☐ **No**
Hydric soils present?	☒ **Yes**	☐ **No**
Wetland hydrology present?	☒ **Yes**	☐ **No**
Is the sampling point within a wetland?	☒ **Yes**	☐ **No**

Rationale/Remarks: There are strong positive indicators of all three parameters. Therefore the sample plot and community are forested wetland.

NOTES: This sample plot also is 4 m x 6 m with the long axis oriented north to south. The test pit is in the northwest corner of the sample plot. The sample plot is located within a closed depression near the center of the south parcel. Re-opened the sample plot and observed strong seepage at 14" on 5/4/09 on top of the compacted subsurface horizon.

Routine Wetland Determination

(Adapted from the Washington State Wetlands Identification and Delineation Manual)

Project/Site: Gee Beaver Lake Residence Applicant/owner: David and Megan Gee Investigator(s): Scott Luchessa	Date: 5/4/09 County: King State: WA S/T/R: SE ¼ S 2, T 24 N, R 6 E
Do normal circumstances exist on the site? ☒ Yes ☐ No Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No Is the area a potential problem area? ☐ Yes ☒ No Explanation of atypical or problem area:	Community ID: Evergreen Forest (upland) Transect ID: Plot ID: SP-4

VEGETATION (* = dominant plant species using the 50/20 rule; midpoints are shown in parentheses following % cover)

Plant Species	Stratum	% cover	Indicator	Plant Species	Stratum	% cover	Indicator
**Thuja plicata*	T	75	FAC				
Pseudotsuga menziesii	T	10	FACU				
**Ilex aquifolium*	SH	10	UPL				
**Vaccinium parvifolium*	SH	5	UPL				
**Polystichum munitum*	H	5	FACU				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 25% (1 of 4)

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☒ Wetland plant database
- ☒ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No

Rationale for decision/Remarks: Most of the dominant plants have FACU or UPL wetland indicator statuses.

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
Based on: ☐ Soil temp (record temp) ☒ Other (explain) Date: plt. growth	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☐ Yes ☒ No
Depth of inundation: None	Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No
Depth to free water in pit: > 14 Depth to saturated soil: > 14 inches	FAC Neutral: ☐ Yes ☒ No	Water-stained Leaves: ☐ Yes ☒ No
Check all that apply & explain below: ☐ Stream, lake or gage data ☐ Aerial photographs ☐ Other	Other (explain):	

Wetland hydrology present? ☐ **Yes** ☒ **No**

Rationale for decision/remarks: There were no positive indicators of wetland hydrology. Soils are effectively drained.

SOILS

Map Unit Name (Series and Phase) : Everett gravelly sandy loam

Drainage Class

Field observations confirm mapped type? ☒ Yes ☐ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-3	0				Duff	
3-8	A	10YR 3/2	None		Gravelly sandy loam	
8-14+	B	10YR 5/3	None		Very gravelly sandy loam	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ **Yes** ☒ **No**

Rationale for decision/Remarks: There are no positive indicators of hydric soils.

Wetland Determination

Hydrophytic vegetation present?	☐ **Yes**	☒ **No**
Hydric soils present?	☐ **Yes**	☒ **No**
Wetland hydrology present?	☐ **Yes**	☒ **No**
Is the sampling point within a wetland?	☐ **Yes**	☒ **No**

Rationale/Remarks: There are no positive indicators of any parameters. The sample plot and community are forested upland.

NOTES: This sample plot is 4 m x 6 m with the long axis oriented east to west. The test pit is in the southwest corner of the plot. This area appears to have been disturbed historically and appears to have been partially filled. The ground surface in this plot is at least 0.75 ft higher than the surface of the adjacent closed depression where the forested wetland is located.

Routine Wetland Determination

(Adapted from the Washington State Wetlands Identification and Delineation Manual)

Project/Site: Gee Beaver Lake Residence Applicant/owner: David and Megan Gee Investigator(s): Scott Luchessa	Date: 5/4/09 County: King State: WA S/T/R: SE ¼ S 2, T 24 N, R 6 E
Do normal circumstances exist on the site? ☒ Yes ☐ No Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No Is the area a potential problem area? ☐ Yes ☒ No Explanation of atypical or problem area:	Community ID: Evergreen Forest (upland) Transect ID: Plot ID: SP-5

VEGETATION (* = dominant plant species using the 50/20 rule; midpoints are shown in parentheses following % cover)

Plant Species	Stratum	% cover	Indicator	Plant Species	Stratum	% cover	Indicator
**Thuja plicata*	T	85	FAC				
**Ilex aquifolium*	SH	10	UPL				
**Gaultheria shallon*	SH	10	FACU				
**Polystichum munitum*	H	15	FACU				
**Athyrium filix-femina*	H	5	FAC+				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 40% (2 of 5)

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☒ Wetland plant database
- ☒ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☐ Yes ☒ No

Rationale for decision/Remarks: Only 40% of the dominant plants have FAC or FAC+ wetland indicator statuses.

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
Based on: ☐ Soil temp (record temp) ☒ Other (explain) Date; plt. growth	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☐ Yes ☒ No
Depth of inundation: None	Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No
Depth to free water in pit: 12 inches Depth to saturated soil: ~10 inches	FAC Neutral: ☐ Yes ☒ No	Water-stained Leaves: ☐ Yes ☒ No
Check all that apply & explain below: ☐ Stream, lake or gage data ☐ Aerial photographs ☐ Other	Other (explain):	

Wetland hydrology present? ☐ **Yes** ☒ **No**

Rationale for decision/remarks: Soils appear unlikely to be saturated to the surface for sufficient duration to meet the hydrology criterion.

SOILS

Map Unit Name (Series and Phase) : Everett gravelly sandy loam

Drainage Class

Field observations confirm mapped type? ☐ Yes ☒ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-5	A	10YR 2/1	None		Mucky silt loam	
5-12+	B	10YR 4/4	None		Very gravelly sandy loam	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ **Yes** ☒ **No**

Rationale for decision/Remarks: There are no positive indicators of hydric soils.

Wetland Determination

Hydrophytic vegetation present?	☐ **Yes**	☒ **No**
Hydric soils present?	☐ **Yes**	☒ **No**
Wetland hydrology present?	☐ **Yes**	☒ **No**
Is the sampling point within a wetland?	☐ **Yes**	☒ **No**

Rationale/Remarks: None of the parameters was met. Therefore, the sample plot and community are forested upland.

NOTES: The ground surface of this sample plot is about 1.25 ft. higher than the ground surface in the neck of the depressional wetland. This plot is located close to the wetland boundary.

Routine Wetland Determination

(Adapted from the Washington State Wetlands Identification and Delineation Manual)

Project/Site: Gee Beaver Lake Residence	Date: 5/4/09
Applicant/owner: David and Megan Gee	County: King
Investigator(s): Scott Luchessa	State: WA
	S/T/R: SE ¼ S 2, T 24 N, R 6 E
Do normal circumstances exist on the site? ☒ Yes ☐ No	Community ID: Deciduous Forest (upland)
Is the site significantly disturbed (atypical situation)? ☐ Yes ☒ No	
Is the area a potential problem area? ☐ Yes ☒ No	Transect ID:
Explanation of atypical or problem area:	Plot ID: SP-6

VEGETATION (* = dominant plant species using the 50/20 rule; midpoints are shown in parentheses following % cover)

Plant Species	Stratum	% cover	Indicator	Plant Species	Stratum	% cover	Indicator
**Alnus rubra*	T	65	FAC	*Geranium robertianum*	H	15	UPL
**Rubus armeniacus*	SH	20	FACU	*Phalaris arundinacea*	H	15	FACW
Rubus ursinus	SH	5	FACU	*Mycelis muralis*	H	T	UPL
Rubus spectabilis	SH	5	FAC+				
**Pteridium aquilinum*	H	35	FACU				
**Ranunculus repens*	H	25	FACW				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 50%

Check all indicators that apply and explain below:

- ☐ Visual observation of plant species growing in areas of prolonged inundation/saturation
- ☐ Morphological adaptations
- ☐ Technical Literature
- ☐ Physiological/reproductive adaptations
- ☒ Wetland plant database
- ☒ Personal knowledge of regional plant communities
- ☐ Other (explain)

Hydrophytic vegetation present? ☒ Yes ☐ No

Rationale for decision/Remarks: 50% of the dominant plants have FAC or FACW wetland indicator statuses. Vegetation is marginally hydrophytic.

HYDROLOGY

Is it the growing season? ☒ Yes ☐ No	Water Marks: ☐ Yes ☒ No on	Sediment Deposits: ☐ Yes ☒ No
Based on: ☐ Soil temp (record temp) ☒ Other (explain) Date; plt. growth	Drift Lines: ☐ Yes ☒ No	Drainage Patterns: ☐ Yes ☒ No
Depth of inundation: None	Oxidized Root (live roots) Channels <12 in.: ☐ Yes ☒ No	Local Soil Survey: ☐ Yes ☒ No
Depth to free water in pit: >16	FAC Neutral: ☐ Yes ☒ No	Water-stained Leaves: ☐ Yes ☒ No
Depth to saturated soil: 14 inches		
Check all that apply & explain below: ☐ Stream, lake or gage data ☐ Aerial photographs ☐ Other	Other (explain):	

Wetland hydrology present? ☐ **Yes** ☒ **No**

Rationale for decision/remarks: Soils appear to be fill material that is relatively well drained.

SOILS

Map Unit Name (Series and Phase) : Everett gravelly sandy loam

Drainage Class

Field observations confirm mapped type? ☐ Yes ☒ No

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-7	A	10YR 2/2	None		Gravelly sandy loam	
7-14	B	2.5Y 5/3-5/4	10YR 5/6	Common, medium to coarse, prominent	Compact gravelly sandy loam	
14-16+	C	10YR 3/1	None		Sandy loam	

Hydric Soil Indicators: (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤ 2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

Hydric soils present? ☐ **Yes** ☒ **No**

Rationale for decision/Remarks: There are no positive indicators of hydric soils.

Wetland Determination

Hydrophytic vegetation present?	☒ **Yes**	☐ **No**
Hydric soils present?	☐ **Yes**	☒ **No**
Wetland hydrology present?	☐ **Yes**	☒ **No**
Is the sampling point within a wetland?	☐ **Yes**	☒ **No**

Rationale/Remarks: There are no hydric soils or wetland hydrology. Therefore the sample plot and community are forested upland.

NOTES: This plot also is a 4 m x 6 m rectangle. The long axis is oriented east to west with the test pit located in the northwest corner of the sample plot. The west edge of this sample plot is about 5 ft. SSE of SP-2. The test pit is just outside the wetland boundary. Soils appear to be fill material that was placed perhaps 15 to 20 years ago.

Appendix C:
Site Photographs

Photograph 1 – Looking at shallow ground water at a depth of approximately 34 inches bgs (arrow) within open test pit (SL-12) located just north of the edge of the driveway in the center of Tax Lot 0224069025. Note thin (~2-inches thick) dark surface horizon typical of Everett gravelly sandy loam (upland) soils

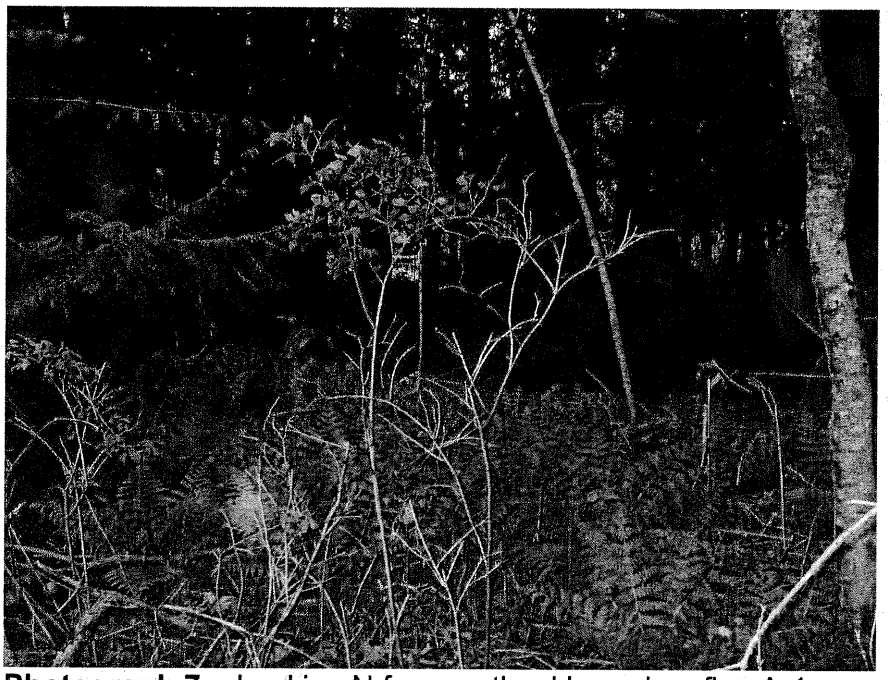
Photograph 2 – Looking S at shallow inundation within the western part of the depressional wetland on April 9, 2009.

Photograph 3 – Looking at soils saturated to the surface and shallow ground water at a depth of about 2 inches in the test pit at SP-1 on April 9, 2009. Note the thicker, black surface horizon compared to that in Photograph 1 above.

Photograph 4 – Looking at shallow ground water approximately 36 inches bgs within open test pit (SL-3) located on higher ground. Note the shovel for scale

Photograph 5 – Looking at soils saturated to the surface and shallow ground water at a depth of approximately 6 inches bgs in the test pit at SP-3 within the depression on April 9, 2009. Note the same thicker, black surface horizon.

Photograph 6 – Looking south southwest along the shoreline of Beaver Lake on April 9, 2009 from the existing dock. Water level appears to be at the OHWM.

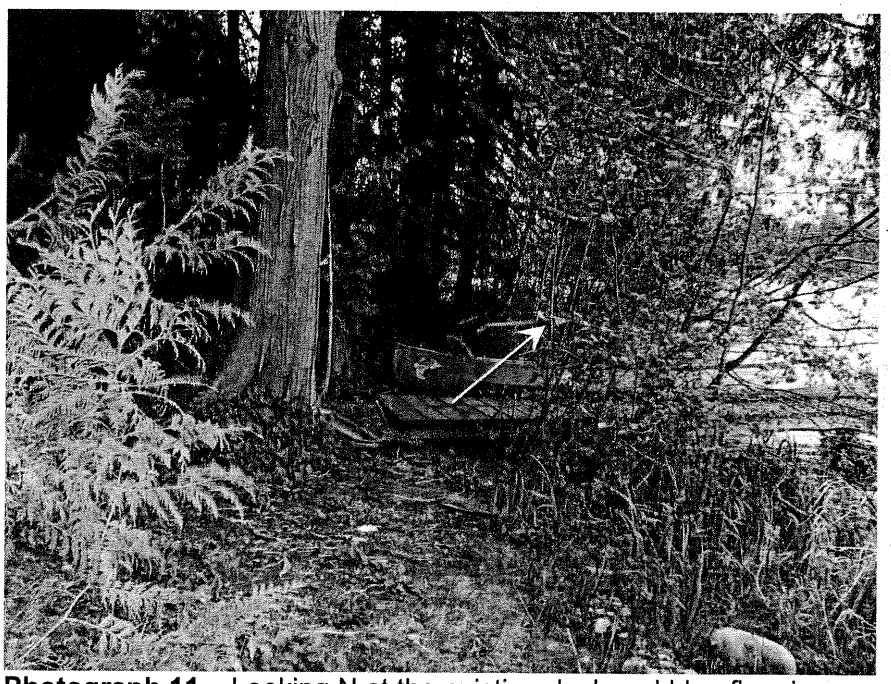


Photograph 7 - Looking N from wetland boundary flag A-1 on the fence at dense lady fern in the eastern part of the depressional wetland on May 4, 2009.

Photograph 8 - Looking E at early seral phase vegetation (red alder and other species common in disturbed areas) at the southern boundary of the site within SP-6.

Photograph 9 – Looking ENE along the delineated wetland boundary (arrow) at the blue SP-6 sample plot flag (~5" dbh red alder) from the Oregon ash tree located at the southern boundary of the wetland on May 4, 2009.

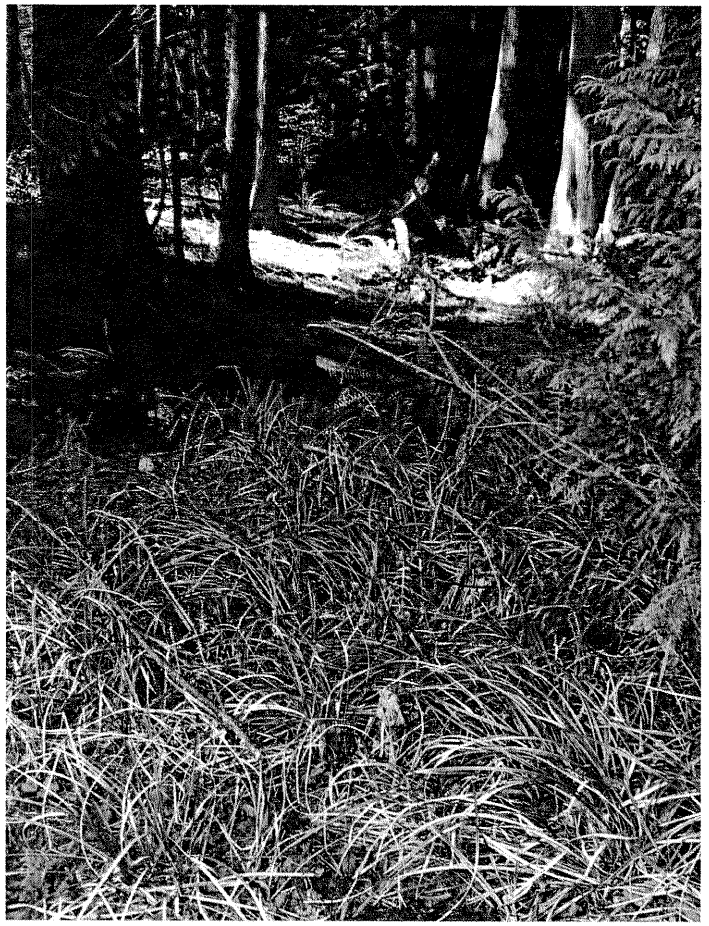
Photograph 10 – Looking north northeast along the shoreline from the existing dock at the ecotone (arrow) of wetland (slough sedge) and upland (salal) vegetation on April 9, 2009.



Photograph 11 – Looking N at the existing dock and blue flagging marking the ordinary high water mark (arrow) on May 4, 2009.

Photograph 12 – Looking SSW along the OHWM (dashed yellow line) on May 4, 2009. The blue OHWM flag in the foreground was tied to the nearest permanent vegetation just upslope. The extent of yellow-flag iris is a good indicator of the OHWM.

Photograph 13 – Looking at shallow ground water and saturated soils at the edge in test pit at SP-2 near the southern property boundary on April 9, 2009.



Photograph 14 – Looking north northwest at a stand of slough sedge (obligate wetland plants) at the south edge of the depression.

Appendix D:
Wetland Rating Form

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland 1 Date of site visit: 4/9/09

Rated by Scott Luchessa Trained by Ecology? Yes ✓ No___ Date of training_____

SEC: 2 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes___ No ✓

Map of wetland unit: Figure ____ Estimated size 7,500 sf

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III ✓ IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	28
Score for Hydrologic Functions	7
Score for Habitat Functions	12
TOTAL score for Functions	47

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply ✓

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	✓
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	✓	Check if unit has multiple HGM classes present	

Wetland name or number _____

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		✓
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number _____

Classification of Wetland Units in Western Washington

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 (i.e. except during floods)?
☑ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

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 rated as an* ***Estuarine*** *wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

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 both** of the following criteria?
The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (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**?
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 <3ft diameter and less than 1 foot deep).*
☑ NO - go to 5 ☐ **YES** – The wetland class is **Slope**

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 two years.

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

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

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 clases. 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still 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 _____

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the <u>potential</u> to improve water quality?**	***(see p.38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	**Figure ___** 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* ☑ YES Histic epipedon of varying thickness points = 4 ☐ NO points = 0	4
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	**Figure ___** 5
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* 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 Map of Hydroperiods	**Figure ___** 2
D	**Total for D 1** *Add the points in the boxes above*	14
D	**D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ✓ Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ ☑ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	***(see p. 44)*** multiplier 2
D	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	28

Wetland name or number _____

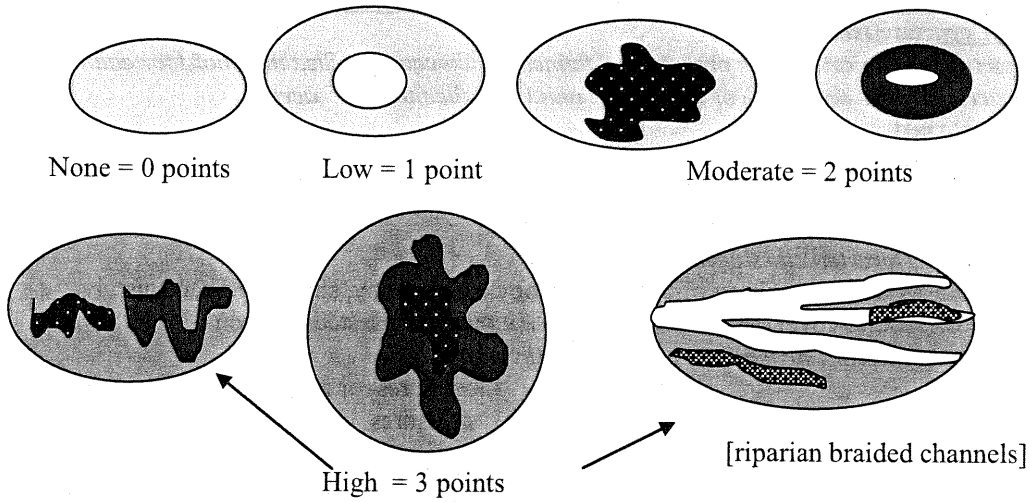
D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 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 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit 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 unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	7
D	**D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ ☐ **YES** multiplier is **2** ☑ **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	7

Wetland name or number _____

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____Aquatic bed ____Emergent plants ____Scrub/shrub (areas where shrubs have >30% cover) __✓__Forested (areas where trees have >30% cover) *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 *Add the number of vegetation structures that qualify. If you have:* 4 structures or more — points = 4 3 structures — points = 2 2 structures — points = 1 1 structure — points = 0 Map of Cowardin vegetation classes	**Figure ___** 0
H 1.2. <u>Hydroperiods</u> ***(see p. 73)*** *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 acre to count. (see text for descriptions of hydroperiods)* ____Permanently flooded or inundated — 4 or more types present — points = 3 __✓__Seasonally flooded or inundated — 3 types present — points = 2 ____Occasionally flooded or inundated — 2 types present — point = 1 __✓__Saturated only — 1 type present — points = 0 ____ 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** Map of hydroperiods	**Figure ___** 1
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** 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)* *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 *List species below if you want to:* 5 - 19 species — points = 1 Pha aru; Car obn; Thu pli; Ath fil; Rub spe; Aln rub — < 5 species — points = 0	1

Total for page 2

Wetland name or number _____

H 1.4. Interspersion of habitats *(see p. 76)* Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  None = 0 points Low = 1 point Moderate = 2 points [riparian braided channels] High = 3 points NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes	Figure ___ 0
H 1.5. Special Habitat Features: *(see p. 77)* *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ✓ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ____Standing snags (diameter at the bottom > 4 inches) in the wetland ____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	4

Comments

Portions of the depression appear to be seasonally flooded; other portions are only saturated. At least some of this appears to be from stormwater runoff from Beaver Lake Dr SE and possibly gravel driveways. There is some emergent and scrub-shrub vegetation but these are beneath the forest canopy; so, there is only one vegetation class (forested).
There are a couple of downed logs in the wetland;
Many of the western red cedar trees in the wetland are quite large;
There is some reed canarygrass, English holly, and Himalayan blackberry, but these appear to cover <<1,875 sf (25% of 7,500 sf, the estimated size of the wetland.

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** ✓ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	**Figure ___** 3
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). ☐ YES = **4 points** (*go to H 2.3*) ☑ NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☐ YES = **2 points** (*go to H 2.3*) ☑ NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? ☑ YES = **1 point** ☐ NO = **0 points**	1

Assumed that Beaver Lake is >20 acres

Total for page 4

Wetland name or number _____

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____**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 p. 152*). ____**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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 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:** Woodlands 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*). ____**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*). ____**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: pp. 167-169 and glossary in Appendix A).* ____**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 7.6 m (25 ft) high and occurring below 5000 ft. ____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	1

Other parts of the site appear to meet the mature forest criterion. The forested areas along Beaver Lake do not appear to qualify as Riparian because the water is not flowing.

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	8
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	12

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

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 *(see p. 86)* Does the wetland unit 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 ___	
SC 1.1 Is the wetland unit 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 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — 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 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	☐ **Cat. I** ☐ **Cat. II** ☐ **Dual rating I/II**

Wetland name or number _____

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES ☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☐ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I ☐ NO ☐ not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 ☐ No - go to Q. 2 ☐ 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ Yes - go to Q. 3 ☐ No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? ☐ Yes – Is a bog for purpose of rating ☐ No - go to Q. 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" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I ☐ No ☐ Is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the 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/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. — **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = Category I NO ☑ not a forested wetland with special characteristics	**Cat. I** ☐
SC 5.0 Wetlands in Coastal Lagoons ***(see p. 91)*** 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 surface 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 meets 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 invasive plant species (see list of invasive species on p. 74). — 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 acre (4350 square feet) ☐ YES = Category I ☐ NO = Category II	☐ **Cat. I** ☐ **Cat. II**

Wetland name or number _____

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - go to SC 6.1 NO ☐ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its 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 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? ☐ YES = Category II ☐ NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = Category III	**Cat. II** ☐ **Cat. III** ☐
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p.1	