

**Critical Areas Assessment Report:
Wetland Determination**

**Red Mountain 20-Acre Property
T40N/R05E/S22
Whatcom County, WA**

**For:
S.C. Goshen
2181 Central Road
Everson, WA 98247**

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Introduction

On July 31, our firm conducted a wetland determination study on an approximately 20-acre parcel located at the base of Red Mountain, east of the Peaceful Valley Drive in Whatcom County, Washington (the W ½ of the NE ¼ of the SE ¼ of section 22, T40N, R5E, W.M.). The purpose of the study was to determine the existence, extent, and regulatory status of any wetlands on the subject parcel, and to determine the existence of probable wetlands adjacent to the subject parcel at the reconnaissance level.

Subject Parcel Description

The subject parcel measures approximately 660' x 1,320', with the longer dimension oriented in a north-south direction. The parcel is rectangular except for a portion of the western property line that is incised by four small lots. The parcel is accessed by a Right-of-Way at the eastern edge of King Valley Drive. The parcel is crossed by several overgrown historic logging roads. We did not observe any structures or remains of structures on site. Vegetation is typical of a historically logged site, with a few mature standing trees, numerous young tree saplings, and a diverse and dense understory of native shrubs with a somewhat weedy herbaceous layer. The subject parcel is located in the Kendall Creek sub-basin of the North Fork Nooksack watershed, in Water Resource Inventory Area (WRIA) 1. Topography is sloped at approximately 4% towards the west-northwest.

Methods

Wetland determinations were made using the routine on-site techniques outlined in the U.S. Army Corps of Engineers **Wetland Delineation Manual (1987)** and Washington State Department of Ecology **Washington State Wetlands Identification and Delineation Manual (1997)**. Wetland determinations are based on three mandatory criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Hydrophytic vegetation consists of those plants typically adapted for life in saturated soil conditions. Hydric soils are saturated for long enough periods during the growing season to develop anaerobic and reducing conditions in the upper part. All soil color codes we list in this report and data sheets are based on the Munsell® Soil Color Charts, and the soil color names we use herein are based on the Munsell® Soil Color Name Diagram. Wetland hydrology exists when inundation or prolonged soil saturation is sufficient to create hydric soils and support wetland vegetation.

Wetland categories and functions have been determined according to the Washington State Department of Ecology's **Washington State Wetland Rating System for Western Washington (2004)**. Wetland buffer widths have been determined based on Chapter 16.16 of the Whatcom County Critical Areas Ordinance, as enacted September, 2005.

We walked through the entire subject parcel along transects spaced 100' apart, meandering between the transects to ensure visual coverage. We sampled soils, vegetation, and near-surface hydrology for indicators of wetland and upland conditions, recording data at 16 representative sample plot locations.

To determine the presence of on-site streams, we visually inspected for areas where surface waters produce a defined channel or bed demonstrating clear evidence of the annual passage of water.

We estimated the distance to all obvious off-site wetlands and streams and depicted their approximate locations on the Wetland Delineation Map. We assessed the likely buffers for these features to determine whether they would cross onto the subject parcel. We also reviewed the National Wetland Inventory (NWI) and Whatcom County GIS composite wetland layer and stream layers to determine whether any additional off-site wetlands were likely present within 300' of the subject parcel boundary.

Historic Data

Soils

The *Soil Survey of Whatcom County Area, Washington* published by the U.S.D.A. Soil Conservation Service (now the N.R.C.S.) lists the soils across the majority of the subject parcel as **(17) Blethen Gravelly Loam, 5 to 15 Percent Slopes (listed non-hydric)**. This very deep, well drained soil is on side slopes and toe slopes of foothills. It formed in colluvium, glacial till, and slope alluvium with an admixture of volcanic ash and loess. Typically, the surface is covered with a mat of needles, leaves, and twigs 4 inches thick. The surface layer is dark brown (7.5YR 3/3) gravelly loam to 6 inches deep. From 6 to 14 inches, the subsoil is dark brown (7.5YR 4/4) gravelly loam. From 14 to 20 inches, the subsoil is dark yellowish brown (10YR 4/4) very gravelly loam. The substratum to a depth of 60 inches is brown and dark yellowish brown very gravelly loam. In some areas the surface layer is very gravelly loam, gravelly silt loam, or very gravelly silt loam. In other areas the soil has less than 35 percent rock fragments in the subsoil and substratum or is 40 to 60 inches deep to dense glacial till or bedrock. Included in this unit are small areas of Barneston, Chuckanut, Heisler, Nati, Sehome, and Vanzandt soils, slump areas, stony areas, and Blethen soils that have slopes of more than 15 percent or less than 5 percent. Included areas make up about 10 percent of the total acreage. Permeability is moderate in the Blethen soil. Available water capacity is high. The effective rooting depth is 60 inches. Runoff is slow, and the hazard of water erosion is slight.

The soils across the northwest and southwest regions of the property are mapped as **(186) Winston Silt Loam, 0 To 3 Percent Slopes (listed non-hydric)**. This very deep, well drained soil is on outwash terraces. It formed in a mixture of loess and volcanic ash over glacial outwash. Typically, the surface is covered with a mat of needles, leaves, and twigs 3" thick. When mixed to a depth of 6", the surface layer is dark brown silt loam. The upper 5" of the subsoil is dark brown loam. The lower 8" is dark yellowish brown gravelly loam. The upper 6" of the substratum is dark yellowish brown very gravelly loamy sand. The lower part to a depth of 60" is very dark grayish brown extremely gravelly sand. The depth to extremely gravelly sand ranges from 14" - 30". In some areas the surface layer is loam or gravelly silt loam. In other areas the substratum is very gravelly sandy loam or has 15 to 35 percent rock fragments. Included in this unit are small areas of Barneston, Blethen, and Clipper soils; soils that are less than 14" deep to extremely gravelly sand; Bellingham and Shalcar soils in depressions; and Winston soils that have slopes of more than 3 percent. Included areas make up about 10 percent of the total acreage. Permeability is moderate in the upper part of the Winston soil and very rapid in the

lower part. Available water capacity is moderate. The effective rooting depth is 60". Runoff is very slow, and there is no hazard of water erosion.

Wetlands

The National Wetland Inventory (NWI) does not depict any wetlands on the subject parcel. One NWI wetland is mapped as occurring approximately 200' east of the property. The Whatcom County GIS wetland layer shows several wetlands as occurring on the property.

Streams

The Whatcom County Article VII – Fish Habitat Conservation Areas Map shows a presumed potential/historic fish-bearing stream extending across the northeast corner of the property (see the attached Historic Data Map). The stream is depicted as a tributary of Kendall Creek and is located approximately 1/2 mile upstream of Kendall Lake. An additional segment of the stream is depicted as occurring just off-site near the southeast property corner.

See Figure 2. Historic Data Map for mapped soil and wetland inventory units.

Results-Subject Parcel

We did not observe any wetlands or streams on the subject parcel. It appears that the Whatcom County wetland and stream maps are inaccurate in the vicinity of the subject parcel.

Soils

We observed high chroma gravelly loam soils to 16" depth throughout the study area (see the attached Data Forms for specific soil profile information).

Vegetation

The following plant species were common to dominant across the subject parcel: Douglas-fir (*Pseudotsuga menziesii*-FACU), red alder (*Alnus rubra*-FAC), western redcedar (*Thuja plicata*-FAC), black cottonwood (*Populus balsamifera*-FAC), crabapple (*Rhamnus purshiana*-FAC-), bigleaf maple (*Acer macrophyllum*-FACU), western hemlock (*Tsuga heterophylla*-FACU+), vine maple (*Acer circinatum*-FAC-), red elderberry (*Sambucus racemosa*-FACU), thimbleberry (*Rubus parviflorus*-FAC-), fireweed (*Epilobium angustifolium*-FACU+), stinging nettle (*Urtica dioica*-FAC+), trailing blackberry (*Rubus ursinus*-FACU), bracken fern (*Pteridium aquilinum*-FACU), Dewey's sedge (*Carex deweyana*-FACU), sword fern (*Polystichum munitum*-FACU), pearly everlasting (*Anaphalis margaritacea*-UPL), and St. John's Wort (*Hypericum perforatum*-UPL).

The following species were less common: bitter cherry (*Prunus emarginata*-FACU), oceanspray (*Holodiscus discolor*-FACU), hardhack (*Spiraea douglasii*-FACW), blackcap raspberry (*Rubus leucodermis*-UPL), Indian-plum (*Oemleria cerasiformis*-FACU), black twinberry (*Lonicera involucrata*-FACW), low Oregon-grape

(*Mahonia nervosa*-FACU), piggyback plant (*Tolmiea menziesii*-FAC), kinnickinnick (*Arctostaphylos uva-ursi*-FACU-), velvet grass (*Holcus lanatus*-FAC), colonial bentgrass (*Agrostis tenuis*-FAC), oxeye daisy (*Leucanthemum vulgare*-UPL), starflower (*Trientalis latifolia*-UPL), trumpet honeysuckle (*Lonicera ciliosa*-UPL), and lady fern (*Athyrium filix-femina*-FAC+).

Small patches of hydrophytic vegetation were present on the subject parcel but were characterized by high chroma, non-hydric gravelly loam soils and the presence of FACU vegetation growing in the same vicinity.

Hydrology

We did not observe any of the listed wetland hydrology indicators or signs of soil saturation within the upper 16" of the soil profile in any of our sample plot locations during our July 31, 2007 site visit.

Results-Offsite

Wetlands

We observed 1 wetland within the vicinity of the subject parcel, approximately 220' east of the eastern property boundary. The wetland location was consistent with the mapped NWI wetland. The off-site wetland is a ponded depressional flow-through wetland and supports several vegetation types. It is depicted by Whatcom County as receiving water from streams inflow at its northern end and as draining to a stream at its southern end.

It is our opinion that the off-site wetland would rate as a DOE Category II or III wetland with moderate habitat functions. This wetland would therefore carry a 150' buffer under high intensity land use. A smaller buffer would apply under moderate or low intensity land uses. The buffer from this wetland therefore does not fall on the subject parcel.

Streams

The nearest stream segment we observed occurs approximately 100' east of the southeast property corner. This stream appears to originate from the offsite wetland mapped by the NWI and drains to Kendall Lake approximately 1,000' downstream.

This stream is mapped by Whatcom County as historical/ potential fish-bearing, and therefore carries a 100' buffer. The stream buffer therefore does not appear to fall on the subject parcel. We recommend that if any development is to occur near the southeast corner of the parcel, that the stream location be surveyed in reference to the property boundaries.

Disclaimer

This critical area study is based upon physical circumstances that are described in manuals and publications utilized by Federal, State, and Local agencies. The wetland determination methodology used in this report is consistent with the routine on-site determination method prescribed by the 1987 Corps of Engineers Wetland Delineation Manual. No guarantees are given that the determination will concur exactly with those performed by agencies with jurisdiction or by other qualified professionals. This report is provided for the use of the named recipient only and is not intended for use by other parties for any other purpose.