Wetland Delineation Review and Update

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Prepared for

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SUMMARY

Skagit Wetlands has been tasked with reviewing wetland boundaries for the property located north of the 2900 block of Blackburn Road in Mount Vernon. At this time, the applicant desires to proceed with land development of this property holding. Two wetlands were noted as impacting this property through previous assessments, one in the northwest corner of the property previously assessed by Wetland Technology (Dickson 2006) and one offsite to the southeast delineated by the Jay Group (JC 2007). The City of Mount (MVMC 15.40.090(D)(3)c) requires updates to wetland delineations for reports older than 5 years from date of the study completion due to fact that site conditions can and do change, hence the reason for this update.

As such, a complete site assessment has not been made, rather a simple update to the previous assessment (attached) to verify the present wetland boundary as well as regulatory requirements, to include rating applicable wetlands with current rating system (Hruby 2014).

Based on the data collected prior to, and during, site visits, two wetlands exist onsite within the study area which confirm the previous studies. An emergent wetland (referred to as “Onsite”) covering 21,704 square feet in total has increased in size since the previous delineation performed in 2006 (Dickson 2006). The second wetland’s (referred to as “Offsite”) previous delineated boundary is still valid.

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1. Introduction

1.1 Project History

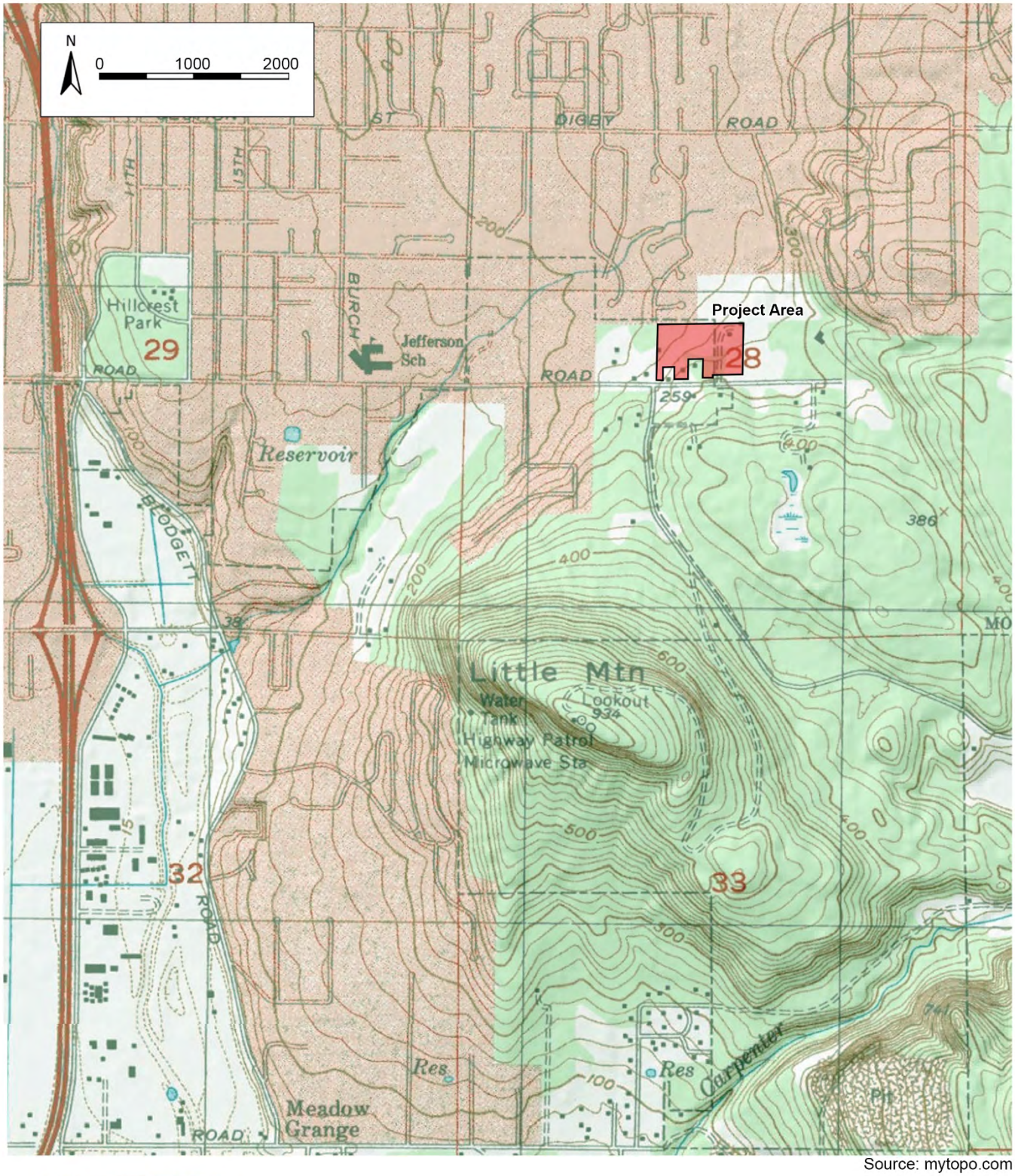
The project received preliminary Plat approval on August 8, 2007 following SEPA review. The project received a Stormwater Construction Permit by the Department of Ecology in 2016 which is valid through 12/31/2020. The Client submitted an updated Traffic Concurrency Permit in June 2019 through the City which triggered another SEPA review.

1.2 Authorizing agency and scope of investigation

This Wetland Delineation Review was prepared by Skagit Wetland & Critical Areas, LLC on behalf of the Nordco Group LLC to confirm wetland boundary locations and extent of "Waters of the U.S." (33 CFR Part 328, 1986), including wetlands, in the study area in the location of the proposed development. The purpose of this investigation is to provide an update to previous wetland delineations performed onsite.

1.3 Site location

The development project is 13.3 acres in size located north of the 2900 block of Blackburn Road within Mount Vernon city limits in Sections 28, Township 34N and Range 04E. Refer to Figure 1.



Source: mytopo.com

Figure 1: Vicinity Map

Iris Meadows

1.4 Project description

1.4.1 Existing Condition

The project area is divided into areas of maintained lawn, pasture fields, residential lots and small forested areas. The property slopes generally east to west-northwest. A spur of Maddox is approximately 200 feet east of the site boundary flowing northward. For historical context, the 2006 wetland delineation mentions past farming activities that included cleared and pastured areas which included ditching (Dickson 2006).

1.4.2 Proposed Work

The proposed development would consist of 47 residential lots and a stormwater facility in the northwest corner (Figure 2). The stormwater facility would fill the Onsite Wetland and the Offsite Wetland, and its buffer will be avoided. The Client would purchase wetland credits from a certified bank to mitigate for impacts to the Onsite Wetland

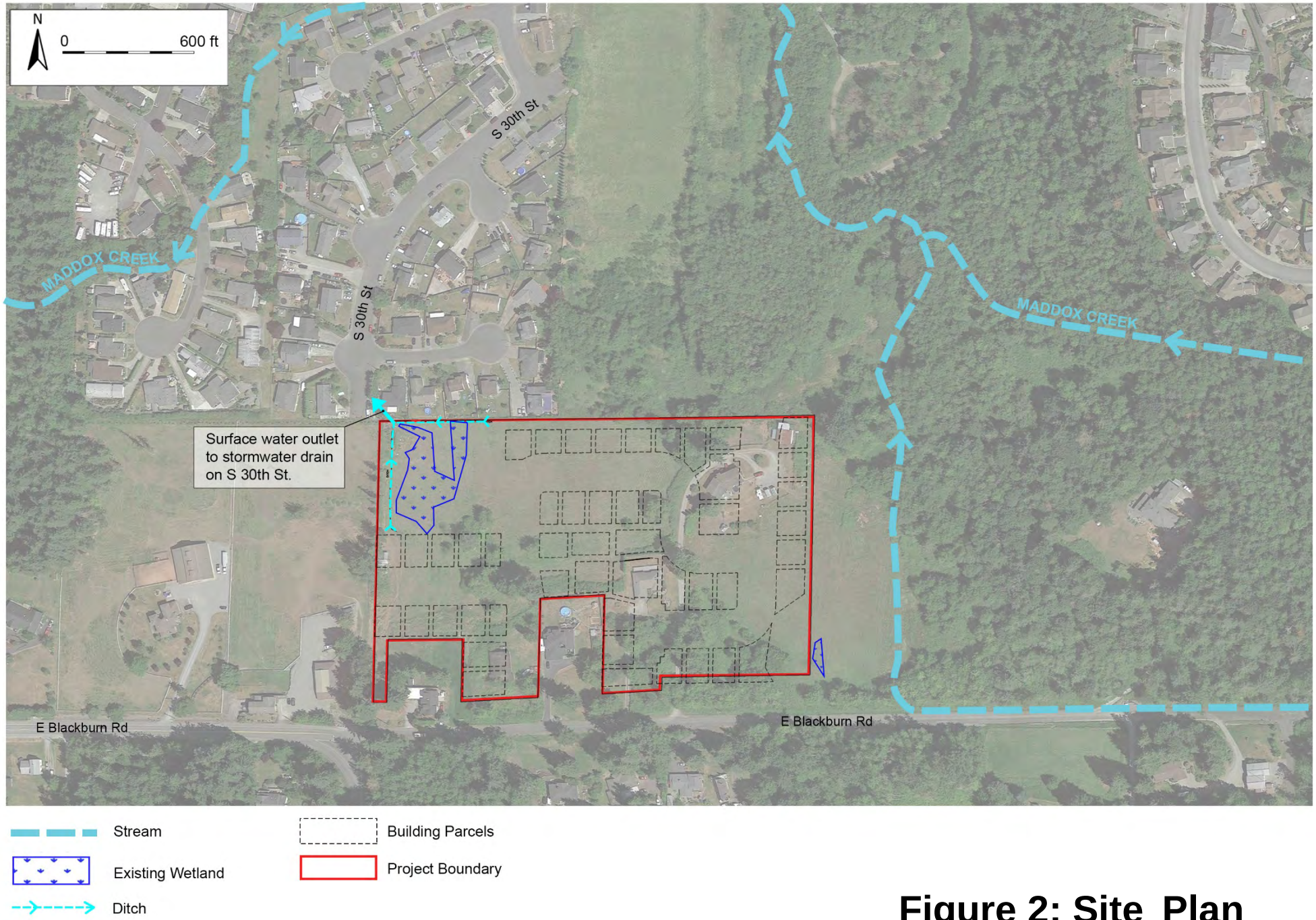


Figure 2: Site Plan

2. Methods

2.1 Wetland Delineation, Identification, and Classification

Waters of the U.S., including wetlands, were delineated within the proposed project boundaries consistent with the technical approaches outlined in the *USACE Wetlands Delineation Manual* (Environmental Laboratory, 1987), the *Washington State Wetland Identification and Delineation Manual* (ECY, 1997) and the *Regional Supplement to USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory, 2010).

In general, wetland delineation consisted of three main tasks: (1) assessing vegetation, soil, and hydrologic characteristics to identify areas meeting the wetland identification criteria, (2) evaluating constructed drainage features to determine if they would be regulated as wetlands, and (3) marking wetland boundaries.

Hydrology data was collected from field observations. Upon site inspection, the presence of direct and indirect hydrologic indicators was used to infer wetland hydrology. Field indicators of wetland hydrology were determined in accordance with the USACE guidelines (Environmental Laboratory, 2010).

Sampling locations were selected at sites representative of the area. Dominant plant species in each of the three strata (tree, sapling/shrub, and herb) were identified. Unless otherwise noted in field data sheets due to local conditions, trees were identified within a 30-foot radius of an established data plot, scrub/shrub vegetation was identified within a 5-foot radius, and herbaceous vegetation was identified within a 5-foot radius. A determination of the presence of hydrophytic vegetation was made at each observation point in accordance with the USACE guidelines (Environmental Laboratory 2010).

The determination of the presence of hydric soils was consistent with the USACE Regional Supplement (Environmental Laboratory 2010). The Soil Survey of Skagit County Area, Washington provided information regarding the general characterization of the soils in the area, the parent material, as well as series, taxonomy and subgroup information. Soils were examined to a depth of approximately 20 inches, or the depth at which it could be confirmed that positive indicators were either present or absent. Soil colors were described in data forms using the Munsell soil color charts' numbering system (Munsell Color 2000). This numeric color classification system is used by the USACE Regional Supplement in determining if hydric soil indicators are present in a sample.

2.2 Pre-field Review of Information

The 2006 delineation (Appendix E) and mapping (Appendix F) of both "Onsite" and "Offsite" wetlands were reviewed. These documents were used to help orientate the delineator to the location of previous mapped areas. Existing information concerning the project area was reviewed prior to fieldwork to identify vegetation patterns, topography, soils, streams, and other natural resources potentially located within the project boundaries.

3. Affected Environment

3.1 Project Area Setting

The study area for the wetland confirmation is a 13.3 acres property owned by the Nordco Group, LLC within the City of Mount Vernon. This site is located in the Puget Sound foothills, which historically supported agriculture practices, mainly grazing. Portions of the site have now been developed, containing houses, maintained lawns, and pasture areas.

3.1.1 Water Features

The project area is located within the Skagit River Basin. The principal source of hydrology to the area appears to be precipitation and groundwater seeps due to the sloped nature of the project site. A section of Maddox Creek is located east of the project site. There is no connection between this creek and identified wetland units. Two shallow ditches along the west and north edge of the site exist (Figure 2). They are not maintained and are likely remnants from past agricultural activities.

3.1.2 Plant community

The project is located within the Western hemlock (*Tsuga heterophylla*) major vegetation area (Franklin and Dyrness, 1973). The project area is divided into areas of maintained lawn, abandoned grass fields, and small forested areas characterized by an overstory of red alder (*Alnus rubra*), Douglas fir (*Pseudotsuga menziessii*), and bigleaf maple (*Acer macrophyllum*) with a shrub layer dominated by snowberry (*Symphoricarpus albus*), and Himalayan blackberry (*Rubus armeniacus*), and thimbleberry (*Rubus parviflorus).*Within the delineated wetlands in the pasture areas, herbaceous plants were dominated with non-identified grasses, creeping buttercup (*Ranunculus repens*), soft rush (*Juncus effusus*), and reed canarygrass (*Phalaris arundinacea*).

3.1.3 Soils mapped and found

The Skagit County Area soil survey indicates that the majority of soils within the study area consists of Bow gravelly loam (NRCS 2019) (Appendix A). This soil is somewhat poorly drained, grouped into hydrologic soil group C/D, and is found on hillslopes and terraces. The “onsite wetland” is found within this mapping unit. The depth to the water table is

approximately 6 to 18 inches due to the restrictive layer at approximately the same depth. This soil is listed as hydric on the national hydric soil list (NRCS 2012).

Bellingham mucky silt loam is along the east portion of the property and associated with the "offsite wetland". This is a poorly drained soil, grouped into hydrologic soil group C/D and found in depressions. The water table is found at about 0 to 12 inches and a restrictive layer is found at 9 to 60 inches. It is listed as a hydric soil on the national hydric soil list.

4. Results

4.1 Wetlands

Two previously delineated wetland boundaries were reviewed in the field. The wetland areas were observed throughout the early growing season (March through May) with a final boundary confirmation at the end of May 2018. This determination corresponded to the overall loss of positive hydrology throughout the site. Delineated wetland edges were surveyed by Wilson Engineering (Appendix B). Refer to Appendix C for wetland data forms and Appendix D for wetland rating forms.

Onsite Wetland

The "Onsite Wetland" as delineated by Wetland Technology (2006) was noted as accurate from a determination (positive wetland presence) perspective as well as from a general reporting perspective. As such, wetland boundary adjustments were made based on present conditions. The wetland boundary was noted as a correlation of the utilized hydric soil indicator deepening (redox dark surface), change in vegetation pattern, and topography; the final determinant was direct observation of hydrology, or lack thereof.

Onsite Wetland (21,704 square feet, 0.5 acres) is a palustrine emergent freshwater wetland (Cowardin *et al*, 1979), located within a pasture area which is downslope an existing house and abuts a residential a development to the north. The wetland contains creeping buttercup, soft rush, and reed canarygrass.

Soils were determined to be gravelly loam with a redox dark surface consistent with Bow gravely loam soil series mapped in the area (Appendix A). The primary source of hydrology was determined to be precipitation and groundwater expression as this wetland is located at the toe of slope. Small amounts of standing water and saturated soils were observed. The wetland abuts residential lots to the north which restricts surface water pathways. Previous survey work noted free drainage to the storm system within the roadway (S. 30th Street) at the residential development the border the wetland to the north. Using GIS and LIDAR coverage, a slope map with computed surface flow pathways was developed (Figure 3). The drainage lines (blue) do not reflect actual streams, just general surface water pathways based on topography. The surface flow map through the Onsite

Wetland confirm the free drainage direction of water offsite to the northwest.

The final boundary was set at the end of May corresponding to a change in vegetation pattern, topography, and to the overall loss of positive hydrology throughout the site. Adjacent uplands were distinguished from the wetland by lack of hydrology, lack of hydrophytic vegetation and/or the presence of upland plants.

The wetland boundary was noted as being larger than previously mapped (increased from 8,144 square feet to 21,704 square feet). This may have related to past site disturbance which appears to be an attempt at drainage for the whole lower pasture, but was not confirmed (in regards to timing) as agricultural drainage was noted in the initial report in 2006. The previous unauthorized activity to modify site drainage appears to have had the unintended effect of increasing the wetland size (a common occurrence with poorly installed surface drainage). The lack of maintenance of these ditches has also led to increased hydrology in this lower terrace. Intrusion by the neighbors from the north has also occurred via trespass, building a garden with plantings, fill, and landscaping all occurring. Per the RGL 90-07 and NRCS 2011 guidance, these activities likely happened after 1985, therefore “normal conditions” are not present due to hydrologic modifications, thus this site has atypical conditions. This disturbance has led to an increase of wetland areas based on the 2006 delineation.

The onsite wetland was rated utilizing the most up to date form of the Washington State Department of Ecology Wetland Rating System for Western WA (Hruby 2014). While the HGM classification of the wetland appeared to be a slope wetland historically (prior to the development north of the site), the site disturbance appears to have been enough to surpass it into the depressional category as well; where both a slope and depressional designation is found, the Depressional form shall be used. However, for consistency a Slope form was also used for reference and the rating did not change (was one point lower). When the depressional form was used, the final category based on functions was Category IV wetland with a combined score of 15. The rating breakdown was as follows:

- Score for Water Quality Functions: 6

- Score for Hydrologic Functions: 5
- Score for Habitat Functions: 4

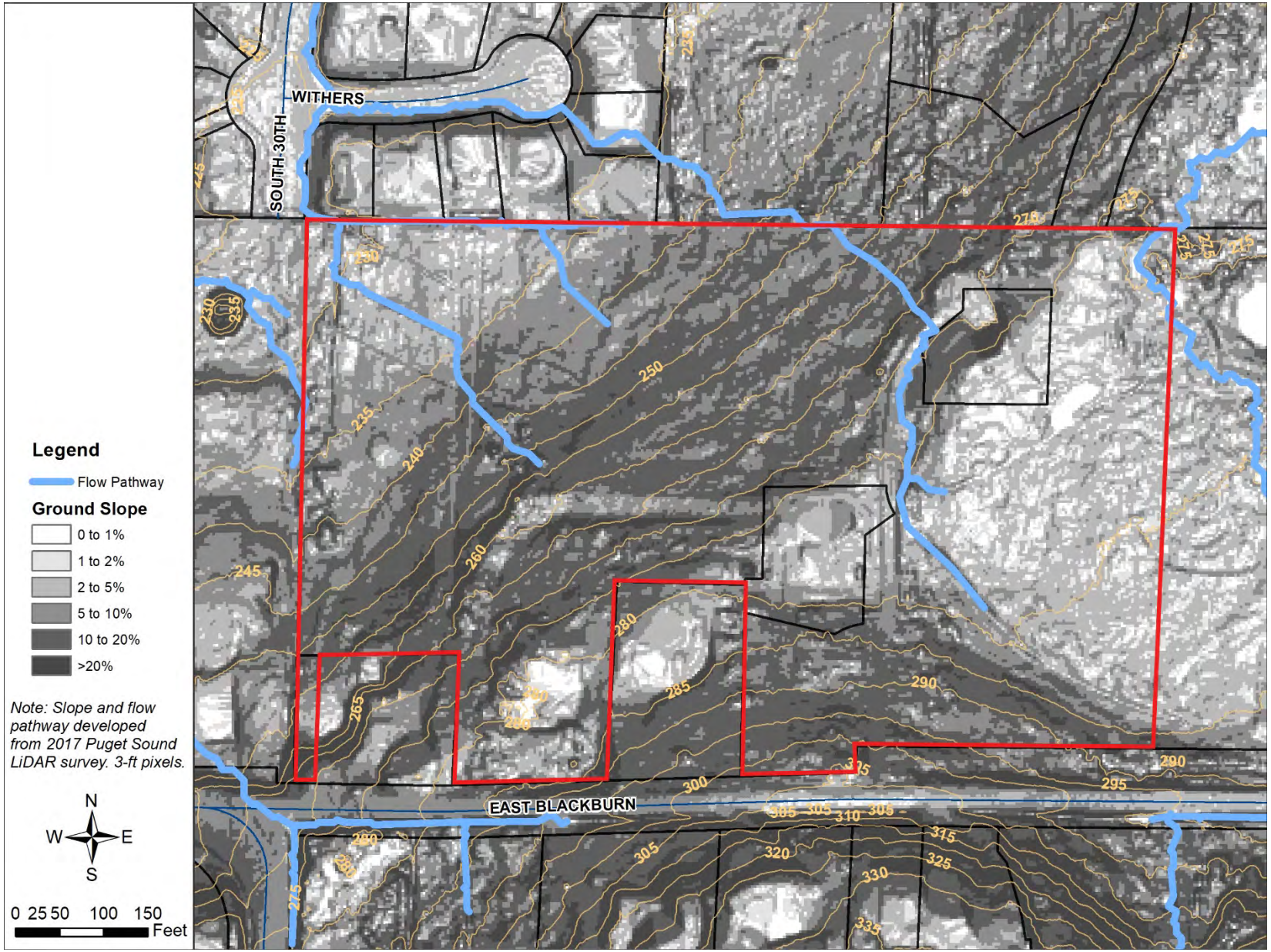


Figure 3: Surface Water Vector Map

Offsite Wetland

The offsite wetland was not delineated, but was observed as best able from the property boundary. The field has minimal grazing pressure, natural vegetation was intact. There is no evidence of hydrologic modifications, thus it was determined that normal conditions are present. The boundary previously put forth by the Jay Group (2007) noted on previous documentation appears valid with a noted break in vegetation as well as observed saturated soils pronounced upon the landscape during the growing season.

The offsite wetland was noted just past the southeast corner of the property as a slope wetland with an palustrine emergent regime, backed by a shrub bank. The wetland may connect to a depressional area to the east, but was not confirmed. It was rated using the depressional form as well, with a final category based on functions being a Category IV wetland with a combined score of 14. This correlated to the 2007 rating as performed by the Jay Group. The rating breakdown was as follows:

- Score for Water Quality Functions: 5
- Score for Hydrologic Functions: 5
- Score for Habitat Functions: 4

4.2 Regulatory Analysis

Mount Vernon Municipal Code (MVMC) addresses critical areas under MVMC 15.40, specifically wetlands under MVMC 15.40.90. Category IV wetlands are afforded 50ft standard buffers per MVMC 15.40.90(F)(l). Activities that result in unavoidable impacts may be permitted in Category IV wetlands pursuant to an approved wetland report and mitigation plan per MVMC 15.4O.90(E)(S) when full compensation is met for acreage and loss of function.

5. Conclusion

Two wetlands impact this property, one onsite and one offsite, both addressed previously by others. Supplied herein is a simple update of the wetland boundary based upon the present site conditions and rating by the required rating forms as required by the City of Mount Vernon and the Washington State Department of Ecology for verification and/or approval by the City for the anticipated project design. The Onsite Wetland will likely be impacted by any proposed development. A mitigation plan will be prepared later with the intent to use wetland bank credits from a certified bank as allowed in MVMC 15.40.08(E)(5) and MVMC 15.40.090(G)(6).

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Appendix A: Skagit County Soil Survey Data

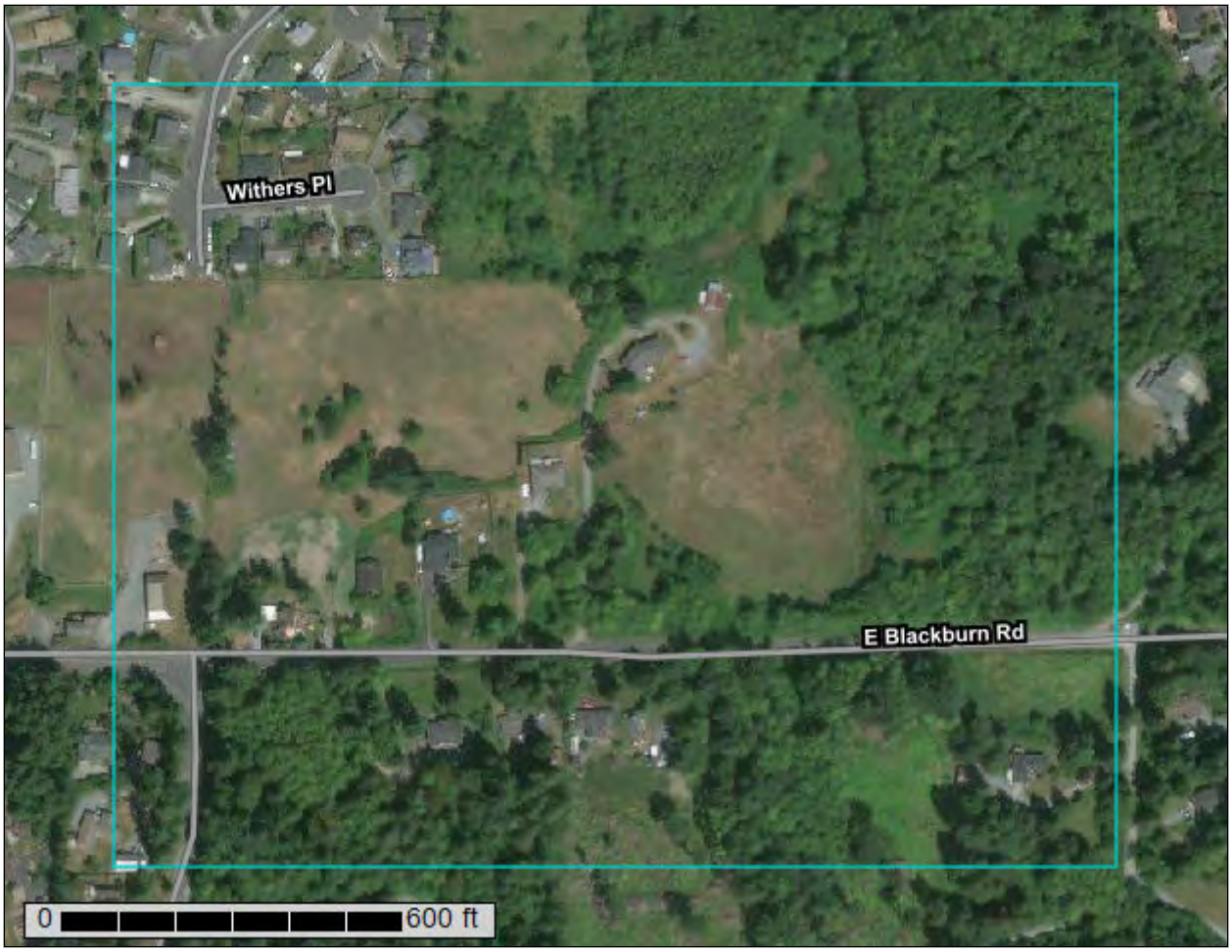
United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Skagit County Area, Washington

Iris Meadows



August 15, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,550 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Skagit County Area, Washington
Survey Area Data: Version 18, Sep 10, 2018

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

Date(s) aerial images were photographed: Mar 29, 2016—Oct 10, 2016

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10	Bellingham silt loam	3.5	6.2%
11	Bellingham mucky silt loam	11.8	21.0%
17	Bow gravelly loam, 3 to 8 percent slopes	31.0	55.2%
153	Vanzandt very gravelly loam, 0 to 15 percent slopes	9.9	17.6%
Totals for Area of Interest		**56.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Skagit County Area, Washington

10—Bellingham silt loam

Map Unit Setting

National map unit symbol: 2hrk
Elevation: 0 to 450 feet
Mean annual precipitation: 35 to 60 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 150 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Bellingham, undrained, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bellingham, Undrained

Setting

Landform: Depressions
Parent material: Alluvium and glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 8 to 20 inches to abrupt textural change
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Forage suitability group: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Minor Components

Bellingham, ponded

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Bellingham, drained

Percent of map unit: 5 percent
Hydric soil rating: Yes

Norma

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Skipopa

Percent of map unit: 1 percent
Hydric soil rating: No

11—Bellingham mucky silt loam

Map Unit Setting

National map unit symbol: 2hrx
Elevation: 0 to 450 feet
Mean annual precipitation: 35 to 60 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 150 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Bellingham, ponded, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bellingham, Ponded

Setting

Landform: Depressions
Parent material: Alluvium and glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: mucky silt loam
H2 - 9 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 8 to 20 inches to abrupt textural change
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Forage suitability group: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Minor Components

Skipopa

Percent of map unit: 2 percent
Hydric soil rating: No

Mukilteo

Percent of map unit: 2 percent
Hydric soil rating: Yes

Norma

Percent of map unit: 1 percent
Hydric soil rating: Yes

17—Bow gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2htx
Elevation: 50 to 400 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 170 to 220 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Bow and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bow

Setting

Landform: Terraces, hillslopes
Parent material: Volcanic ash, glaciolacustrine deposits, and glacial drift

Typical profile

H1 - 0 to 7 inches: gravelly ashy loam
H2 - 7 to 17 inches: very gravelly ashy loam
H3 - 17 to 31 inches: clay loam
H4 - 31 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Forage suitability group: Seasonally Wet Soils (G002XN202WA)
Hydric soil rating: Yes

Minor Components

Bellingham, undrained

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

153—Vanzandt very gravelly loam, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2htg
Elevation: 250 to 1,500 feet
Mean annual precipitation: 45 to 70 inches
Mean annual air temperature: 46 degrees F
Frost-free period: 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Vanzandt and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vanzandt

Setting

Landform: Hillslopes
Parent material: Volcanic ash and glacial drift

Typical profile

H1 - 0 to 6 inches: very gravelly medial loam
H2 - 6 to 25 inches: very gravelly medial loam
H3 - 25 to 36 inches: very gravelly medial sandy loam
H3 - 36 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Forage suitability group: Soils with Moderate Limitations (G002XF603WA)
Hydric soil rating: No

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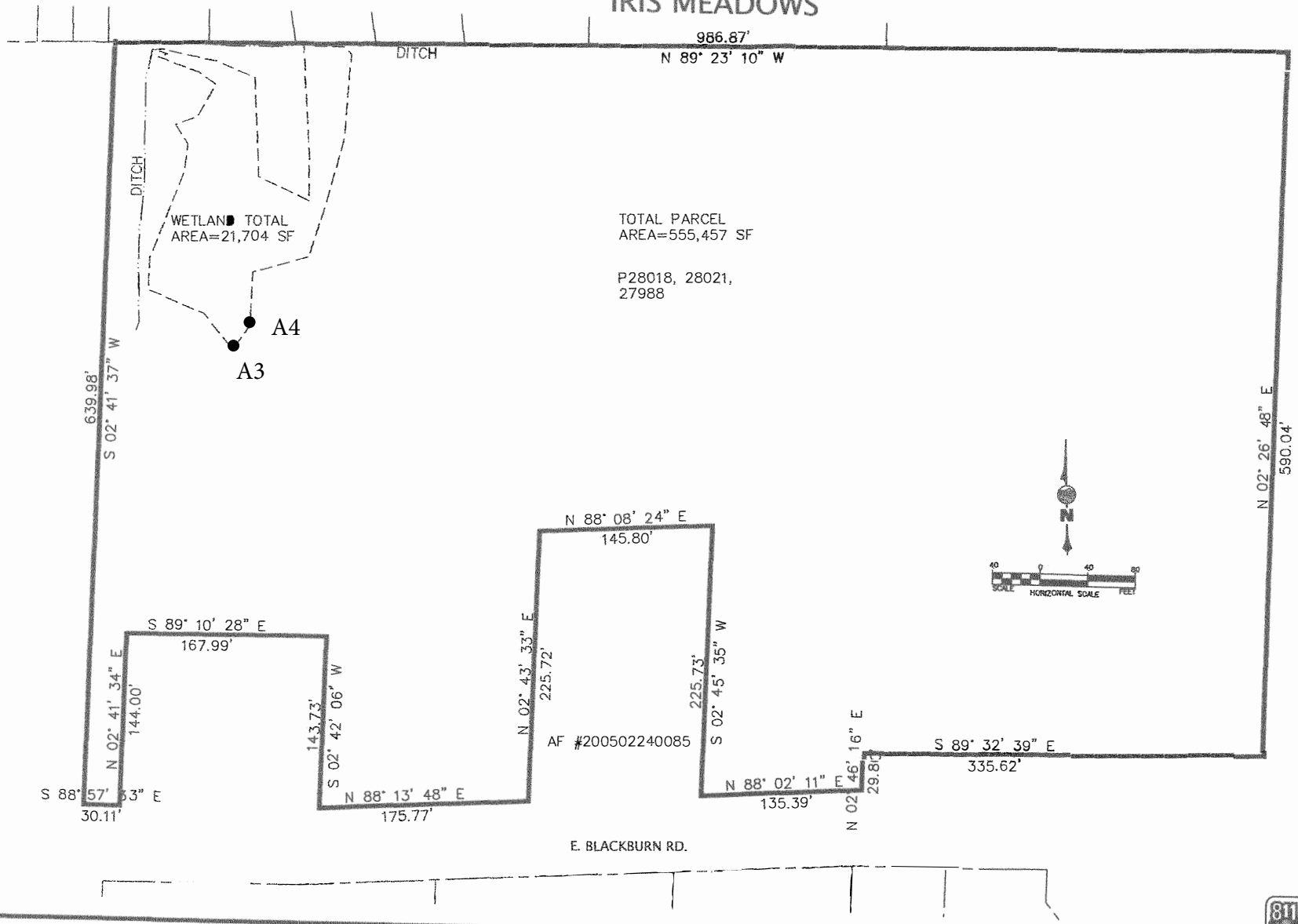
Appendix B: Onsite Wetland Delineation (Wilson Eng.)

WILSON ENGINEERING

IRIS MEADOWS



WILSON ENGINEERING

DESIGNED BY
DRAWN BY CLM
CHECKED BY pp

WILSON ENGINEERING
BELLINGHAM WASHINGTON
IRIS MEADOWS
WETLANDS

SHEET	DATE	SCALE	JOB NUMBER	PAGE
1	07-23-2018	AS SHOWN	2018-027	1 OF 1

PLOT SETTINGS: Bluebeam PDF, Tabloid, Landscape, 1:1, NE APWA_LINESCREENED.cds
W:\2018\2018-027 IRIS MEADOWS\DWG\2018-027SVO.DWG - 7/23/2018 3:06 PM - Paul

Appendix C: Wetland Data Forms

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

Project/Site: Iris Meadows City/County: Mt Vernon / Skagit Sampling Date: 06/28/2018

Applicant/Owner: Cammock State: WA Sampling Point: DPWet

Investigator(s): M.Mahaffie Section, Township, Range: 28/34/04

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): _____

Subregion (LRR): a Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Bow Gravelly Loam NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology √ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No √

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

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

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

Remarks: Wetland side of line at A3-A4, pit located 6' inside of line)

Past drainage activities have altered site hydrology (potentially increasing wetland extents based on previous 2006 delineation extents)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 3'R)			
1. RARE	20	yes	FAC
2. TAOF	TR	no	FACU
3. Mixed relic pasture grasses, non-id'ed	80	n/a*	FAC
4. JUEF	20	yes	FACW
5. PHAR	TR	no	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** √ **No** _____

Remarks:

Site is grazed seasonally. Grasses were not Id'd as such. However, based on earlier observations, give an overall FAC average. Site is just below transition zone, upland weeds start appearing TAOF/HYRA above, below JUEF and PHAR dominate or are prevalent in wetland.

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR3/2	100					sl	
5-10	10YR3/2	95	10YR4/6	5	c	pl	gl	
10-13	10YR3/2	90	10YR4/6	10	c	pl	gl	
13-16+	5Y4/2	90	10YR4/6	10	c	pl	gl	

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
√ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** √ **No** _____

Remarks:

Soil boundary is determining factor in determination at this point.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No √ Depth (inches): _____

Water Table Present? Yes _____ No √ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No √ Depth (inches): _____

Wetland Hydrology Present? **Yes** √ **No** _____

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

Remarks:

Site walked multiple times in early growing season (March-May) with site hydrology observed. Area had evidence of recent saturation (tractor tracks in saturated soils), was in area of informal sampling where saturation and water table was observed (~6" during early growing season).

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

Project Site: Iris Meadows City/County: Mt Vernon/Skagit Sampling Date: 6/28/18
Applicant/Owner: Cammock State: WA Sampling Point: DPUP
Investigator(s): M. Mahaffie Section, Township, Range: 28/34/04
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ____
Subregion (LRR): a Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: bow gravelly loam NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Upland side of line at A3-A4, upland side by 6'.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30r)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = ____, 20% = ____	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Herb Stratum (Plot size: 3'R)			
1. *RARE*	30	yes	FAC
2. *TAOF*	10	yes	FACU
3. *Mixed relic pasture grasses, non-id'ed*	80	n/a*	FAC
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)%

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:
OBL species	____	x1 = ____
FACW species	____	x2 = ____
FAC species	____	x3 = ____
FACU species		x4 = ____
UPL species	____	x5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Site is grazed seasonally. Grasses were not Id'd as such. However, based on earlier observations, give an overall FAC average. Site is just above transition zone, upland weeds start appering TAOF/HYRA, below JUEF and PHAR dominate or are prevelent in wetland.

Project Site: ____

SOIL

Sampling Point: DPUp

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR2/2	100	____	____	____	____	sl	____
4-10	10YR3/2	100	____	____	____	____	gl	____
10-14	10YR3/2	97	10YR4/6	3	c	pl	gl	____
14-16+	5Y5/2	90	10YR4/6	10	c	pl	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): ____
Water Table Present?	Yes	☐	No	☒	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): ____

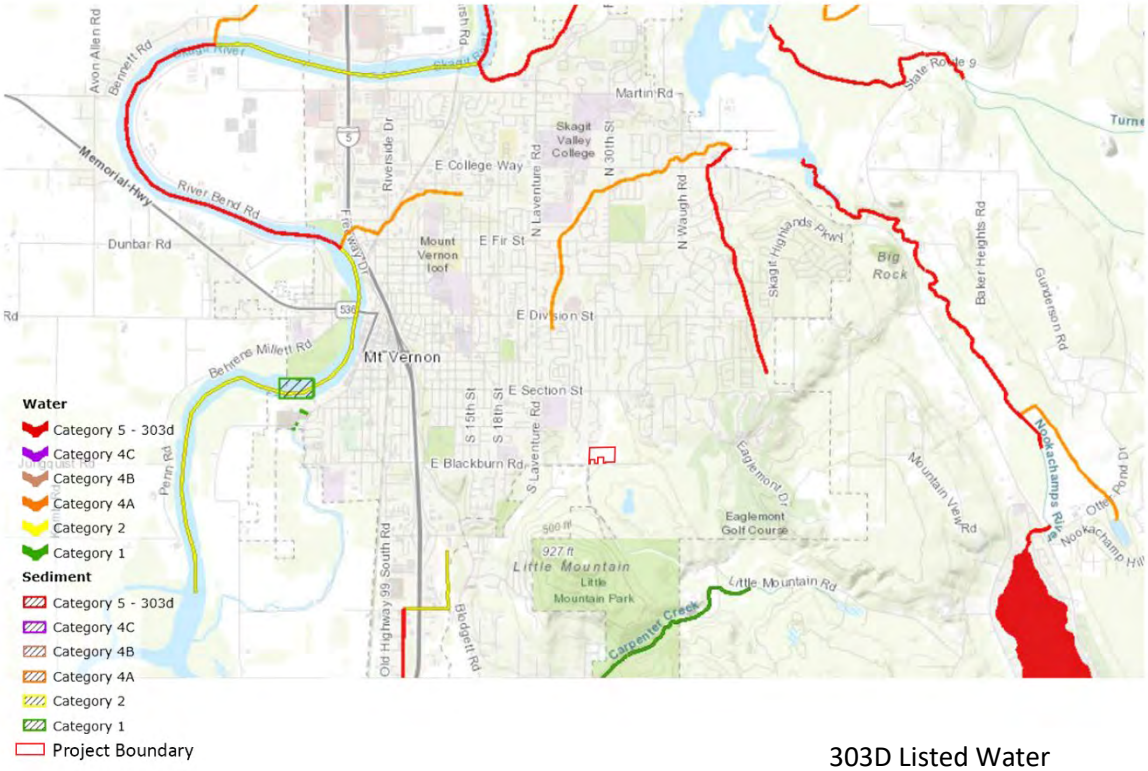
Wetland Hydrology Present? Yes ☐ No ☒

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

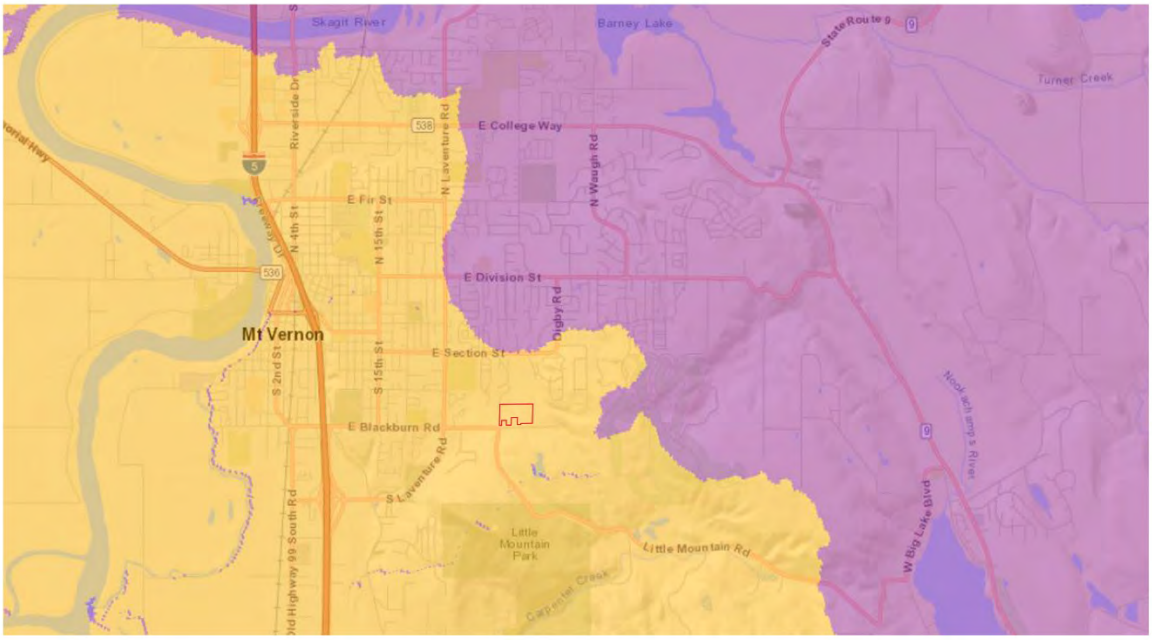
Remarks: Site walked multiple times in early growing season (march-may) with site hydrology observed. Above such observations.

Appendix D: Wetland Rating Forms (2014)

RATING FIGURE 1A (All wetlands)



303D Listed Water



Approved
In Development
Project Boundary

TMDL Map

Washington State Department of Ecology Water Quality Atlas. 2019
https://fortress.wa.gov/ecy/waterqualityatlas/map.aspx?CustomMap=y&RT=0&Layers=23,29&Filters=n,n,n,n

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Iris Meadows onsite Date of site visit: 5//2018

Rated by M Mahaffie Trained by Ecology? ☑ Yes ☐ No Date of training 15-Sep

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth Pro

OVERALL WETLAND CATEGORY IV (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
X **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	L	
Landscape Potential	M	M	M	
Value	H	M	L	**Total**
Score Based on Ratings	6	5	4	**15**

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

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

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

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

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

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

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

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

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

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

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

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

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS

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

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

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

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

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

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

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

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		0
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		1
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**4**

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

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**2**

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

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		1
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0

Total for D 6	Add the points in the boxes above	1

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

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

If the unit has a Forested class, check if:

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

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

0

H 1.2. Hydroperiods
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

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

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

1

H 1.3. Richness of plant species
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

1

H 1.4. Interspersion of habitats
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points — **Low** = 1 point — **Moderate** = 2 points

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

0

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

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (17 % moderate & low intensity land uses / 2) = 8.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 18 % undisturbed habitat + (21 % moderate & low intensity land uses / 2) = 28.5% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	1

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

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

Wetland name or number

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

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

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

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☑ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

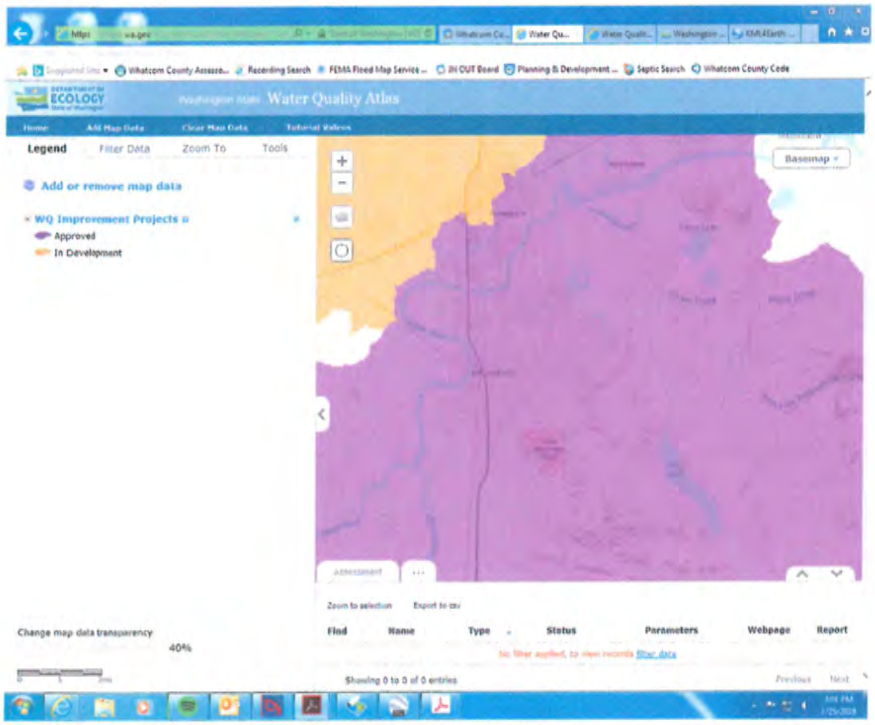
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

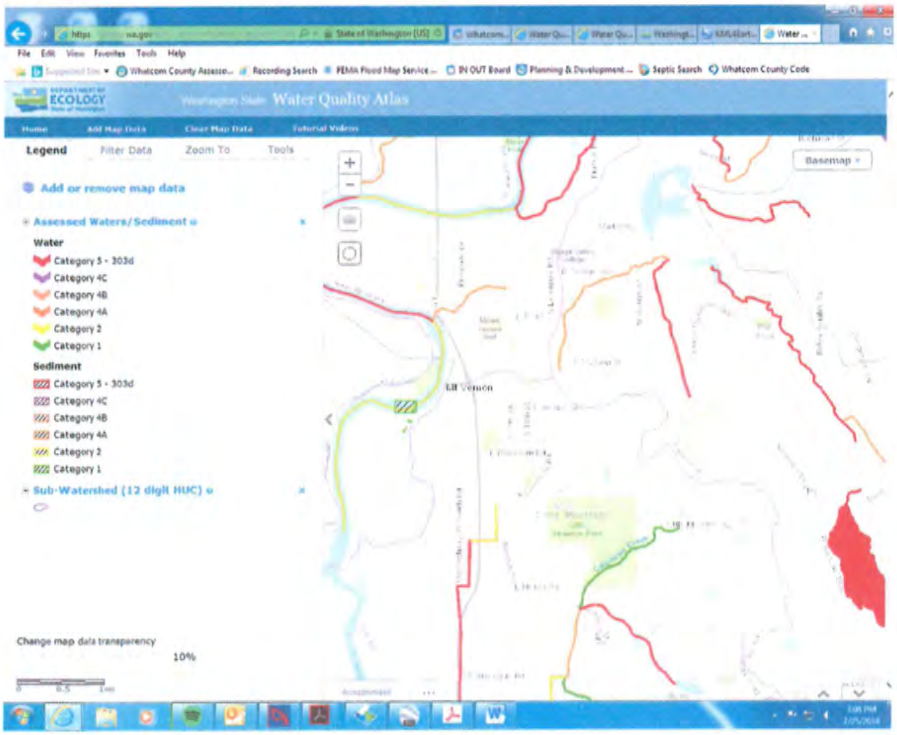
Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

TMDL Coverage



303d Waters

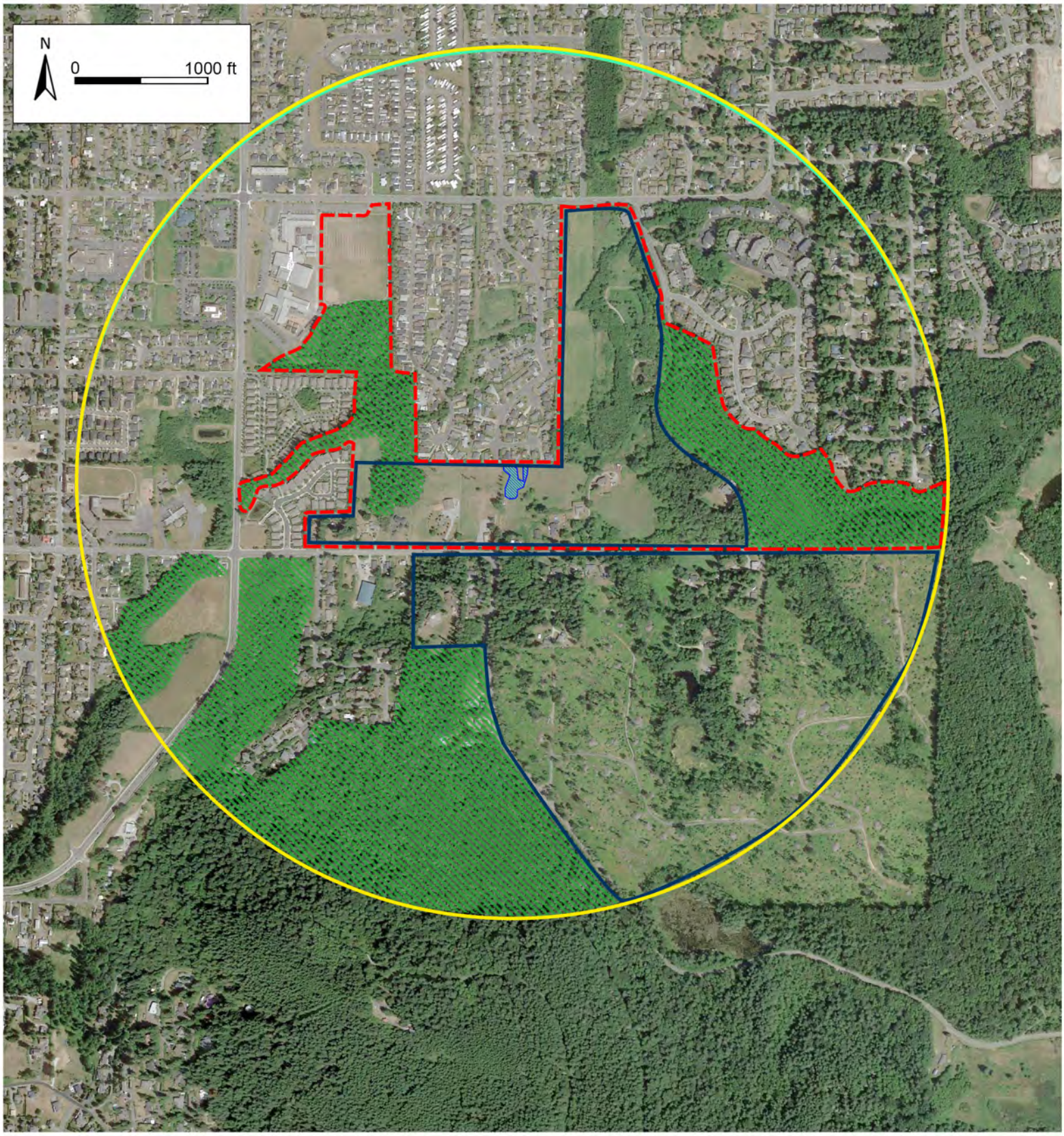


150 Foot Buffer

Emergent

Seasonally Inundated

Outlet



1km Buffer

Accessible

Relatively Undisturbed

Moderate and Low Intensity

Delineated Wetland

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Iris Meadows offsite wetland Date of site visit: May-18

Rated by M Mahaffie Trained by Ecology? ☑ Yes ☐ No Date of training 15-Sep

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY IV (based on functions ☐ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
X **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	L	
Landscape Potential	L	M	M	
Value	H	M	L	Total
Score Based on Ratings	5	5	4	14

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

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

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

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

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

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

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

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

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

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

☐ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

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

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

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

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

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

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

SLOPE WETLANDS

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

S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*)		0
Slope is 1% or less	points = 3	
Slope is > 1% - 2%	points = 2	
Slope is > 2% - 5%	points = 1	
Slope is greater than 5%	points = 0	
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*):	Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.*		3
Dense, uncut, herbaceous plants > 90% of the wetland area	points = 6	
Dense, uncut, herbaceous plants > ½ of area	points = 3	
Dense, woody, plants > ½ of area	points = 2	
Dense, uncut, herbaceous plants > ¼ of area	points = 1	
Does not meet any of the criteria above for plants	points = 0	
Total for S 1	Add the points in the boxes above	3

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

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?		0
Other Sources	Yes = 1 No = 0	
Total for S 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: ☐ 1 - 2 = M ☑ 0 = L *Record the rating on the first page*

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

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

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?		
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^1/_8$ in), or dense enough, to remain erect during surface flows.*		0
Dense, uncut, **rigid** plants cover > 90% of the area of the wetland	points = 1	
All other conditions	points = 0	

Rating of Site Potential If score is: ☐1 = M ☑0 = L *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑1 = M ☐0 = L *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?		
S 6.1. Distance to the nearest areas downstream that have flooding problems:		1
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for S 6	Add the points in the boxes above	1

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

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

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

If the unit has a Forested class, check if:

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

1

H 1.2. Hydroperiods
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

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

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

0

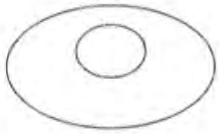
H 1.3. Richness of plant species
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

1

H 1.4. Interspersion of habitats
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points



Low = 1 point

Moderate = 2 points

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

1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 — Add the points in the boxes above	3

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 12 % undisturbed habitat + (25 % moderate & low intensity land uses / 2) = 24.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 20 % undisturbed habitat + (24 % moderate & low intensity land uses / 2) = 32% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	3

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

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1	0

Site does not meet any of the criteria above	points = 0	

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

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

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

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

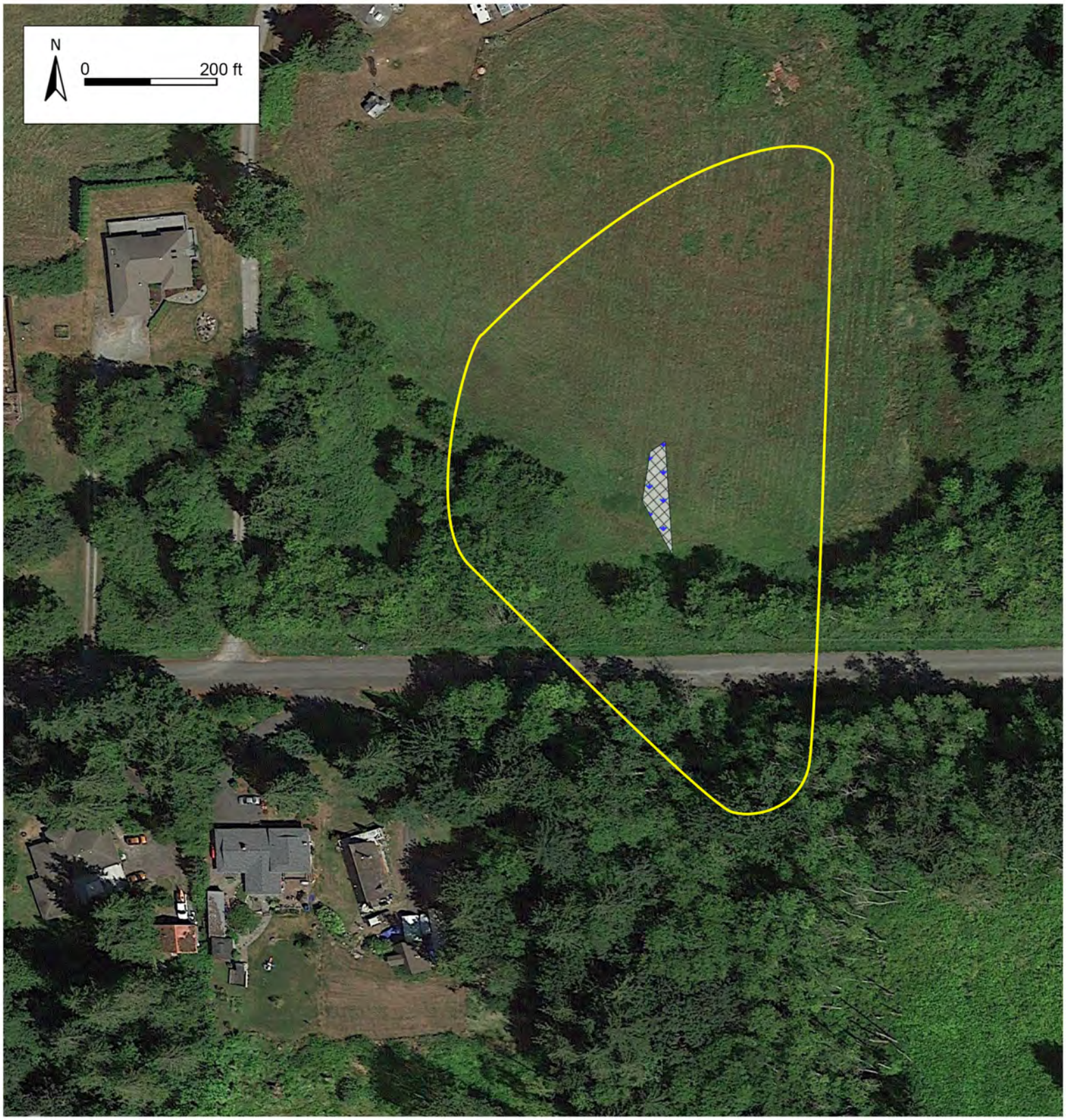
addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

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

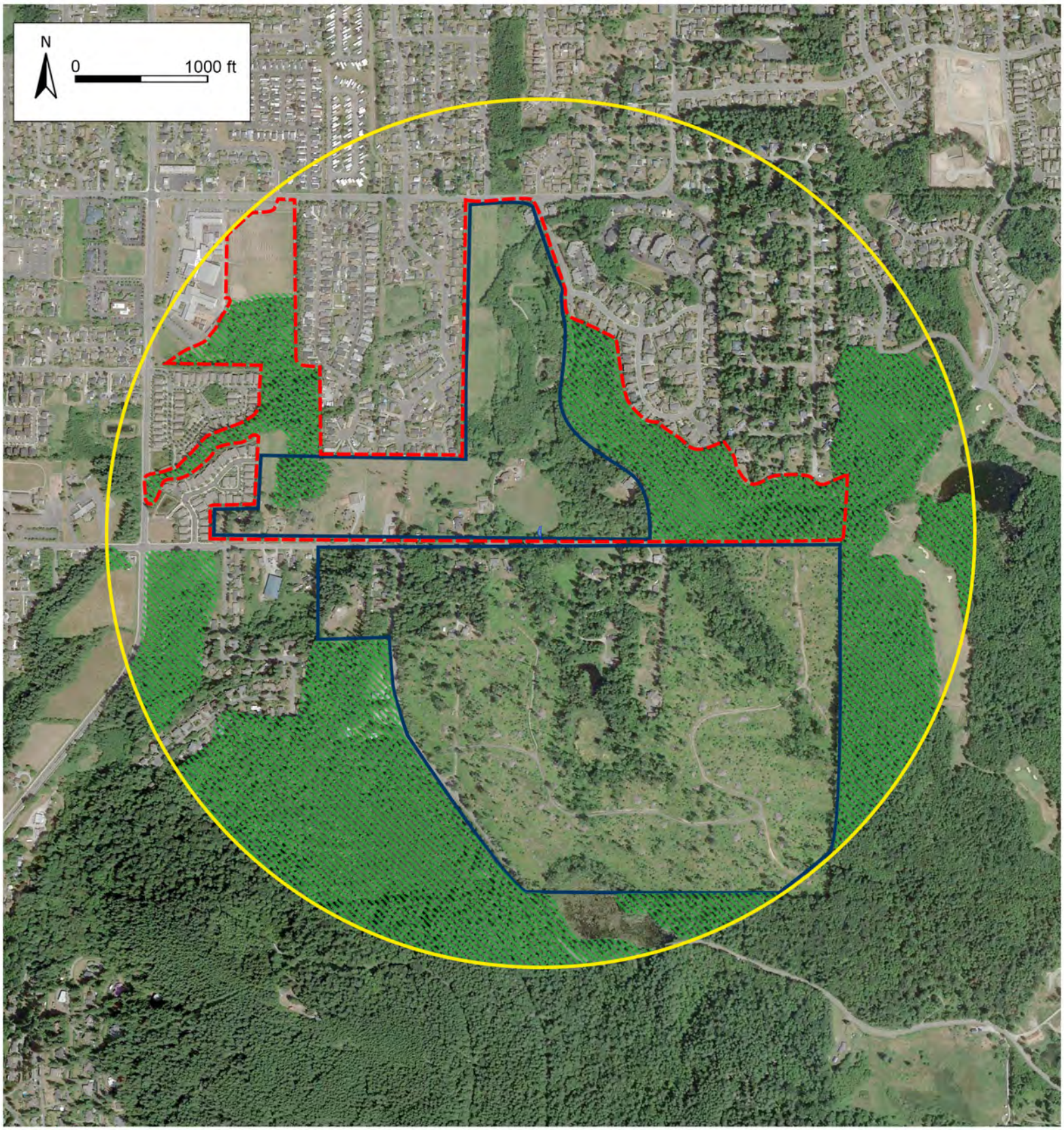


150 Foot Buffer

Emergent

Seasonally Inundated

NOTE: The west edge of fhe "off-site" wetland was delineated and surveyed by the Jay Group (2007). West boundary was confirmed by Skagit Wetland and Critical Areas,llc. in 2018.



1km Buffer

Accessible

Relatively Undisturbed

Moderate and Low Intensity

Delineated Wetland

Appendix E: Wetland Technology Delineation (2006)

Wetland Technology
11-29-06

Critical Areas Site Assessment: Wetland Delineation

Iris Meadows 13.3 acre Property, Mount Vernon WA.

A 13 plus acre parcel, north of Blackburn Road

By Dennis Dickson Fisheries/Wetland Biologist

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Wetland Delineation Map/
Legal Description

Mount Vernon Critical Areas
(GIS Map)

Soil Survey Map

Soil Survey description

Functions & Values Form

Wetland Field Sheets

Bibliography

Wetland Technology Biography

WETLAND TECHNOLOGY

11/29/06
Chris & Craig Cammock
2917 Blackburn Road
Mt. Vernon, WA, 98273

Nordco, Iris Meadows Properties, 13.3 acres

JURISDICTIONAL WETLAND EVALUATION DELINEATION

INTRODUCTION

Wetland Technology biologist Dennis Dickson has completed a Wetland evaluation and delineation on a 13 plus acre parcel. This property is located and includes 2917 & 2915 Blackburn Road, Mt. Vernon, Washington, Skagit County.

The purpose of this work was to prepare a report describing the existing conditions of wetlands, and set a delineated boundary around each wetland, on this property.

LEGAL DESCRIPTION & SITE MAP, (see attached)

Vicinity Map (see attached)

SITE DESCRIPTION

This property is comprised of four adjoining units. We shall refer to the parcels as the eastern, the central, central-west and the western units. The eastern unit is described as a historically cleared and pastured 5 acre parcel, farmed for agricultural use. It has been recently disked and plowed for farming. A house residence is located to the northwest of this parcel. The southern boundary is located along Blackburn road. The property has a driveway, which bisects the eastern, from the three parcels to the west. The eastern 5 acres has a man made ditch those parallels along the driveway from the southern boundary, and drains past the house to north. This is a preexisting condition. This unit also slopes slightly from the south to the north. There are no jurisdictional wetland units on the eastern property.

The central unit is a home site lawn, which also parallels Blackburn Road to the south, and west of the eastern parcel. This unit is moderately sloped towards the north and manicured near a second residence. It is approximately 1 plus acres. No wetland units are located on this parcel.

The central-west 5 acre unit is described as a larger, well sloped, pastured field. There are two houses to the south and a preexisting open ditch line, which extends from the south to a maintained ditch on the north. There is another ditch, which parallels along the northern border sloping from east to west.

The western property is too a pastured field, with a dominant ditch-line coursing long the western boundary from south to north. There is an upland deciduous/confer second growth wood lot adjoining the property in the northwest section.

The hydrology from the four units appears to drain from the south and east into a northwest corner emergent meadow wetland and the nearby ditch running along the north & west boundary, intersection. There is an offsite distant wooded upland forest on the northwest near 30th Street. The small, isolated, emergent wetland "A" located in the northwest corner of the property will be described in detail within the body of this report.

METHODOLOGY

The study was conducted utilizing the 1997 US Army Corps of Engineers Wetlands Delineation manual. It is an accepted standard guideline for identifying and jurisdictional delineating wetlands by Federal, State, County, and Municipal governments.

The routine on-side determination method was chosen to be the appropriate specific field method. The disturbed site methodology was not integrated with the on-site methodology because vegetative units were intact and already established.

Both wetland and adjacent upland areas were analyzed for comparison and comprehensive characterization. Wetland boundaries were marked with fluorescent yellow flagging. Each wetland area was lettered for that wetland and also numbered. After the wetland boundaries were staked, the parcel was surveyed and mapped. (Lisser & Associates, PLLC.)

The three parameters that must be examined in all wetland assessments are soils, hydrology and vegetation.

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic (oxygen deficient) conditions.

Wetland hydrology exists when the soil is inundated or saturated near the surface for a period of one week or more during the growing season and is evidenced by hydrophilic vegetation and hydric soils.

Hydrophilic vegetation is defined, as plant life growing in water or on substrata that is periodically deficient in oxygen as a result of excessive water content. Examples of hydrophilic vegetation are cattail, soft rush, reed canary grass, horsetail, skunk cabbage, willows, cottonwood, red alder, and spruce.

Representative soil samples were analyzed from each ecological map unit. Soil test holes were dug to a depth of 18 inches. Each horizon was evaluated for hydric indications and the Munsell Soil Color Chart was utilized to determine chroma, hue, and value. The U.S. Soil Conservation Service soil Survey of Skagit County was referenced for listed soils on the subject parcel.

Hydrology was visibly assessed for visual inundation and/or saturation. Depth to standing water in soil test-holes was measured. Additional field indicators of wetlands hydrology that were assessed for oxidized root zones, water marks, drift lines, water borne sediment deposits, water-stained leaves, surface scoured areas, wetland drainage patterns, and morphological plant adaptations.
Plant species for each ecological vegetative unit were identified and analyzed for arial cover. The herb, shrub, and tree stratums were segregated for statistical analysis purposes.

Plants were separated into four basic groups for wetland indicator status according to the "National List of Plant Species That Occur in Wetlands/Northwest Edition":

1.) Obligate wetland plants (OBL) that occur almost always in wetlands under natural conditions (Estimated probability >99%)
2.) Facultative wetland plants (FACW) that usually occur in wetlands estimated probability 67-99%, but occasionally are found in non-wetlands
3.) Facultative plants (FAC) that are equally likely to occur in wetlands (estimated probability 34-66%) or non-wetlands

4.) Facultative upland plants (FACU) that usually occur in non-wetlands (estimated probability 67-99%) but occasionally are found in wetlands (estimated probability 1-33%). NC indicates no category listed.

DOMINANT WETLAND SPECIES

COMMON NAME	SCIENTIFIC NAME	STATUS	STRATUM
Soft rush	Juncus effusus	FACW	herb
Creeping Buttercup	Ranunculus repens	FACW	herb
Reed canarygrass	Phalaris arundinaccea	FACW	herb

DOMINANT UPLAND SPECIES

Domestic grasses		N/C	herb
Canada Thistle	Cirsium arvense	FACU	herb
Red Clover	Trifolium pratence	FACU	herb
Dandelion	Taraxacum officinale	FACU	herb
H. Blackberry	Rubus discolor	FACU	W. Vine
Doug Fir	Pseudotsuga Menziessii	N/C	Tree
Big Leaf Maple	Acer Macrophyllum	FACU	Tree
Snowberry	Symphoricarpos albus	FACU	shrub
Thimbleberry	Rubus parviflorus	FACU	shrub
Sword Fern	Polystichum munitum	FACU	herb

General Vegetation Summary

Emergent meadow upland grasses dominated the area, as did the wetland vegetation in the wetland swale. Soft rush, Reed canarygrass and creeping buttercup are the wetland vegetation found in the emergent swale depression.

Domestic grasses, Canada Thistle, Dandelion, & Red Clover dominated Upland pasture.

Upland Woodlot: The deciduous/confer forest fringe is the extension of the forest on the west. The conifer forest upland vegetation was typical of a western Washington forest. Big Leaf Maple and Doug Fir dominated the canopy,

snowberry, the shrub level, while Sword Fern was the predominant vegetation in the herbaceous stratum.

HYDROLOGY

This parcel is described in the site description.

Other indicators of a present soil hydrology are stated:

_X_ oxidized root zones	___ water stained leaves
_X__ water marks	_X_ surface scoured areas
___ drift lines	_X_ wetland drainage pattern
_X_ waterborne sediments	_X_ morphological pattern

Conclusion: Historic agricultural practices have effectively removed the hydrology and thus converted this unit to upland status, in all but the depressional emergent swale, located in the northwest corner of the parcel. The non-hydrophylic vegetation dominance supports these findings.

SOILS

The U.S. Conservation Service (USSCS) Soil Survey of Skagit County lists the soil types in this area to be Bow Gravelly Loam, 3 to 8 % slopes. This soil is classified as hydric. (See attached)

SOILS SUMMARY

The soil samples taken appear to be typical for the area as described in the USSCS Soil Catalog. This soil is drained in the upland. The wetland swale produced a B-horizon on 10YR 3/1 chroma with iron mottles of 10YR 4/6. As oxidation along the root channels was evident, it is determined this wetland seep is in an active wetland status.

Conversely; the upland soils were bright and moderately drained with a 10YR 4/3 chroma with old hydric soil mottles. There was also no oxidation along the root zones, which would indicate, the historically placed drainage tiles have effectively dewatered the site into upland status. Vegetation and lack of hydrology would support this finding.

WETLAND VALUES

Wetland ecosystems serve numerous functions with respect to fish, wildlife, plants, water, soils and air. Wetlands serve as specialized habitat for waterfowl, certain furbearers, amphibians, crustaceans and fish. The complexity of these environs is exemplified by the prolific biochemical nature of an aquatic system.

Various species of wetland vegetation absorb and breakdown elements and compounds that would otherwise become toxic within natural water systems. Examples of these substances are petroleum products, nitrates (fertilizers), organophosphates (detergents), and minerals such as iron, aluminum, manganese and copper. The physical retention of eroded soils and sediments is also one of the valuable attributes of wetlands. The end result is a natural biofiltration process that affords water quality and viable fish habitat. Wetlands also act as natural water storage and aquifer recharge areas. It should be remembered that wetland ecosystems are susceptible to degradation due to significant levels of pollutants and are therefore normally subject to setback buffer zones. Artificial biofiltration swale and detention ponds are often utilized to enhance water quality before flows enter wetlands.

There was no evidence of endangered species of fauna or flora on site.

WETLAND REGULATORY AGENCY JURISDICTION

Jurisdictional wetlands are regulated on three levels; that is, Federal, State, and Municipal agencies.

On the federal level, US Environmental Protection Agency regulate wetlands under Section 401 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The US Army Corps processes regulatory permitting. Of Engineers which has final jurisdiction regarding wetlands.

The State of Washington regulates state waters under the State Shoreline Management Act, which pertains to streams of 5 CFS or more, lakes of 20 acres or more, and all marine shorelines. The Washington State Department of Ecology and Washington Department of Fisheries regulate development through Hydraulic Project Applications.

City and County municipalities regulate through ordinances set up in their Growth Management Plan regarding "Sensitive Areas". As such, the local agencies are generally considered "Lead Agency" and develop set back buffer zones from wetland boundaries and regulate the types of work allowed, in and around wetlands.

Wetland Categorization Onsite Function & Value

To evaluate wetland rating Wetland technology has compiled information from agencies, professionals, current literature, and Mount Vernon Planning Department, to update the functions and value in the Wetlands Rating Field Data. (DOE 1993) (See Functions & values form)

Site Summary: Function & Value of Emergent Meadow Wetland A was classified as a Category 4 due to small size, isolated and marginally function & value.

National Wetland Inventory (NWI) & Mount Vernon GIS Critical Areas mapping (Wilson & Shannon) using aerial photography to locate potential wetlands in the district. (See attached) This wetland is described as a Palustrine Emergent Meadow (PEM). Onsite inspection concurs but the wetland size is significantly smaller. Most likely due to sound hydrological management such as the ditching historically placed, for agricultural purposes.

CONCLUSIONS AND RECOMMENDATIONS

The City of Mount Vernon ordinance has jurisdiction as lead agency.
It is the conclusion of this report that Wetland "A" is an emergent meadow wetland located onsite. (See attached) As this isolated wetland swale is only 8,144.0 sq. feet, it falls under exemption rules regarding jurisdictional wetland status

Mount Vernon Municipal Code Chapter 15.40.070
Certain activities are exempt from the requirements of this this chapter while other activities may be granted specific exceptions or modifications as provided in this chapter.

A) Exemptions.

1) Existing structures or improvements that do not meet the requirements of the chapter may be remodeled, reconstructed, or replaced providing that any new construction does not further intrude into a critical area and/or buffer;

2) Normal and routine maintenance of existing dikes, drainage ditches, drainage retention/detention facilities, or ornamental landscape ponds.

3) Emergencies that threaten the public health, safety, and welfare as determined by the city;

4) Development that occurs adjacent to wetlands that are less than 10,000 sq. feet in size; (Pg 15-49 Municipal Code)

All site development is still subject to standard building codes.

As the City of Mount Vernon ordinance has jurisdiction as lead agency. Development provisions of this project will fall under the city ordinances regarding wetlands. All site development is still subject to standard building codes.

Thank you for your consideration. If you have any questions regarding this study, please contact me at (360) 435-6499

Respectfully,

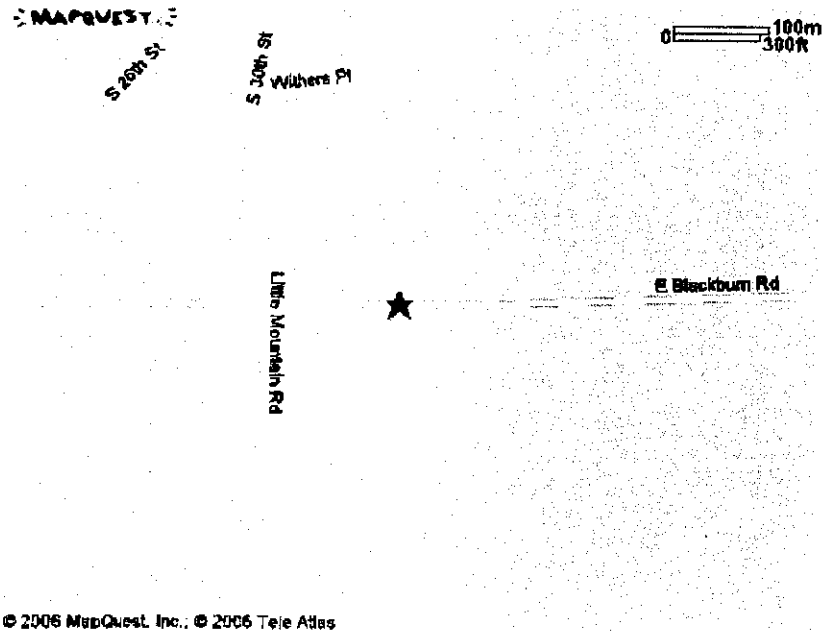
Dennis Dickson

Dennis Dickson, Biologist

MAPQUEST.

Vicinity

2917 E Blackburn Rd
Mount Vernon, WA 98274-8701,
US



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23-246 Norwood

Calculating Area... **WETLANDS A DELINEATED MAY 2006**

3000	S11°12'53"W	15.231	8027.923	9498.037	3001 T
3001	S89°40'01"E	31.802	8027.739	9529.839	3002 T
3002	S03°31'25"E	60.863	7966.991	9533.580	3003 T
3003	S50°30'21"E	26.744	7949.982	9554.218	3004 T
3004	N27°38'51"E	65.221	8007.756	9584.482	3005 T
3005	N47°27'28"E	58.887	8047.571	9627.869	3006 T
3006	S87°52'30"W	126.957	8042.863	9501.000	3000 T

Results:

Square Feet :	5262.4	Acres	:	0.121
Square Metres:	488.89	Hectares	:	0.049

Select Region Select View

Search by:

Section
Parcel Number
Address
Xref ID
Road Name

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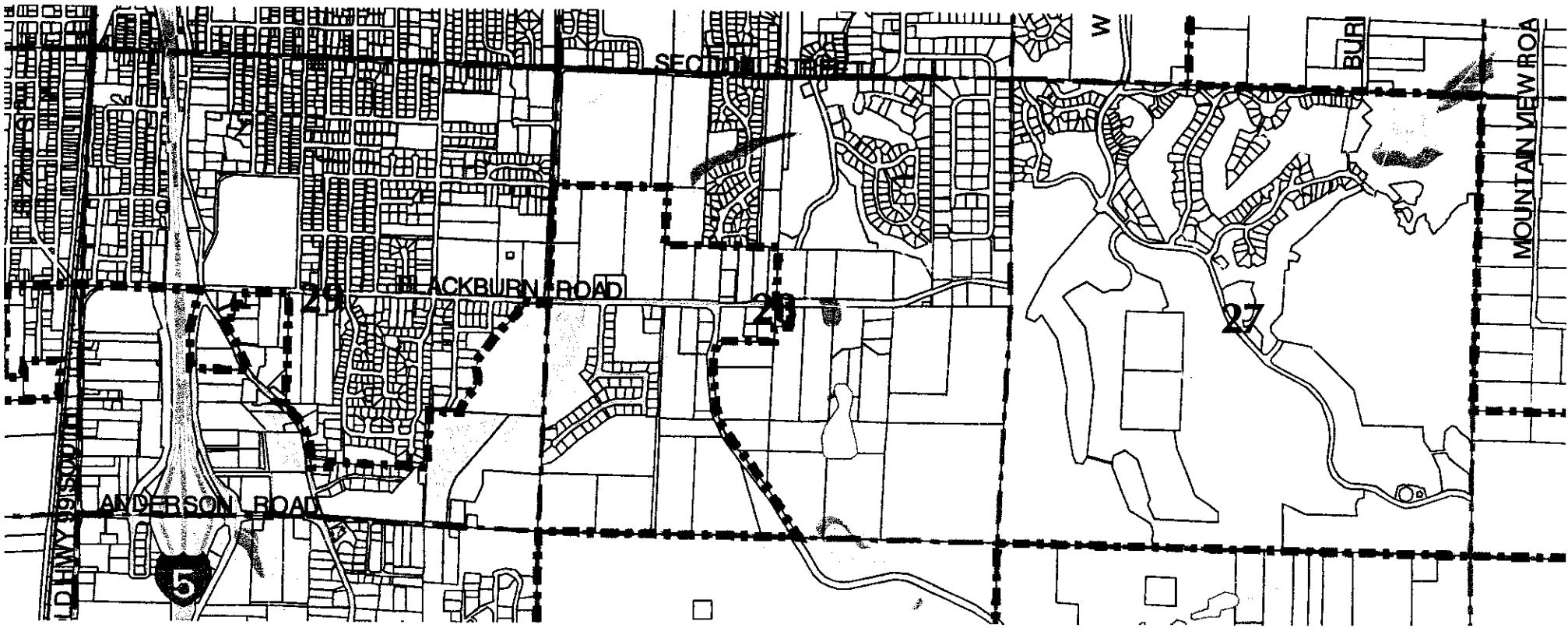
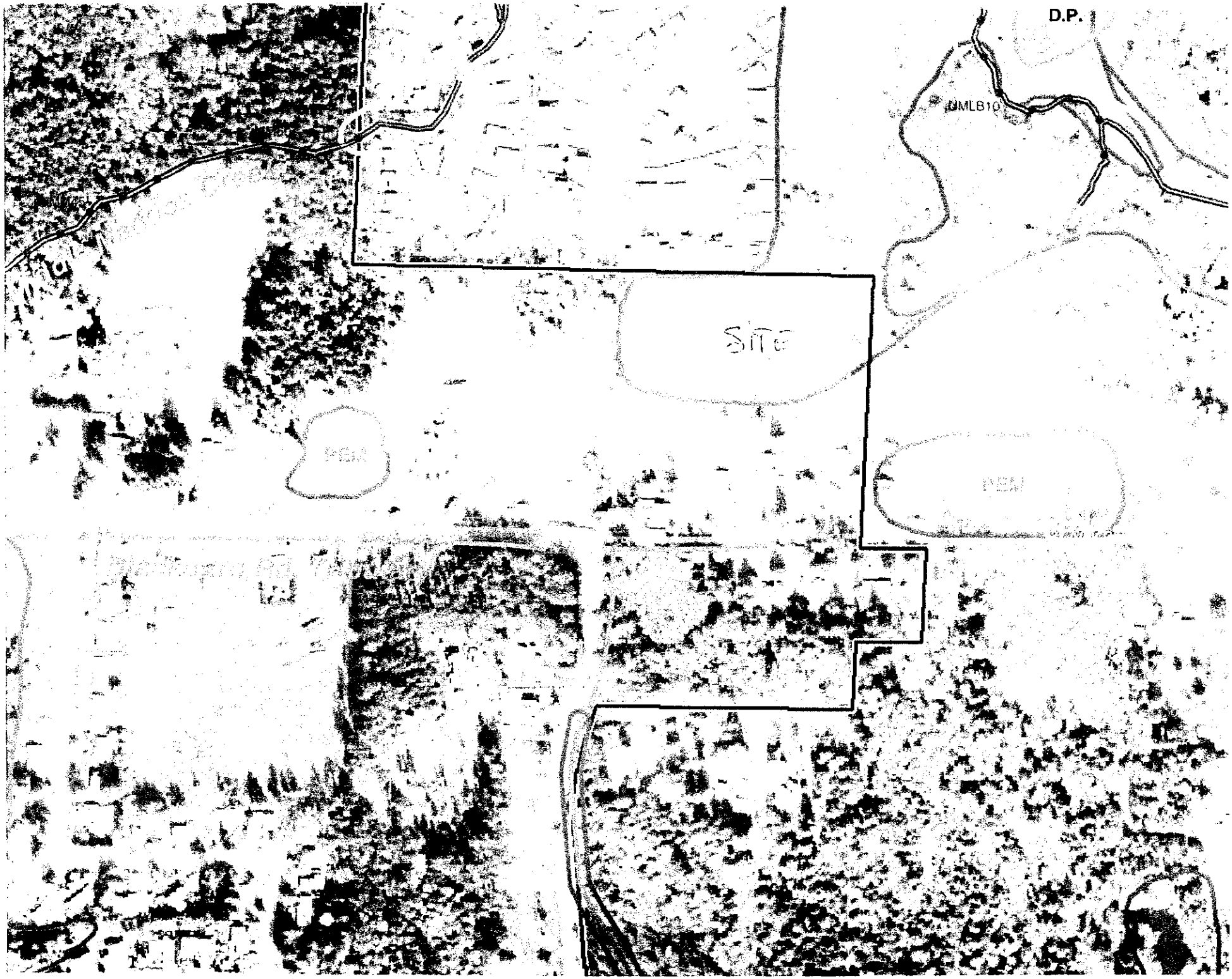
SKAgit County + NWI
WETLAND GIS




D.P.
UMLB10
Site
MSM
MSM

capacity is high. Effective rooting depth is limited by a perched water table that is at a depth of 6 to 18 inches from November to May. Runoff is slow, and the hazard of water erosion is slight.

This unit is used as hayland, pastureland, woodland, and homesites. If adequately drained, the unit is suited to climatically adapted cultivated crops.

The main limitation for hay and pasture is seasonal wetness. The water table limits the use of this unit to grasses and shallow-rooted legumes. Tile drains and field ditches are needed to reduce wetness if deep-rooted plants are grown. Drainage tiles should be closely spaced because of the slow permeability. Shallow ditches help to remove surface water and prevent ponding. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture in good condition.

Douglas fir is the main woodland species on this unit. On the basis of a 100-year site curve, the mean site index for Douglas fir is estimated to be 131. On the basis of a 50-year site curve, the mean site index for Douglas fir is estimated to be 107. The highest average growth rate for Douglas fir is 132 cubic feet per acre per year at age 70. Among the trees of limited extent are red alder, western redcedar, and western hemlock. Common forest understory plants are salal, trailing blackberry, evergreen huckleberry, western swordfern, creambush oceanspray, and northern twinflower.

The main limitation for the harvesting of timber is seasonal soil wetness. Use of wheeled and tracked equipment when the soil is moist produces ruts, compacts the soil, and damages the roots of trees. When wet, unsurfaced roads and skid trails are sticky and slippery and they can be impassable. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available on this unit.

Seedling establishment and the hazard of windthrow are the main concerns in the production of timber. Reforestation can be accomplished by planting Douglas fir seedlings. If seed trees are present, natural reforestation of cutover areas by red alder occurs readily. Wetness reduces root respiration, which results in a low survival rate of seedlings. When openings are made in the canopy, invading brushy plants can prevent the establishment of seedlings. Because the rooting depth is restricted by the perched water table and the clay layer, trees frequently are subject to windthrow.

This unit is poorly suited to homesite development. The main limitations are wetness and shrink-swell potential. Wetness can be reduced by installing drain tile around footings. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. The main limitations for septic tank absorption fields are slow permeability and wetness. Use of interceptor drains, additional topsoil placed over the absorption field, and longer absorption lines helps to compensate for these limitations.

This map unit is in capability subclass IIIw.

17—Bow gravelly loam, 3 to 8 percent slopes. This very deep, somewhat poorly drained soil is on glaciated terraces and undulating till plains. It formed in glaciolacustrine material and gravelly glacial drift mantled with volcanic ash. The vegetation in areas not cultivated is mainly conifers. Elevation is 50 to 400 feet. The average annual precipitation is about 30 inches, the average annual air temperature is about 50 degrees F, and the average frost-free season is 170 to 220 days.

Typically, the surface layer is dark brown gravelly loam 7 inches thick. The upper 10 inches of the subsoil is dark brown very gravelly loam, the next 14 inches is grayish brown clay loam, olive gray silty clay, and light olive gray silt loam, and the lower part to a depth of 60 inches or more is olive gray silty clay. In some areas the surface layer is gravelly silt loam or black gravelly loam about 9 inches thick, and in some areas the subsoil is loamy.

Included in this unit are small areas of Catla and Clallam soils on knolls and Swinomish soils on ridges of hills.

Permeability of this Bow soil is slow. Available water capacity is high. Effective rooting depth is limited by a perched water table that is at a depth of 6 to 18 inches from November to May. Runoff is medium, and the hazard of water erosion is slight.

This unit is used as hayland, pastureland, woodland, and homesites. If adequately drained, the unit is suited to climatically adapted cultivated crops.

The main limitation for hay and pasture is seasonal wetness. The water table limits the use of this unit to grasses and shallow-rooted legumes. Tile drains and field ditches are needed to lower the perched water table if deep-rooted plants are grown. Drainage tiles should be closely spaced because of the slow permeability. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition and to protect the soil from erosion.

Douglas fir is the main woodland species on this unit. On the basis of a 100-year site curve, the mean site index for Douglas fir is estimated to be 131. On the

sis of a 50-year site curve, the mean site index for uglas fir is estimated to be 107. The highest average ıwth rate for Douglas fir is 132 cubic feet per acre per ır at age 70. Among the trees of limited extent are alder, western redcedar, and western hemlock. nmon forest understory plants are salal, trailing :kberry, evergreen huckleberry, western swordfern, ambush oceanspray, and northern twinflower.

'he main limitation for the harvesting of timber is ddiness caused by seasonal soil wetness. Use of eled and tracked equipment when the soil is moist duces ruts, compacts the soil, and damages the s of trees. When wet, unsurfaced roads and skid s are sticky and slippery and they can be assable. Logging roads require suitable surfacing for -round use. Rock for road construction is not lily available on this unit.

eedling establishment and the hazard of windthrow he main concerns in the production of timber. restation can be accomplished by planting Douglas edlings. If seed trees are present, natural estation of cutover areas by red alder occurs ily. The perched water table reduces root ration, which results in a low survival rate of lings. When openings are made in the canopy, ling brushy plants can prevent the establishment of lings. Because the rooting depth is restricted by erched water table and the clay layer, trees ently are subject to windthrow.

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map unit is in capability subclass IIIw.

Bow gravelly loam, low precipitation, 0 to 3 t slopes. This very deep, somewhat poorly soil is on glacially modified remnant terraces s. It formed in gravelly glacial drift over custrine material mantled with volcanic ash. The ion in areas not cultivated is mainly conifers and us trees. Elevation is near sea level to 200 feet. rage annual precipitation is about 23 inches, age annual air temperature is about 50 degrees F, and the average frost-free season is 170 to 220 days.

Typically, the surface is covered with a mat of leaves and twigs 1 inch thick. The surface layer is dark brown gravelly loam 5 inches thick. The upper 3 inches of the subsoil is brown gravelly loam, the next 14 inches is dark grayish brown clay loam, and the lower part to a depth of 60 inches or more is gray silty clay. In some areas the surface layer is gravelly silt loam or is black to dark brown gravelly loam about 9 inches thick, and in some areas the subsoil is gravelly and loamy.

Included in this unit are small areas of Catla and Clallam soils on hills, Bellingham soils in depressional areas, and Laconner soils on terraces.

Permeability of this Bow soil is slow. Available water capacity is high. Effective rooting depth is limited by a perched water table that is at a depth of 6 to 18 inches from November to May. Runoff is slow, and the hazard of water erosion is slight.

This unit is used as woodland, pastureland, hayland, and homesites. If adequately drained, it is suited to climatically adapted cultivated crops.

Douglas fir is the main woodland species on this unit. On the basis of a 100-year site curve, the mean site index for Douglas fir is estimated to be 126. On the basis of a 50-year site curve, the mean site index for Douglas fir is estimated to be 94. The highest average growth rate for Douglas fir is 124 cubic feet per acre per year at age 70. Among the trees of limited extent are western redcedar, red alder, grand fir, and western hemlock. Common forest understory plants are salal, trailing blackberry, evergreen huckleberry, western swordfern, creambush oceanspray, and northern twinflower.

The main limitation for the harvesting of timber is muddiness caused by seasonal soil wetness. Use of wheeled and tracked equipment when the soil is moist produces ruts, compacts the soil, and damages the roots of trees. When wet, unsurfaced roads and skid trails are sticky and slippery and they can be impassable. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available on this unit.

Seedling establishment and the hazard of windthrow are the main concerns in the production of timber. Reforestation can be accomplished by planting Douglas fir seedlings. If seed trees are present, natural reforestation of cutover areas by red alder occurs readily. The perched water table reduces root respiration, which results in a low survival rate of seedlings. When openings are made in the canopy, invading brushy plants can prevent the establishment of

Wetlands Rating Field Data Form

Background Information:

Name of Rater: Dickson Affiliation: WETLAND Technology Date: MAY 11-06

Name of wetland (if known): Norada western pasture "A"

Government Jurisdiction of wetland: Army Corps. / Mount Vernon

Location: 1/4 Section: _____ of 1/4 S: _____ Section: _____ Township: _____ Range: _____

Sources of Information: (Check all sources that apply)

Site visit: ✓ USGS Topo Map: ___ NWI map: ✓ Aerial Photo: ___ Soils survey: ___

Other: ___ Describe: _____

When The Field Data form is complete enter Category here: CAT. II

	Circle Answers
Q.1. High Quality Natural Wetland	
Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	
1a. Human caused disturbances.	
Is there significant evidence of human-caused changes to topography or hydrology of the wetland as indicated by any of the following conditions? Consider only changes that may have taken place in the last 5 decades. The impacts of changes done earlier have probably been stabilized and the wetland ecosystem will be close to reaching some new equilibrium that may represent a high quality wetland.	
1a1. Upstream watershed > 12% impervious.	Yes: go to Q.2
1a2. Wetland is ditched and water flow is not obstructed.	Yes: go to Q.2
1a3. Wetland has been graded, filled, logged.	Yes: go to Q.2
1a4. Water in wetland is controlled by dikes, weirs, etc.	Yes: go to Q.2
1a5. Wetland is grazed.	Yes: go to Q.2
1a6. Other indicators of disturbance (list below)	Yes: go to Q.2
_____	No: go to 1b.

1b Are there populations of non-native plants which are currently present, cover more than 10% of the wetland, and appear to be invading native populations? Briefly describe any non-native plant populations and Information source(s):_____	YES: go to Q.2 No: go to 1c.
1c. Is there evidence of human-caused disturbances which have visibly degraded water quality. Evidence of the degradation of water quality include: direct (untreated) runoff from roads or parking lots; presence, or historic evidence, of waste dumps; oily sheens; the smell of organic chemicals; or lifestock use. Briefly describe:	YES: go to Q.2 NO: Possible Cat. I contact DNR
Q.2. Irreplaceable Ecological Functions: Does the wetland: ⊕ have at least 1/4 acre of organic soils deeper than 16 inches and the wetland is relatively undisturbed; OR [IIf the answer is NO because the wetland is disturbed briefly describe: Indicators of disturbance may include: - Wetland has been graded, filled, logged; - Organic soils on the surface are dried-out for more than half of the year; - Wetland receives direct stormwater runoff from urban or agricultural areas.]; OR	(NO to all: go to Q.3) YES go to 2a
⊕ have a forested class greater than 1 acre; OR ⊕ have characteristics of an estuarine system; OR ⊕ have eel grass, floating or non-floating kelp beds?	YES: Go to 2b YES: Go to 2c YES: Go to 2d
2a. Bogs and Fens Are any of the three following conditions met for the area of organic soil?	
2a.1. Are Sphagnum mosses a common ground cover (>30%) and the cover of invasive species (see Table 3) is less than 10%?	
Is the area of sphagnum mosses and deep organic soils > 1/2 acre? Is the area of sphagnum mosses and deep organic soils 1/4-1/2 acre?	YES: Category I YES: Category II NO: Go to 2a.3
2a.2. Is there an area of organic soil which has an emergent class with at least one species from Table 2, and cover of invasive species is < 10% (see Table 3)?	
Is the area of herbaceous plants and deep organic soils > 1/2 acre? Is the area of herbaceous plants and deep organic soils 1/4-1/2 acre?	YES: Category I YES: Category II NO: Go to 2a.3

2a.3. Is the vegetation a mixture of only herbaceous plants and Sphagnum mosses with no scrub/shrub or forested classes? Is the area of herbaceous plants, Sphagnum, and deep organic soils > 1/2 acre? Is the area of herbaceous plants, Sphagnum, and deep organic soils 1/4-1/2 acre?	YES: Category I YES: Category II NO: Go to Q.3.
Q.2b. Mature forested wetland. 2b.1. Does 50% of the cover of upper forest canopy consist of evergreen trees older than 80 years or deciduous trees older than 50 years? *Note:* The size of trees is often not a measure of age, and size cannot be used as a surrogate for age (see guidance).	YES: Category I NO: Go to 2b.2
2b.2. Does 50% of the cover of forest canopy consist of evergreen trees older than 50 years, AND is the structural diversity of the forest high as characterized by an additional layer of trees 20'-49' tall, shrubs 6' - 20', tall, and a herbaceous groundcover?	YES: Go to 2b.3 NO: Go to Q.3
2b.3. Does < 25% of the areal cover in the herbaceous/groundcover or the shrub layer consist of invasive/exotic plant species from the list on p. 19?	YES: Category I NO: Go to Q.3
Q.2c. Estuarine wetlands. 2c1. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?	YES: Category I NO: Go to 2c.2
2c.2. Is the wetland > 5 acres; . . . . . . *Note:* If an area contains patches of salt tolerant vegetation that are 1) less than 600 feet apart and that are separated by mudflats that go dry on a Mean Low Tide, or 2) separated by tidal channels that are less than 100 feet wide; all the vegetated areas are to be considered together in calculating the wetland area.	YES: Category I
or is the wetland 1-5 acres;	YES: Go to 2c.3
or is the wetland < 1 acre?.	YES: Go to 2c.4

2c.3. Does the wetland meet at least 3 of the following 4 criteria: . . . . . . - minimum existing evidence of human related disturbance such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species (see guidance for definition); - surface water connection with tidal saltwater or tidal freshwater; - at least 75% of the wetland has a 100' buffer of ungrazed pasture, open water, shrub or forest; - has at least 3 of the following features: low marsh; high marsh; tidal channels; lagoon(s);woody debris; or contiguous freshwater wetland. 2c.4. Does the wetland meet all of the four criteria under 2c3. (above)?. .	YES: Category I NO: Category II YES: Category II NO: Category III
Q.2d. Eel Grass and Kelp Beds. 2d.1. Are eel grass beds present?. . . . . . 2d.2. Are there floating or non-floating kelp bed(s) present with greater than 50% macro algal cover in the month of August or September?	 YES: Category I NO: go to 2d.2 YES: Category I NO: Category II
Q.3. Category IV wetlands. 3a. Is the wetland: less than 1 acre <u>and</u>, hydrologically isolated <u>and</u>, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from Table 3 (page 19) or Table 4 (page 20) 3b. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from Table 3 (page 19) 3c. Is the wetland excavated from upland <u>and</u> a pond smaller than 1 acre without a surface water connection to streams, lakes, rivers, or other wetland, and has < 0.1 acre of vegetation.	 YES: Category IV NO: go to 3b YES: Category IV NO: go to 3c YES: Category IV NO: go to Q.4

Q.4. Significant habitat value.

Answer all questions and enter data requested.

4a. Total wetland area

Estimate area, select from choices in the near-right column, and score in the far column:

Enter acreage of wetland here:_____acres, and source:_____

Circle scores that qualify

acres	points
> 200	6
40- 200	5
10 - 40	4
5 - 10	3
1 - 5	2
0.1 - 1	1
< 0.1	0

4b. Wetland classes: Circle the wetland classes below that qualify:

Open Water: if the area of open water is > 1/4 acre

Aquatic Beds: if the area of aquatic beds > 1/4 acre,

Emergent: if the area of emergent class is > 1/4 acre,

Scrub-Shrub: if the area of scrub-shrub class is > 1/4 acre,

Forested: if area of forested class is > 1/4 acre,

Add the number of wetland classes, above, that qualify, and then score according to the columns at right.

e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub- shrub), you would circle 8 points in the far right column.

# of classes	Points
1	0
2	3
3	6
4	8
5	10

4c. Plant species diversity.

For each wetland class (at right) that qualifies in 4b above, count the number of different plant species you can find that cover more than 5% of the ground. You do not have to name them.

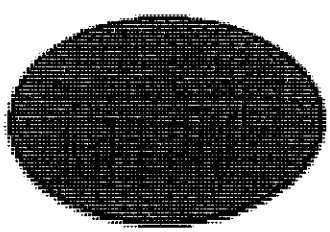
Score in column at far right:

e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.

Note: Any plant species with a cover of > 5% qualifies for points within a class, even those that are not of that class.

Class	# species in class	Points
Aquatic Bed	1	0
	2	1
	3	2
	> 3	3
Emergent	1	0
	2-3	1
	4-5	2
	> 5	3
Scrub-Shrub	1	0
	2	1
	3-4	2
	> 4	3
Forested	1	0
	2	1
	3-4	2
	> 4	3

4d. Structural diversity. If the wetland has a forested class, add 1 point if each of the following classes is present within the forested class and is larger than 1/4 acre: -trees > 50' tall . . . . . . -trees 20'- 49' tall . . . . . . -shrubs. . . . . . -herbaceous ground cover. . . . . . Also add 1 point if there is any "open water" or "aquatic bed" class immediately next to the forested area (ie. there is no scrub/shrub or emergent vegetation between them).	YES - 1 YES - 1 YES - 1 YES - 1 YES - 1
4e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none? If you think the amount of interspersion falls in between the diagrams score accordingly (i.e. a moderately high amount of insterspersion would score a 4, while a moderately low amount would score a 2)	High - 5 Moderate - 3 Low - 1 None - 0



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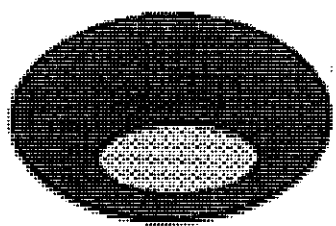
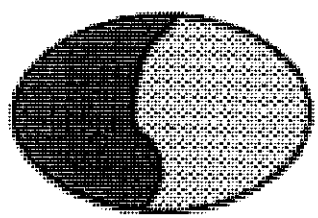
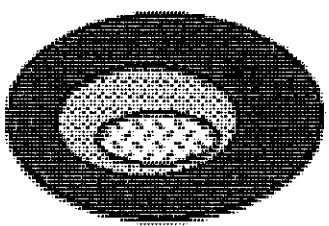


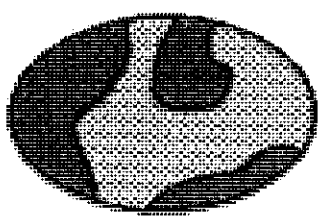
low



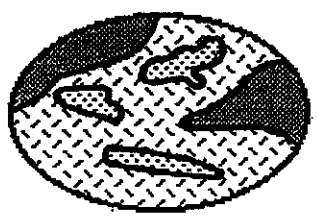
low



moderate



moderate



high

4f. Habitat features. Answer questions below, circle features that apply, and score to right:	
Is there evidence that the open or standing water was caused by beavers	YES = 2
Is a heron rookery located within 300'?	YES = 1
Are raptor nest/s located within 300'?	YES = 1
Are there at least 3 standing dead trees (snags) per acre greater than 10" in diameter at "breast height" (DBH)?.	YES = 1
Are there at least 3 downed logs per acre with a diameter > 6" for at least 10' in length?	YES = 1
Are there areas (vegetated or unvegetated) within the wetland that are ponded for at least 4 months out of the year, and the wetland has not qualified as having an open water class in Question 4b. ?	YES = 2

4g. Connection to streams. (Score one answer only.) 4g.1. Does the wetland provide habitat for fish at any time of the year AND does it have a perennial surface water connection to a fish bearing stream.	YES = 6
4g.2 Does the wetland provide fish habitat seasonally AND does it have a seasonal surface water connection to a fish bearing stream.	YES = 4
4g.3 Does the wetland function to export organic matter through a surface water connection at all times of the year to a perennial stream.	YES = 4
4g.4 Does the wetland function to export organic matter through a surface water connection to a stream on a seasonal basis?	YES = 2
4h. Buffers. Score the existing buffers on a scale of 1-5 based on the following four descriptions. If the condition of the buffers do not exactly match the description, score either a point higher or lower depending on whether the buffers are less or more degraded.	
Forest, scrub, native grassland or open water buffers are present for more than 100' around 95% of the circumference.	Score = 5
Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/2 of the wetland circumference, or a forest, scrub, grasslands, or open water buffers for more than 50' around 95% of the circumference.	Score = 3
Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/4 of the wetland circumference, or a forest, scrub, native grassland, or open water buffers wider than 50' for more than 1/2 of the wetland circumference.	Score = 2
No roads, buildings or paved areas within 100' of the wetland for more than 95% of the wetland circumference.	Score = 2
No roads, buildings or paved areas within 25' of the wetland for more than 95% of the circumference, or No roads buildings or paved areas within 50' of the wetland for more than 1/2 of the wetland circumference.	Score = 1
Paved areas, industrial areas or residential construction (with less than 50' between houses) are less than 25 feet from the wetland for more than 95% of the circumference of the wetland.	Score = 0

4i. Connection to other habitat areas: Select the description which best matches the site being evaluated.	
-Is the wetland connected to, or part of, a riparian corridor at least 100' wide connecting two or more wetlands; or, is there an upland connection present >100' wide with good forest or shrub cover (>25% cover) connecting it with a Significant Habitat Area?	YES = 5
- Is the wetland connected to any other Habitat Area with either 1) a forested/shrub corridor < 100' wide, or 2) a a corridor that is > 100' wide, but has a low vegetative cover less than 6 feet in height?	YES = 3
-Is the wetland connected to, or a part of, a riparian corridor between 50 - 100' wide with scrub/shrub or forest cover connection to other wetlands?	YES = 3
- Is the wetland connected to any other Habitat Area with narrow corridor (<100') of low vegetation (< 6' in height)?	YES = 1
- Is the wetland and its buffer (if the buffer is less than 50' wide) completely isolated by development (urban, residential with a density greater than 2/acre, or industrial)?	YES = 0

Now add the scores circled (for Q.5a - Q.5i above) to get a total.

Is the Total greater than or equal to 22 points?

YES = Category II
NO = Category III

Wetlands Determination Data Form

Date 5-10-06 Wetland? Yes No

Project Name: Nordco 11 acres Unit Name: Upland Pasture
Biologist Dennis Dickson EASTERN 5 Acre)

Do normal environmental conditions exist? Yes No
Has vegetation, soils/ or hydrology been significantly disturbed? Yes No

Dominant Species		WIS	Stratum
Domestic grasses		N/C	herb
Canada Thistle	Cirsium arvense	FACU	herb
Red Clover	Trifolium pratence	FACU	herb
Dandelion	Taraxacum officinale	FACU	herb

Percent Of Dominant species that are Fac or wetter? 0
Vegetation criteria met? Yes No
Rational Non-Hydrophilic dominance

Soils

Depth	Horizon	Matrix Color	Mottle Color	Texture
0-5"	A	10 YR 4/2	No	Sandy/ gravelly
6"-18"	B	10 YR 4/3	No	Gravelley loam

Hydric Indicator
____Histosol
____Histic Epipedon
____Sulfidic odor
____Other

Soil Criteria met? Yes No
Rationale #17 Bow Gravelley Loam hydric, but lack of indicators

Hydrology

Depth to saturation No
Depth to inundation NOT
Flow? Yes No
Channel?___Sheet?____

Primary indicators: (1 required)
____Observation of inundation
____Soil saturation
____ Water marks
____Drift Lines/Drainage patterns
____Sediment deposits

Secondary Indicators: 2 req.
____Oxidized root channel
____water stained leaves
____Local soil survey data
____Fac-neutral test

Hydrology met? Yes No Rational: Topographic raised unit, negative indicators

Wildlife Observations and general Notes

Wetlands Determination Data Form

Date 5-10-06 Wetland? Yes No

Project Name: Nordco 11 acres Unit Name: Upland Pasture (CFWR1C) 1 ACRE
Biologist Dennis Dickson

Do normal environmental conditions exist? Yes No
Has vegetation, soils/ or hydrology been significantly disturbed? Yes No

Dominant Species		WIS	Stratum
Domestic grasses		N/C	herb
Canada Thistle	Cirsium arvense	FACU	herb
Red Clover	Trifolium pratence	FACU	herb
Dandelion	Taraxacum officinale	FACU	herb

Percent Of Dominant species that are Fac or wetter? 0
Vegetation criteria met? Yes No
Rational Non-Hydrophilic dominance

Soils

Depth	Horizon	Matrix Color	Mottle Color	Texture
0-5"	A	10 YR 4/2	No	Sandy/ gravelly
6"-18"	B	10 YR 4/3	No	Gravelley loam

Hydric Indicator
____Histosol
____Histic Epipedon
____Sulfidic odor
____Other

Soil Criteria met? Yes No
Rationale #17 Bow Gravelley Loam hydric, but lack of indicators

Hydrology

Depth to saturation_____
Depth to inundation_____
Flow? Yes No
Channel?___Sheet?____

Primary indicators: (1 required)
____Observation of inundation
____Soil saturation
____ Water marks
____Drift Lines/Drainage patterns
____Sediment deposits

Secondary Indicators: 2 req.
____Oxidized root channel
_____water stained leaves
_____Local soil survey data
____Fac-neutral test

Hydrology met? Yes No Rational: Topographic raised unit, negative indicators

Wildlife Observations and general Notes

Wetlands Determination Data Form

Date 5-10-06 Wetland? Yes No

Project Name: Nordco 11 acres Unit Name: Upland Pasture (Central Western) 5.0 Acre
Biologist Dennis Dickson

Do normal environmental conditions exist? Yes No
Has vegetation, soils/ or hydrology been significantly disturbed? Yes No

Dominant Species		WIS	Stratum
Domestic grasses		N/C	herb
Canada Thistle	Cirsium arvense	FACU	herb
Red Clover	Trifolium pratence	FACU	herb
Dandelion	Taraxacum officinale	FACU	herb

Percent Of Dominant species that are Fac or wetter? Ø
Vegetation criteria met? Yes No
Rational Non-Hydrophilic dominance

Soils

Depth	Horizon	Matrix Color	Mottle Color	Texture
0-5"	A	10 YR 4/2	No	Sandy/ gravelly
6"-18"	B	10 YR 4/3	No	Gravelley loam

Hydric Indicator
____Histosol
____Histic Epipedon
____Sulfidic odor
____Other

Soil Criteria met? Yes No
Rationale #17 Bow Gravelley Loam hydric, but lack of indicators

Hydrology

Depth to saturation No
Depth to inundation not Present
Flow? Yes No
Channel? ___ Sheet? ___ No

Primary indicators: (1 required)
____Observation of inundation
____Soil saturation
____Water marks
____Drift Lines/Drainage patterns
____Sediment deposits

Secondary Indicators: 2 req.
____Oxidized root channel
____water stained leaves
____Local soil survey data
____Fac-neutral test

Hydrology met? Yes No Rational: Topographic raised unit, negative indicators

Wildlife Observations and general Notes

Wetlands Determination Data Form

Date 5-10-06 Wetland? Yes No

Project Name: Nordco 11 acres Unit Name: Wetland Pasture "A"
Biologist Dennis Dickson (Western 2.3 acre)

Do normal environmental conditions exist? Yes No
Has vegetation, soils/ or hydrology been significantly disturbed? Yes No

Dominant Species		WIS	Stratum
Soft rush	Juncus effusus	FACW	herb
Creeping Buttercup	Ranunculus repens	FACW	herb
Slough sedge	Carex spp	OBL	herb
Reed canarygrass	Phalaris arundinaccea	FACW	herb
Horse tail	Equisetum hymale	FAC	herb

Percent Of Dominant species that are Fac or wetter? 100%
Vegetation criteria met? Yes No
Rational Hydrophilic dominance

Soils

Depth	Horizon	Matrix Color	Mottle Color	Texture
0-5"	A	10 YR 5/2	No	Sandy/ gravelly
6"-18"	B	10 YR 5/1	10 YR 4/6	Gravelley loam

Hydric Indicator
____Histosol
____Histic Epipedon
____Sulfidic odor
____Other

Soil Criteria met? Yes No
Rationale (Soil Name & classification) Fr 17 Soil

Hydrology

Depth to saturation Surface
Depth to inundation NO
Flow? Yes No
Channel?___Sheet?✓

Primary indicators: (1 required)
___✓Observation of inundation
___✓Soil saturation
___✓Water marks
___Drift Lines/Drainage patterns
___✓Sediment deposits

Secondary Indicators: 2 req.
___✓Oxidized root channel
___water stained leaves
___✓Local soil survey data
___Fac-neutral test

Hydrology met? Yes No Rational: Topographic swaled unit, negative indicators

Wildlife Observations and general Notes

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Dennis Dickson Biography

As a native of the Pacific Northwest, Dennis has lived in Arlington his entire life, except for the years while attending the University of Washington and another two years in Hawaii. He has a B.S., University of Washington. Growing up near the North Fork of the Stilly, he has fly fished his entire life.

After Dennis graduated with his degree in the college of Fisheries, he worked for the next eight years as a fisheries biologist, for the Stillaguamish Tribe. Dennis left this field and began guiding fly fishers full time in the early 80's. After six years of guiding up to 200 days a year, Dennis hit burn out and went back to Fisheries working as a consultant.

Dennis graduated from the Wetland Institute in Sacramento California in Wetland Delineation in 1990.
As of 2006, Dennis is in his 16th year as a Wetland Biologist. A unique combination of a fisheries & wetland biologist, Dennis devotes his year primarily around the North Sound region, of Washington.

He still enjoys fisheries work, such as saving spawning streams & watershed protection, but wetland delineation and mitigation projects are what keep him busy.

He and his sweet wife Dawn, have been married for 30 years. (Any wife, who can put up with a Biologist as a husband, should get some kind of congressional medal.) They have three wonderful kids, Mike being the oldest. Dennis is happy working in his community and church, (when he is in town). He enjoys people and loves to flyfish. (Helping anglers catch their first steelhead on a fly is a thrill that never goes away.)

Dennis can be reached at wwww.dddicksons@aol.com or 425 238 3537

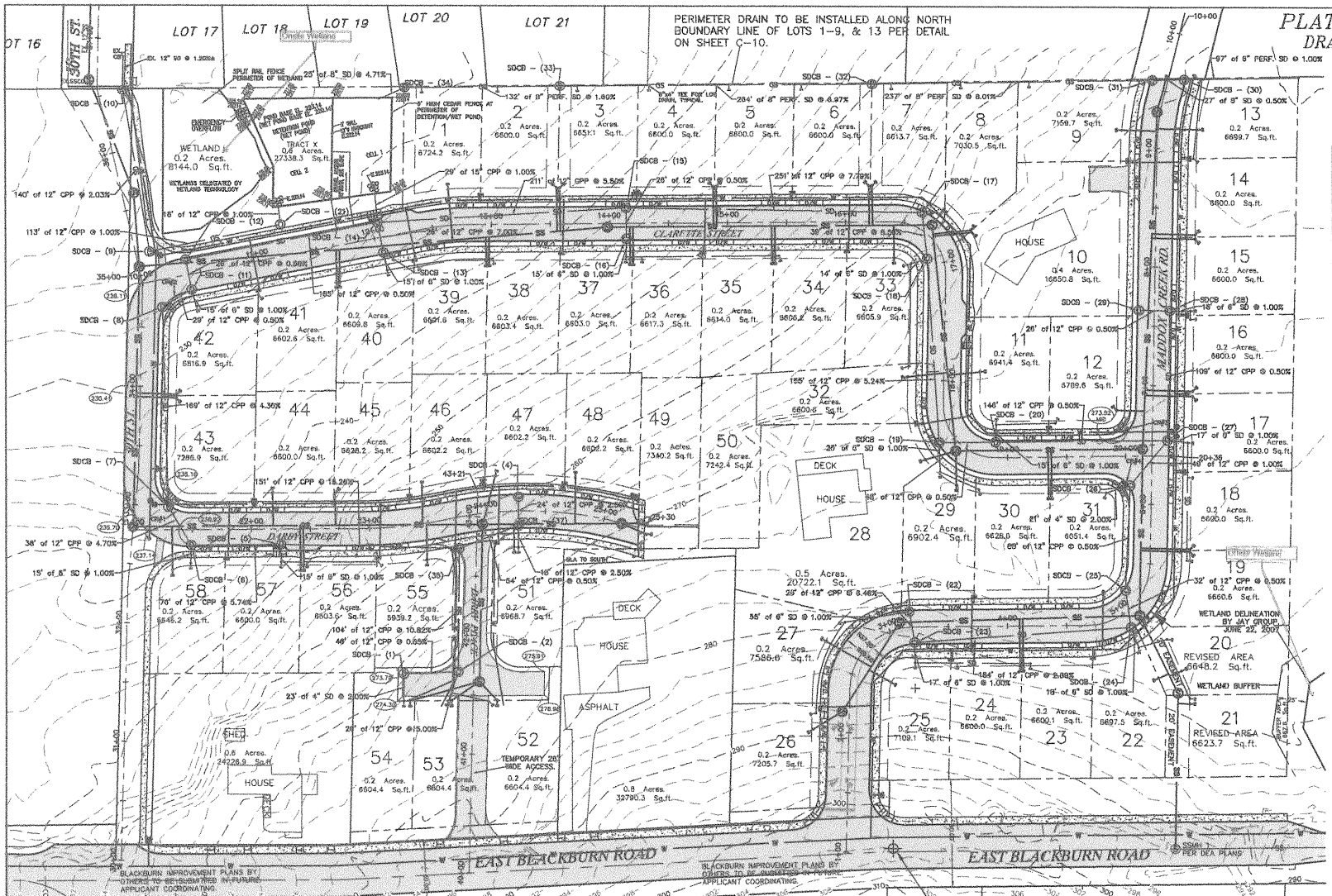
Appendix F: Previous Plat Layout (2008)

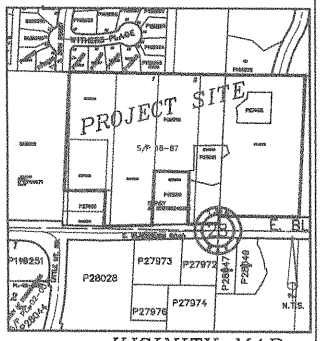
PLAT OF IRIS MEADOWS
DRAINAGE & UTILITY PLAN

SCALE: 1" = 40'
0 20 40 80 120

CALL 2 BUSINESS DAYS BEFORE YOU DIG 1-800-424-5555

PERIMETER DRAIN TO BE INSTALLED ALONG NORTH BOUNDARY LINE OF LOTS 1–9, & 13 PER DETAIL ON SHEET C–10.





VICINITY MAP

PROJECT INFORMATION:

ZONING: R–1, 4.0 RESIDENTIAL
NUMBER OF LOTS: 36 SINGLE FAMILY
WATER: PUD #1
SEWER: CITY OF MOUNT VERNON
TELEPHONE: VERIZON
POWER: P.S.E.
CABLE: COMCAST
OWNER/DEVELOPER: NORDCO GROUP, L.L.C.
P.O. BOX 836 MOUNT VERNON, WA 98273
LAND SURVEYOR: LUSSIER & ASSOCIATES, PLLC
320 MILWAUKEE STREET MOUNT VERNON, WA 98273
CONSULTING ENGINEER: SKAGIT VALLEY ENGINEERING CONSULTANTS
17146 BRITT ROAD MOUNT VERNON, WA 98273

CITY OF MOUNT VERNON

COMMUNITY AND ECONOMIC DEVELOPMENT
ENGINEERING SERVICES

LAND USE # LU06-090

PERMIT # D07-096

Recommended For Approval By

Signature Mount Vernon Fire Marshal Date

Signature Mount Vernon Planning Review Date

Signature Mount Vernon Civil Review Date

This plan sheet is approved for construction in accordance with the City of Mount Vernon ordinances and policies. This plan sheet does not imply or convey permission to construct any item unless accompanied by an approved permit covering the work. All permits must be on a City approved form reviewed for compliance to City Codes. Actual conformance of the design with applicable laws is the sole responsibility of the professional engineer whose name and stamp appear on this sheet. Acquiring, complying with and providing mitigation for all Federal, State, County and Local laws, permits and mandates, including but not limited to the Endangered Species Act, Federal Wetland Permit, State Department of Fisheries Hydraulics Permit, Federal Flood plain Permits, National Pollutant Discharge Elimination System Permits is the responsibility of the Developer, Landowner and their Engineer. The issuance of this plan shall not be construed as proof of compliance with applicable laws and permit requirements.

APPROVED BY:_____ Date_____

This approval will expire in one year from the date noted above.

CURB RETURN, F.O.C.
R = 30'
Δ = 91°55'9"
LC = 48.13'
DARBY STREET PC
STA 21+49.12, 14.0' LT.
GUTTER = 326.08
30TH STREET PT:
STA 33+26.17, 14.33' RT.
GUTTER = 332.03

CURB RETURN, F.O.C.
R = 25'
Δ = 77°23'14"
LC = 33.61'
30TH STREET PC
STA 34+21.70, 14.0' RT.
GUTTER = 328.20
CLARETTE STREET PT:
STA 10+39.38, 14.0' RT.
GUTTER = 327.81

CURB RETURN, F.O.C.
R = 25'
Δ = 90°0'38"
LC = 39.40'
CLARETTE STREET PT
STA 10+54.46, 14.0' LT.
GUTTER = 273.74
MADDOX CREEK ROAD PC:
STA 6+75.22, 14.0' LT.
GUTTER = 273.20

CURB RETURN, F.O.C.
R = 25'
Δ = 91°39'21"
LC = 40.14'
CLARETTE STREET PC
STA 10+81.78, 14.0' RT.
GUTTER = 273.71
MADDOX CREEK ROAD PT:
STA 6+00.24, 14.0' LT.
GUTTER = 274.24

LOT SERVICE NOTE:

TYPICAL – STORM DRAIN LOT SERVICE PIPING TO BE INSTALLED AT A MINIMUM SLOPE OF 1.00% UNLESS OTHERWISE SPECIFIED.

PROJECT BENCHMARK: TOP MONUMENT IN CASE AT LOCATION SHOWN
ELEVATION = 301.58 NGVD'29

CIVIL SHEET INDEX:

C–1: DRAINAGE & UTILITY PLAN
C–2: TEMP. EROSION & SEDIMENT CONTROL PLAN
C–3: MADDOX CREEK ROAD PROFILE
C–4: CLARETTE STREET PROFILE
C–5: DARBY ST. & DARBY PLACE PROFILE
C–6: 30TH STREET PROFILE
C–7: NORTH BOUNDARY PERIMETER DRAIN PROFILE
C–8: SEWER & WATER SYSTEM PLAN
C–9: WATER SYSTEM DETAILS
C–10: DETAILS
C–11: DETAILS & SIGNS
C–12: DRIVEWAYS, SIGNS, MAILBOXES, FENCING & BUILDABLE LOT ENVELOPES
C–13: STREET TREE PLANTING PLAN
L–1: LANDSCAPE PLAN

DARA J. SVEUM STATE OF WASHINGTON 41432 REGISTERED PROFESSIONAL ENGINEER
03/17/10

JOB # 06–02
FILENAME: 06–06.SITE.dwg
LAST EDIT DATE: 06/02/06

DESIGNED BY: D. SVEUM
DRAWN BY: D. SVEUM
CHECKED BY:

REVISIONS	DATE

Skagit Valley
ENGINEERING CONSULTANTS
17146 BRITT ROAD,
MOUNT VERNON, WA 98273
PHONE: (509)570–3057
FAX: (509)242–7365

SHEET DESCRIPTION: DRAINAGE & UTILITY PLAN

PROJECT: PLAT OF IRIS MEADOWS
DEVELOPER: NORDCO GROUP, L.L.C. P.O. BOX 836 MOUNT VERNON, WA 98273 (360) 336–1000

C–1