

PUYALLUP SCHOOL DISTRICT

SOUTH HILL TRANSPORTATION CENTER CRITICAL AREAS REPORT



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MAY, 2019

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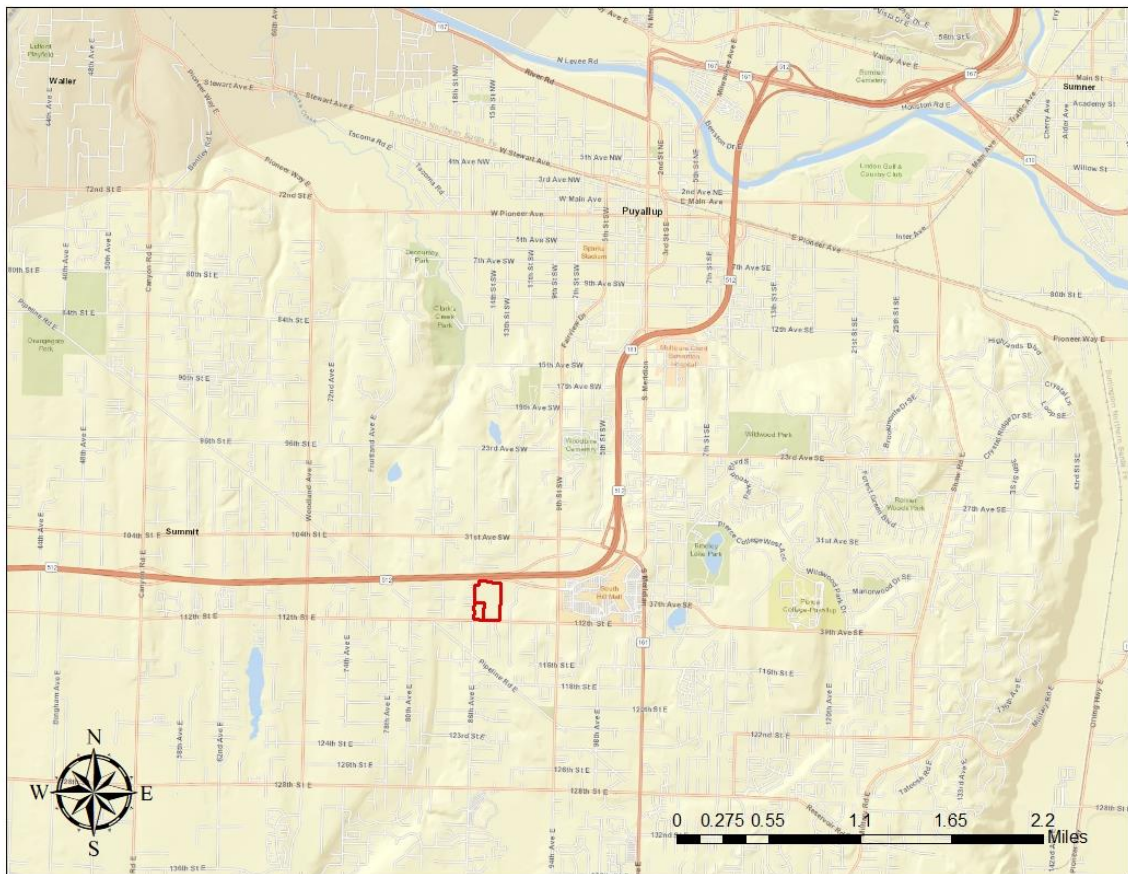
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1 INTRODUCTION

Grette Associates, LLC is under contract with the Puyallup School District to conduct a verification of a wetland located at the corner of 39th Ave SW and 17th Street SW in Puyallup, WA (Figure 1). The project site is within Section 04, Township 19N, and Range 04E, W.M. The purpose of this report is to verify the boundaries and ratings of the existing wetland and to document all critical areas within 300 feet of the project site in conformance with critical areas regulations under Puyallup Municipal Code (PMC) Chapters 21.06.530 and 21.06.950.

Figure 1. Vicinity map (project site area in red)



2 FEATURE SUMMARY

A Grette Associates biologist visited the subject property on April 17, 2019 to verify the boundaries and rating of the existing wetland near the project site. Grette Associates staff also inspected the surrounding 300 feet to identify and rate wetlands that may be present outside of the area of the project site. Wetland A was originally delineated and rated in 2017 by Habitat Technologies. Wetland A was originally rated as a Category IV wetland. Grette Associates rated Wetland A as a Category IV wetland based on the requirements in PMC 21.06.910. A summary of the critical areas identified during the site assessment is provided below in Table 1. A critical areas map is provided in Appendix A.

Table 1. Natural water feature identification summary

Feature	Approximate Size	Cowardin Class ²	Hydrology Modifier	HGM Class	Wetland Category ¹	Buffer Width ²
A	34,500 sq. ft.	PFO/EM	Seasonally Flooded and Saturated	Depressional	IV	50

¹ Wetlands were rated according to PMC 21.06.910

² Buffers widths are based on PMC 21.06.930

Figure 2. Category IV Wetland (green) with 50-foot buffer (red)



3 BACKGROUND

3.1 Existing Conditions

Wetland A is situated in an undeveloped area that straddles Pierce County Tax Parcel Nos 0419043091 and 0419043117. Approximately 300 feet to the northeast of Wetland A is the Puyallup School District Technology Support Center. The topography of the assessed area is generally flat and upland vegetation is dominated by large patches of Himalayan blackberry (*Rubus armeniacus*). Wetland A is located in a closed depression that has existing vegetation classes with both forest and emergent species. Historical satellite photos indicate that portions of the site have been disturbed and manipulated in the past. Manipulations to the upland areas include historic residential development, mowing, and development of adjacent properties.

3.2 Local Critical Areas Inventory

The City of Puyallup's official Critical Areas Map was queried to determine if any wetlands are identified on or within 300 feet of the project site (City of Puyallup 2019). City maps indicate a field-verified wetland in the approximate location of Wetland A.

Additionally, Pierce County's Public GIS database was queried to determine if any potential wetlands are identified within 300 feet of the project site (Pierce County 2019). According to Pierce County's Public GIS, the project site is within an area designated as a potential wetland area. Potential wetland areas are based on a combination of hydric, hydrology, and wetland themes.

3.3 National Wetlands Inventory

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) was queried to determine if previously-identified wetlands are present on or within 300 feet of the subject property (USFWS 2019). According to the NWI Interactive Online Mapper, an unnamed stream approximately 700 feet to the east of the project site is designated as a seasonally flooded riverine system (Appendix B). No other wetlands are identified by the NWI on or near the subject property.

3.4 Sensitive Wildlife and Plants

The Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) database on-line mapper was queried to determine if state or federally listed fish or wildlife species occur on or near the subject property (WDFW 2019a). According to the PHS database, no priority species or habitats are mapped on or within 300 feet of the subject property (Appendix B).

WDFW's SalmonScape was queried to identify any streams and determine if state or federally listed fish or wildlife species occur on or near the subject property (WDFW 2019b). According to SalmonScape, the unnamed stream approximately 700 feet to the east of the project site does not have any documentation of fish utilizing the stream.

The WDNR Natural Heritage Information System was queried to determine if the subject property occurs in a location reported to contain high quality natural heritage wetland occurrences or occurrences of natural heritage features commonly associated with wetlands. According to WDNR data dated March, 18 2019, there are no records of rare plants or high-quality native ecosystems occurring on or in the vicinity of the Site.

3.5 WDNR Stream Mapping

The WDNR Forest Practice Application Mapping Tool was queried to identify any streams mapped by WDNR in the vicinity of the project site (WDNR 2019). According to WDNR, the nearest stream to the subject property is an unnamed stream approximately 700 feet to the east. WDNR has designated the stream as a Type F stream. Type F streams are known to be used by fish, or meet the physical criteria to be potentially used by fish.

3.6 Soil Information

According to the Natural Resources Conservation Service's (NRCS) Web Soil Survey (NRCS 2019), the soils within the subject property are Alderwood gravelly sandy loam and Indianola loamy sand (Appendix B). Alderwood gravelly sandy loam soils are not rated by the NRCS as being hydric soils. The NRCS also maps other minor component soils under the Alderwood gravelly sandy loam unit such as Mckenna (5%), Shalcar (3%) and Norma (2%) that are listed as hydric soils. Norma (2%) is the only hydric soil component of the Indianola loamy sand soil.

4 PRECIPITATION ANALYSIS

During the site assessment, the McMillin Reservoir National Weather Station (NWS Station 455224) recorded 0.11 inches of rainfall (NOAA 2019). In the 14 days preceding the site assessment, 2.96 inches of rainfall was recorded at the station (NOAA 2019). The total precipitation recorded at the McMillin Reservoir station from April 1, 2018 through March 31, 2019 (34.86 inches) was approximately 80 percent of the normal rainfall (43.49 inches) that occurs during the same time (NOAA 2019 and NRCS 2019a). Table 3 below presents an analysis of the appropriate NRCS WETS table (NRCS 2019b) for the three months preceding the field investigation.

Table 2. WETS precipitation analysis

Preceding Month	WETS Rainfall Percentile (inches)		Measured Rainfall ¹ (inches)	Conditions ²	Condition Value ³	Month Weight	Value
	30%	70%					
March	3.60	5.44	1.23	Dry	1	3	3
February	2.91	5.16	4.90	Normal	2	2	4
January	4.13	6.82	4.05	Dry	1	1	1
Sum:							8

¹ Observed rainfall for the month (NOAA 2019b)

² Dry conditions are below 30% WETS table value, Normal conditions are between 30% and 70% of the WETS table values, Wet conditions are above 70% of the WETS table value.

³ Dry equals a value of 1, normal equals a value of 2, wet equals a value of 3

Bins are established to evaluate the overall rainfall conditions leading up to the field investigation; drier (sum is 6-9), normal (sum is 10-14), wet (sum is 15-18). A sum of 8 indicates that hydrologic conditions at the site were drier than normal at the time of the site investigation.

5 METHODS

The assessment area was traversed and data were collected to confirm the wetland boundary. Wetland A was assessed according to the procedures described in the U.S. Army Corps of Engineers (USACE) *Federal Wetland Delineation Manual* (1987), and the Corps' *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010). Guidance from the Corps' *Regional Supplement* was used to evaluate the site's conditions

Plants were determined to be more or less associated with wetlands based on their wetland indicator (FAC) status. The percent dominance for each plant strata was determined using the 50-20 Rule, which is the recommended method for selecting dominant species from a plant community in instances where quantitative data are available (USACE 2010). In utilizing this rule, dominants are the most abundant species that individually or collectively accounts for more than 50 percent of the total coverage of vegetation in the stratum plus any other species that, by itself accounts for at least 20 percent of the total.

Additionally, the area within 300 ft of the parcel boundary was inspected either visually or through aerial photograph interpretation to determine if other critical areas are within the assessment area.

5.1 Hydrophytic Vegetation

The U.S. Fish and Wildlife Service (USFWS) and the NWI have established a rating system that has been applied to commonly occurring plant species on the basis of their frequency of occurrence in wetlands (Table 3). Species indicator status expresses the range in which plants may occur in wetlands and non-wetlands (uplands). Under this system, vegetation is considered hydrophytic when there is an indicator status of facultative (FAC), facultative wetland (FACW) or obligate wetland (OBL) (Table 3). The hydrophytic vegetation criterion for wetland determination is met when **more than** 50 percent of the dominant species in the plant community are FAC or wetter. The Corps' *National Wetland Plant List* (Lichvar 2016) was used to determine vegetation indicator status.

Table 3. Definitions for USFWS plant indicator status

Plant Indicator Status Category	Indicator Status Abbreviation	Definition (Estimated Probability of Occurrence)
Obligate Upland	UPL	Occur rarely (<1 percent) in wetlands, and almost always (>99 percent) in uplands
Facultative Upland	FACU	Occur sometimes (1 percent to <33 percent) in wetlands, but occur more often (>67 percent to 99 percent) in uplands
Facultative	FAC	Similar likelihood (33 percent to 67 percent) of occurring in both wetlands and uplands
Facultative Wetland	FACW	Occur usually in wetlands (>67 percent to 99 percent), but also occur in uplands (1 percent to 33 percent)
Obligate Wetland	OBL	Occur almost always (>99 percent) in wetlands, but rarely occur in uplands (<1 percent)
Not Listed	NL	Not listed due to insufficient information to determine status

5.2 Wetland Hydrology

Evidence of permanent or periodic inundation (water marks, drift lines, drainage patterns), or soil saturation to the surface for 12 consecutive days or more during the growing season meets the hydrology criterion. Oxidized root channels in the top 12 inches and hydrogen sulfide are primary indicators and water-stained leaves and geomorphic position are secondary indicators of wetland hydrology.

5.3 Hydric Soils

Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons are considered hydric soils. Field indicators include histosols, the presence of a histic epipedon, a sulfidic odor, low soil

chroma, and gleying. Soil conditions were compared to the Field Indicators of Hydric Soils detailed in the Corps' *Regional Supplement*.

6 WETLAND VERIFICATION

Grette Associates visited the site on April 17, 2019 to conduct a verification of the previously delineated wetland. The verification was conducted to identify the delineated wetland boundaries and to ensure the areas still meet the wetland criteria defined in the USACE's *Federal Wetland Delineation Manual* (1987) and *Regional Supplement* (Version 2.0) (2010). The boundary verification of the wetland was conducted to identify the current boundary locations and to verify the locations of the required wetland buffer. The verification also was conducted to update the wetland ratings using Ecology's Washington State Wetland Rating System for Western Washington – 2014 Update (Hruby 2014).

The boundary of Wetland A was confirmed to be in the same location as was previously delineated in 2017. Flagging from the previous delineation were located, and they were determined to represent the current wetland boundaries. The wetland is located within a closed depression, and no encroachments or development were observed with the wetland that would have changed its boundaries.

6.1 Wetland A

Wetland A is a Palustrine Forested/Emergent, Seasonally Flooded and Saturated wetland that is approximately 34,500 square feet in size and is situated in a topographic depression with no surface water outlet (Appendix A).

6.1.1 Vegetation

Vegetation within Wetland A largely consists of forested species dominated almost entirely by black cottonwood (*Populus balsamifera*). Emergent species in Wetland A were dominated by reed canarygrass (*Phalaris arundinacea*). Buffer vegetation consisted mainly of Himalayan blackberry.

6.1.2 Hydrology

Wetland A is hydrogeomorphically described as a depressional system and hydrologic support is provided by surface flow and shallow groundwater. Heavy precipitation events can result in periodic sheet flow into the wetland. On the day of investigation, both saturation and a high water table were observed within the wetland. There is no surface water outlet from the wetland.

6.1.3 Hydric Soils

Soils observed within the wetland consisted of a layer of dark gray (10YR 4/1) sandy loam. The upper portion of the soil profile had more organic content and the lower portion had brown redoximorphic features (10YR 4/3). Soils within Wetland A meet the definition of a hydric soil by demonstrating the field indicators of a Depleted Matrix (F3). Of the assessed soils, redox concentrations were observed throughout approximately 40% of the soil matrix.

6.1.4 Wetland Categorization

To determine the categorization of the wetland within the assessment area based on function, the wetland classification guidelines in Ecology's wetland rating system (Hruby 2014) were used (PMC 21.06.910). Based on this guidance, the wetland was given a score for each of three functions: Water Quality, Hydrology, and Habitat (Table 4). The rating forms used to score the wetlands are included in Appendix C.

Table 4. Wetland rating and categorization summary

Feature	Cowardin Class	HGM Class	Water Quality	Hydrology	Habitat	Total	Category
Wetland A	PFO/EM	Depressional	5	6	4	15	IV

While the wetland provides moderate water quality and hydrology function, due to its geomorphic position within the landscape, Wetland A provides low habitat function. As a result, Wetland A is classified as a Category IV wetland and is subject to a 50-foot buffer according to PMC 21.06.930. This rating is consistent with the rating previously accepted by the City of Puyallup for the 2017 delineation conducted by Habitat Technologies.

6.1.5 Functions and Values

Wetland A likely provides some level of water quality enhancement, hydrology, and habitat functions. This wetland likely filters out sediments and toxins from shallow groundwater, preventing them from entering the surrounding landscape. Additionally, the wetland likely provides some foraging and refuge for small mammals as well as passerine foraging and refuge.

7 DISCUSSION

Grette Associates identified one wetland feature that is located in the general area where the previous Category IV wetland was delineated. Based on topographic constraints and data collected, Grette Associates does not believe that the wetland boundary has significantly changed since the previous wetland delineation. Furthermore, Grette Associates preliminarily rated this feature according to the requirements defined in Chapter 21.06 of the Puyallup Municipal Code (PMC). Based on these requirements, the wetland feature is considered a Category IV wetland. According to PMC 21.06.930, Category IV wetlands with a high intensity land use are subject to a 50-foot buffer (PMC 21.06.930).

8 BIOLOGIST QUALIFICATIONS

8.1 Tom Peterman

Tom Peterman is a Biologist with training in wetland science and ecology restoration. Tom also has professional experience in fisheries, wetland and stream restoration, mitigation monitoring, and fish and wildlife assessments. Tom has earned a graduate degree and a certificate in wetland science and management from the University of Washington. For a list of representative projects, please contact him at Grette Associates.

9 REFERENCES

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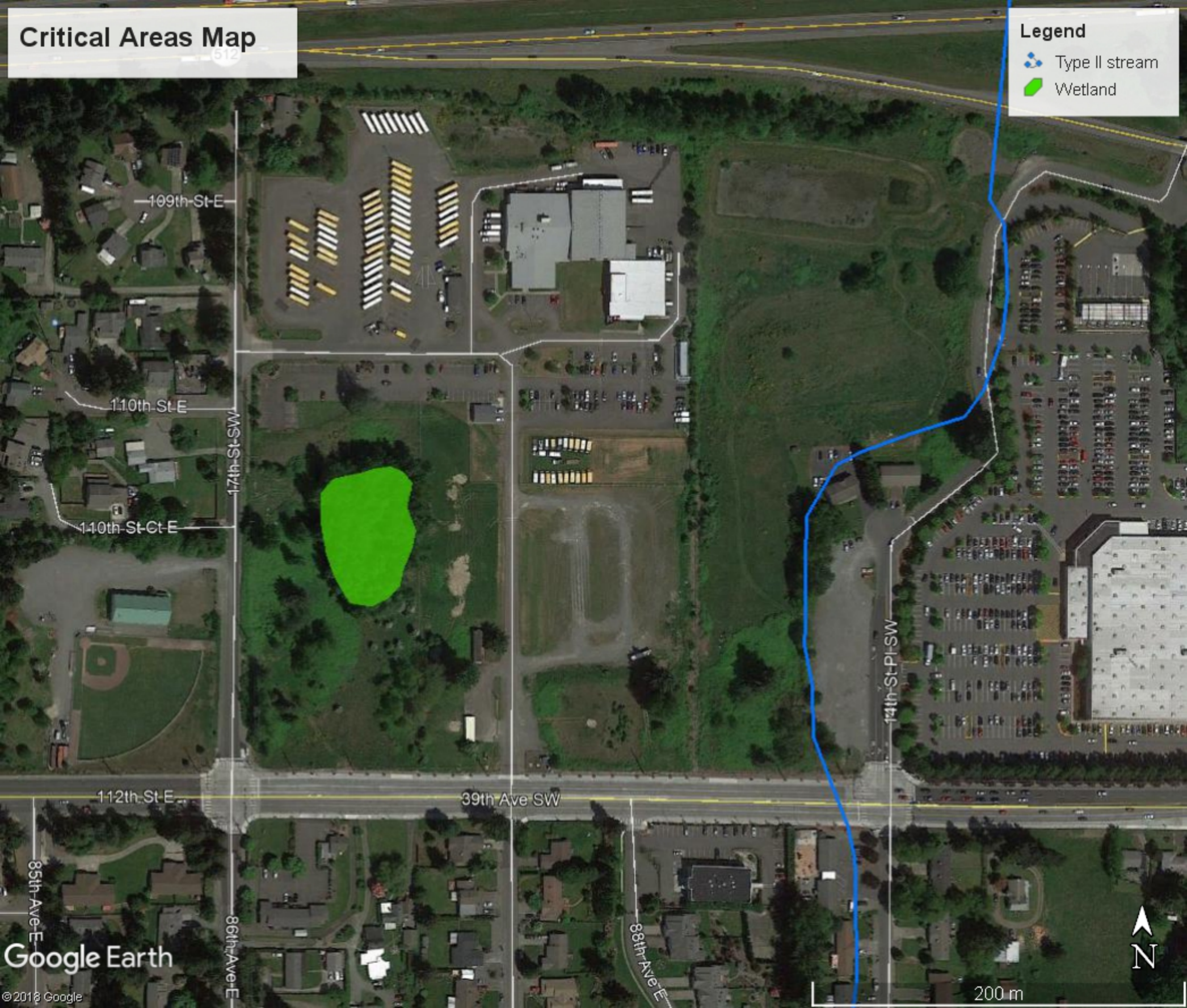
PUYALLUP SCHOOL DISTRICT

SOUTH HILL TRANSPORTATION CENTER CRITICAL AREAS REPORT APPENDIX A: CRITICAL AREAS MAP

Critical Areas Map

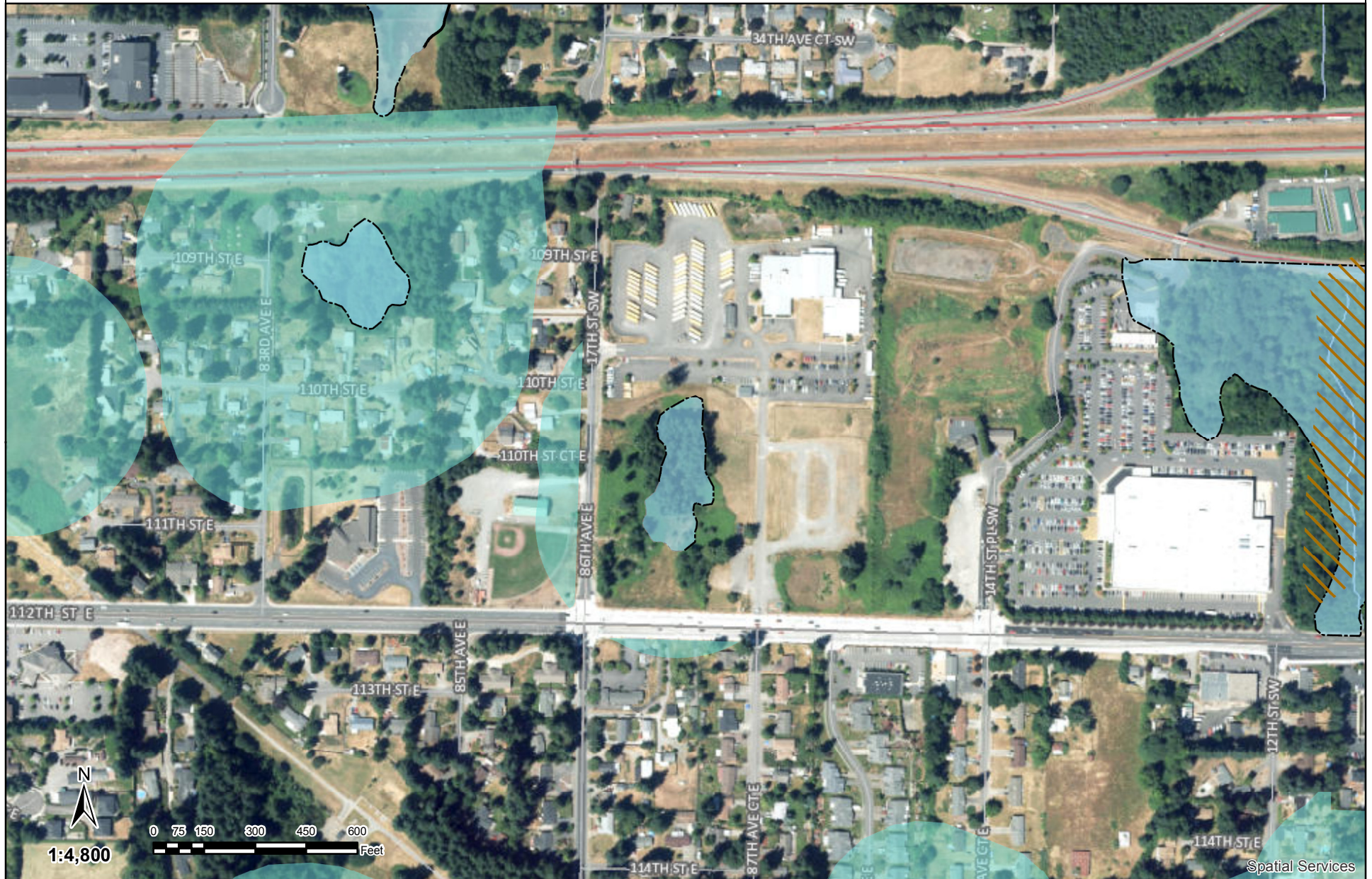
Legend

- Type II stream
- Wetland



PUYALLUP SCHOOL DISTRICT

SOUTH HILL TRANSPORTATION CENTER CRITICAL AREAS REPORT APPENDIX B: QUERIED DATABASE FIGURES



Disclaimer: Map features are approximate and have not been surveyed. Additional features not yet mapped may be present. Pierce County assumes no liability for variations ascertained by formal survey. 4/16/2019



WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPublic
REPORT DATE: 04/16/2019 1.54

Query ID: P190416135419

Common Name	Site Name	Priority Area	Accuracy	Federal Status	Sensitive Data	Source Entity
Scientific Name	Source Dataset	Occurrence Type		State Status	Resolution	Geometry Type
Notes	Source Record	More Information (URL)		PHS Listing Status		
	Source Date	Mgmt Recommendations				
Freshwater Emergent	N/A	Aquatic Habitat	NA	N/A	N	US Fish and Wildlife Service
	NWIIWetlands	Aquatic habitat		N/A	AS MAPPED	Polygons
		http://www.ecy.wa.gov		PHS Listed		
Freshwater Forested/Shrub	N/A	Aquatic Habitat	NA	N/A	N	US Fish and Wildlife Service
	NWIIWetlands	Aquatic habitat		N/A	AS MAPPED	Polygons
		http://www.ecy.wa.gov		PHS Listed		
Freshwater Pond	N/A	Aquatic Habitat	NA	N/A	N	US Fish and Wildlife Service
	NWIIWetlands	Aquatic habitat		N/A	AS MAPPED	Polygons
		http://www.ecy.wa.gov		PHS Listed		
Wetlands	LOWER PUYALLUP RIVER	Aquatic Habitat	1/4 mile (Quarter	N/A	N	WA Dept. of Fish and Wildlife
	PHSREGION	N/A		N/A	AS MAPPED	Polygons
	902559	http://www.ecy.wa.gov		PHS LISTED		
Wetlands	SOUTH PUYALLUP	Aquatic Habitat	1/4 mile (Quarter	N/A	N	WA Dept. of Fish and Wildlife
	PHSREGION	N/A		N/A	AS MAPPED	Polygons
	902560	http://www.ecy.wa.gov		PHS LISTED		

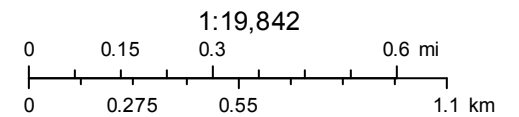
DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

WDFW Test Map



April 16, 2019

- | | | | | | |
|---|----------------------|---|---|---|----------|
|  | PHS Report Clip Area | POLY |  | QTR-TWP | |
|  | PT |  | AS MAPPED |  | TOWNSHIP |
|  | LN |  | SECTION | | |



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Hydric Soil List - All Components

This table lists the map unit components and their hydric status in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 - B. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
 - A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 - B. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
 - A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 - B. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

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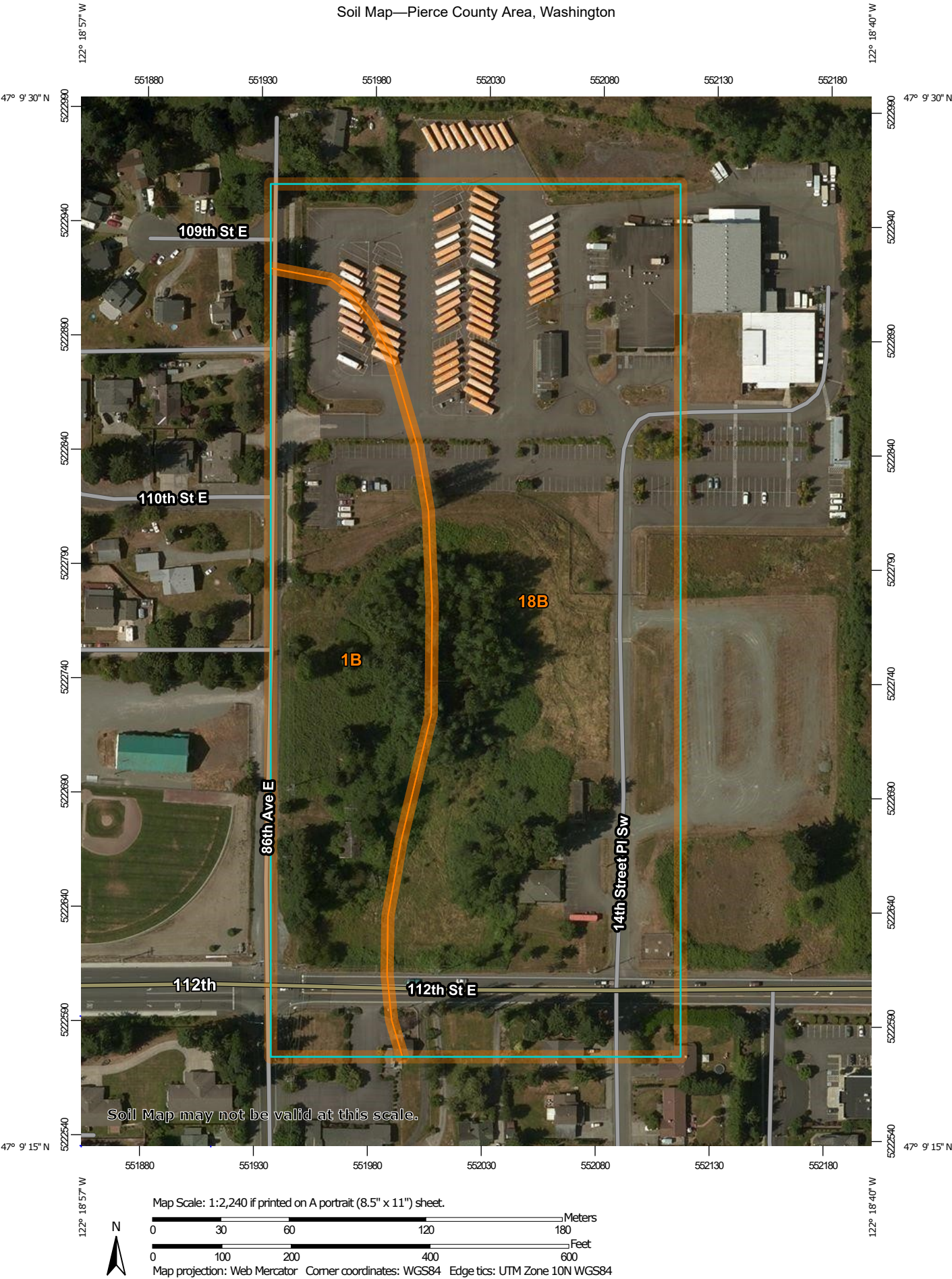
Report—Hydric Soil List - All Components

Hydric Soil List - All Components--WA653-Pierce County Area, Washington					
Map symbol and map unit name	Component/Local Phase	Comp. pct.	Landform	Hydric status	Hydric criteria met (code)
1B: Alderwood gravelly sandy loam, 0 to 8 percent slopes	Alderwood	85	Ridges,hills	No	—
	Everett	5	Kames,eskers,moraines	No	—
	McKenna	5	Depressions,drainage ways	Yes	2,3
	Shalcar	3	Depressions	Yes	1,3
	Norma	2	Depressions,drainage ways	Yes	2,3
18B: Indianola loamy sand, 0 to 5 percent slopes	Indianola	85	Eskers,kames,terraces	No	—
	Alderwood	8	Ridges,hills	No	—
	Everett	5	Kames,eskers,moraines	No	—
	Norma	2	Depressions,drainage ways	Yes	2,3

Data Source Information

Soil Survey Area: Pierce County Area, Washington
 Survey Area Data: Version 14, Sep 10, 2018

Soil Map—Pierce County Area, Washington



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: Pierce County Area, Washington

Survey Area Data: Version 14, 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: Jul 8, 2014—Jul 15, 2014

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
1B	Alderwood gravelly sandy loam, 0 to 8 percent slopes	5.1	29.8%
18B	Indianola loamy sand, 0 to 5 percent slopes	12.0	70.2%
Totals for Area of Interest		17.0	100.0%



U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands



April 16, 2019

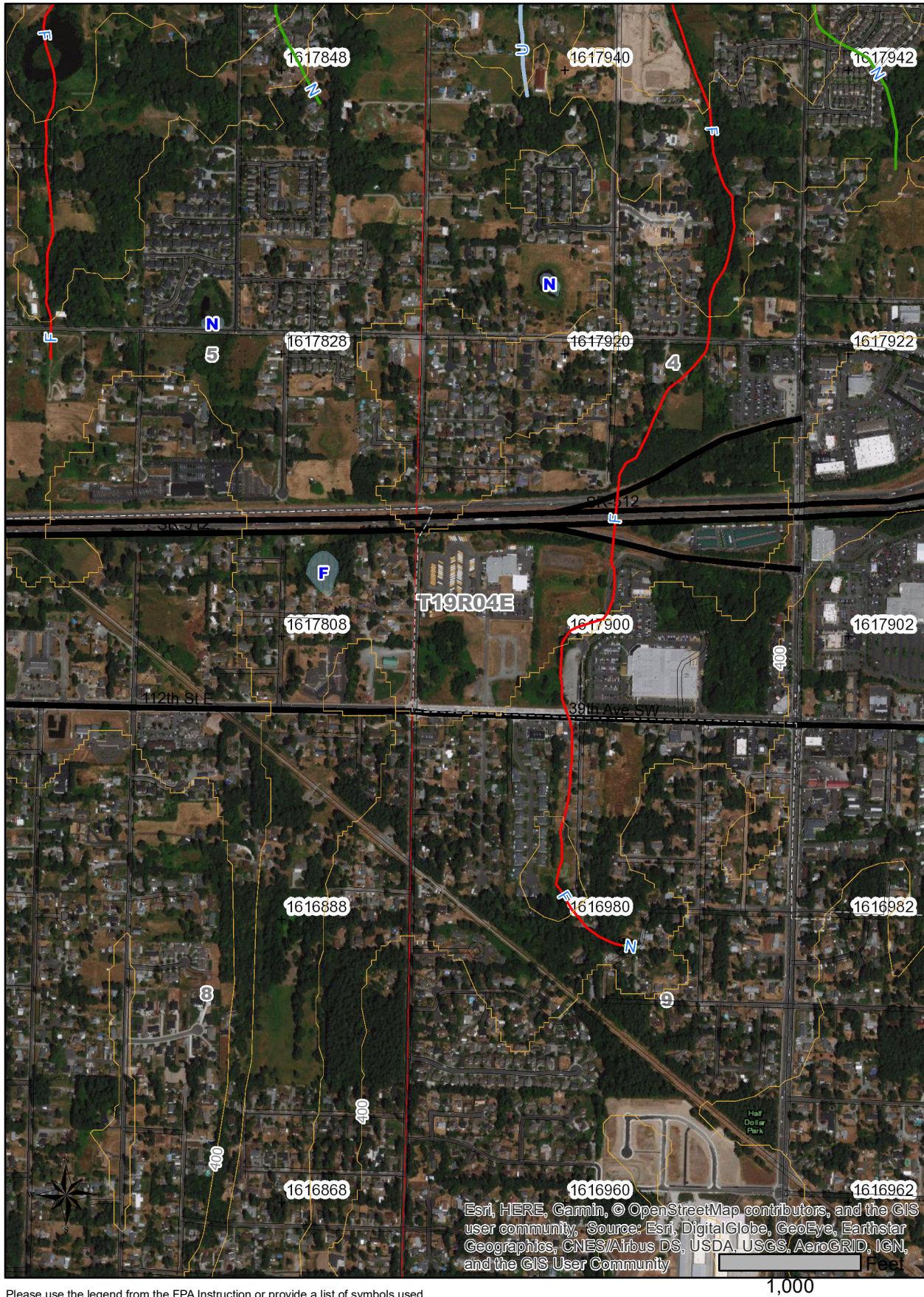
Wetlands

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

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Forest Practices Activity Map

Application #:



Please use the legend from the FPA Instruction or provide a list of symbols used.

Date: 4/16/2019 Time: 12:43:05 PM
NAD 83 Scale: 1:12,000
Contour Interval: 40 Feet

PUYALLUP SCHOOL DISTRICT

SOUTH HILL TRANSPORTATION CENTER CRITICAL AREAS REPORT APPENDIX C: WETLAND RATING FORMS

Wetland name or number Wetland A**RATING SUMMARY – Western Washington**Name of wetland (or ID #): Wetland A Date of site visit: 4/17/19Rated by Tom Peterson Trained by Ecology? ☒ Yes ☐ No Date of training _____HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Y ☒ N**NOTE: Form is not complete without the figures requested (figures can be combined).**Source of base aerial photo/map 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☒ Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	H (M) L	H (M) L	H (M) L	
Landscape Potential	H M (L)	H (M) L	H M (L)	
Value	H (M) L	H (M) L	H M (L)	TOTAL
Score Based on Ratings	5	6	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	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	☒

Wetland name or number Wetland A

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 (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number Wetland A

HGM Classification of Wetlands in Western Washington

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

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

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

☒ NO - go to 2

YES - the wetland class is **Tidal Fringe** - go to 1.1

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

NO - **Saltwater Tidal Fringe (Estuarine)**

YES - **Freshwater Tidal Fringe**

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

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

☒ NO - go to 3

YES - The wetland class is **Flats**

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

3. Does the entire wetland unit **meet all** of the following criteria?

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

☒ NO - go to 4

YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
☐ The water leaves the wetland **without being impounded**.

☒ NO - go to 5

YES - The wetland class is **Slope**

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

5. Does the entire wetland unit **meet all** of the following criteria?

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number Wetland A

☒ NO – go to 6

☐ YES – The wetland class is **Riverine**

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

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

NO – go to 7

☒ YES – The wetland class is **Depressional**

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

NO – go to 8

☐ YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number Wetland A

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		3
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 points = 5 Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0		3
D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland points = 4 Area seasonally ponded is > 1/4 total area of wetland points = 2 Area seasonally ponded is < 1/4 total area of wetland points = 0		4
Total for D 1		10

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		0
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		0

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

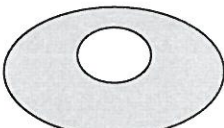
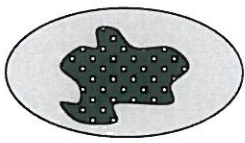
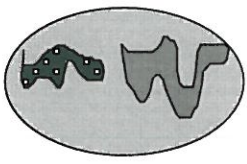
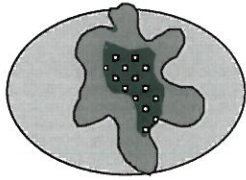
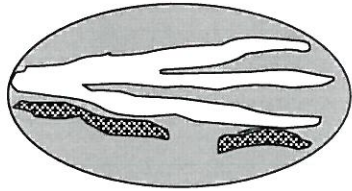
D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0		0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource 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		0
Total for D 3		1

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

Wetland name or number Wetland #

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. <u>Characteristics of surface water outflows from the wetland:</u> 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		4
D 4.2. <u>Depth of storage during wet periods:</u> Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part. Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 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		3
D 4.3. <u>Contribution of the wetland to storage in the watershed:</u> Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 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		3
Total for D 4		10
Rating of Site Potential If score is: <u>12-16 = H</u> <u>✓ 6-11 = M</u> <u>0-5 = L</u> Record the rating on the first page		
D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0		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		0
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		1
Rating of Landscape Potential If score is: <u>3 = H</u> <u>✓ 1 or 2 = M</u> <u>0 = L</u> Record the rating on the first page		
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>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.</u> 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		1
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		1
Rating of Value If score is: <u>2-4 = H</u> <u>✓ 1 = M</u> <u>0 = L</u> Record the rating on the first page		

Wetland name or number Wetland A

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: <i>Indicators are Cowardin classes and strata within the Forested class.</i> Check the Cowardin plant classes in the wetland. <i>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.</i> ☐ Aquatic bed ☒ Emergent ☐ Scrub-shrub (areas where shrubs have > 30% cover) ☒ Forested (areas where trees have > 30% cover) <i>If the unit has a Forested class, check if:</i> ☒ 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	2
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 (<i>see text for descriptions of hydroperiods</i>). ☐ 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 ☐ Freshwater tidal wetland 4 or more types present: points = 3 3 types present: points = 2 2 types present: points = 1 1 type present: points = 0 2 points 2 points	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft². <i>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</i> If you counted: > 19 species 5 - 19 species < 5 species points = 2 points = 1 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. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i>  None = 0 points  Low = 1 point  Moderate = 2 points    All three diagrams in this row are HIGH = 3 points	1

Wetland name or number Wetland A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> ☒ 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)		2
Total for H 1	Add the points in the boxes above	7

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = ____ % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0		0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = ____ % 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 1 km Polygon is high intensity points = 0		-2
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? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0		0

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

Wetland name or number Wetland A

WDFW Priority Habitats

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

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

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

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

Wetland name or number Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number Wetland A

SC 4.0. Forested Wetlands Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = Category I ~~No~~ = Not a forested wetland for this section	Cat. I
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) 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 ft²) Yes = Category I No = Category II	Cat. I Cat. II
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i> In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to SC 6.1 ~~No~~ = not an interdunal wetland for rating SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2 SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3 SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV	Cat I Cat. II Cat. III Cat. IV
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number Wetland A

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Cowardin Classes

Legend

- Emergent Vegetation
- Forested Vegetation

17th St SW

Google Earth

© 2018 Google

N

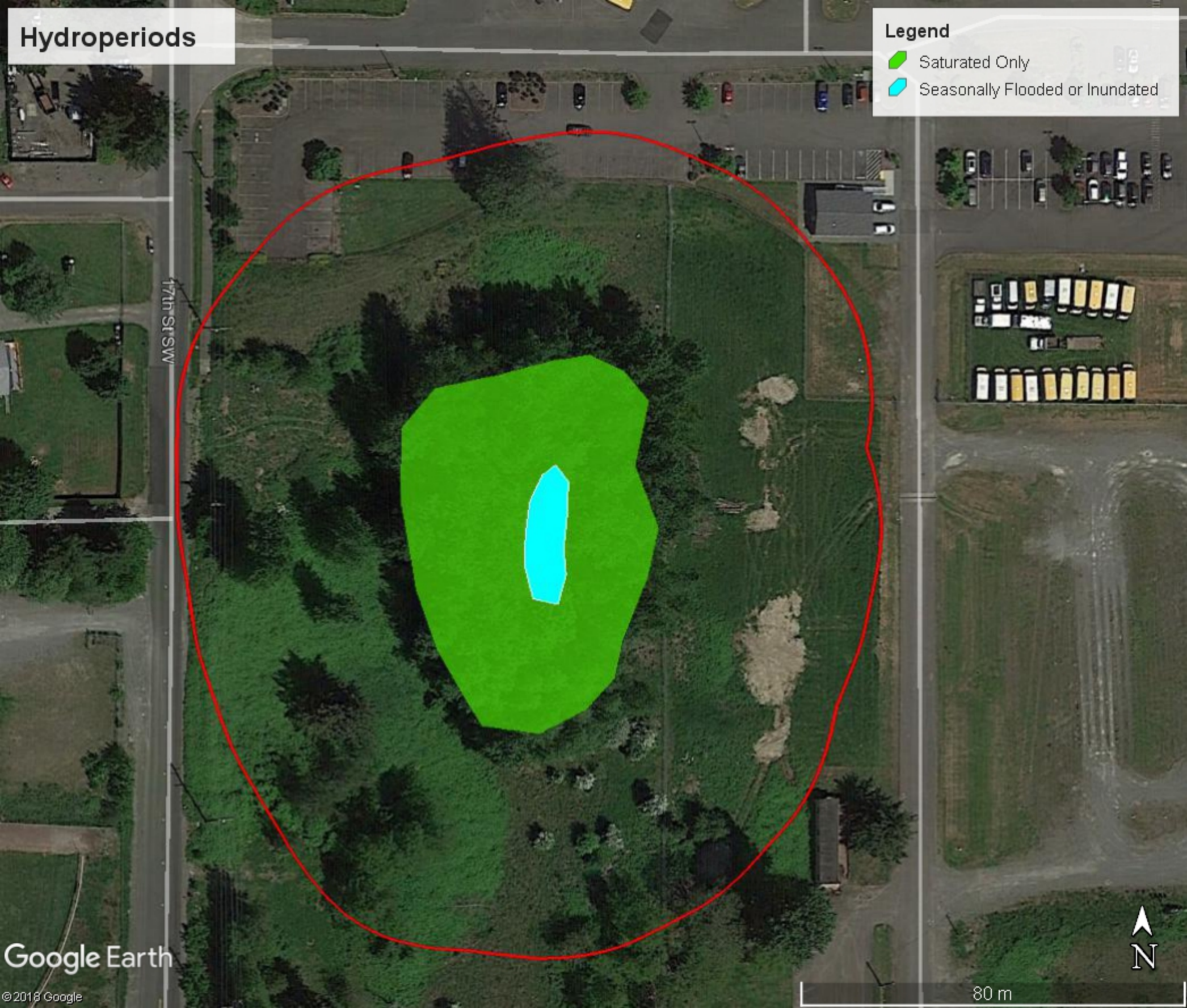
80 m



Hydroperiods

Legend

- Saturated Only
- Seasonally Flooded or Inundated

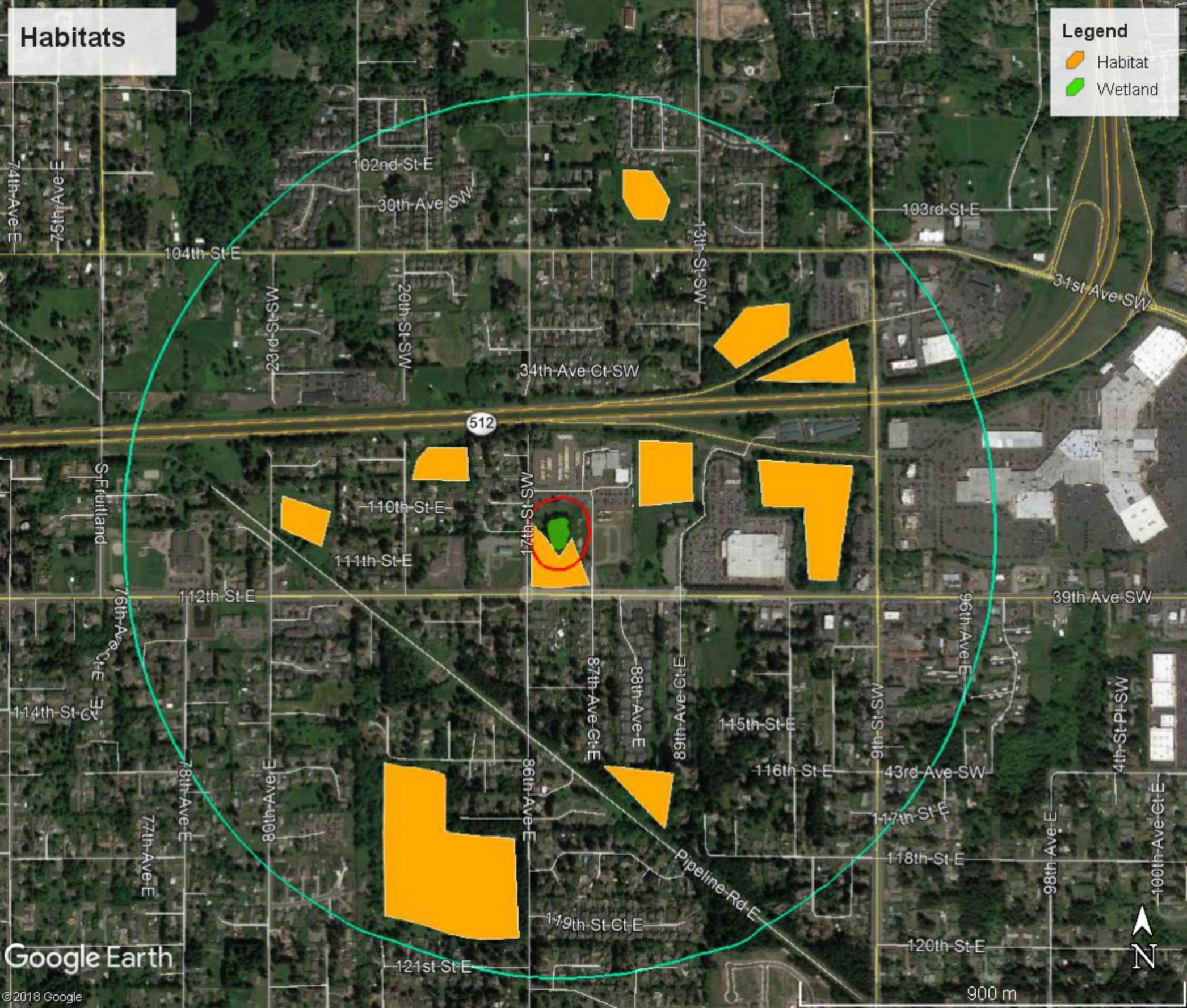


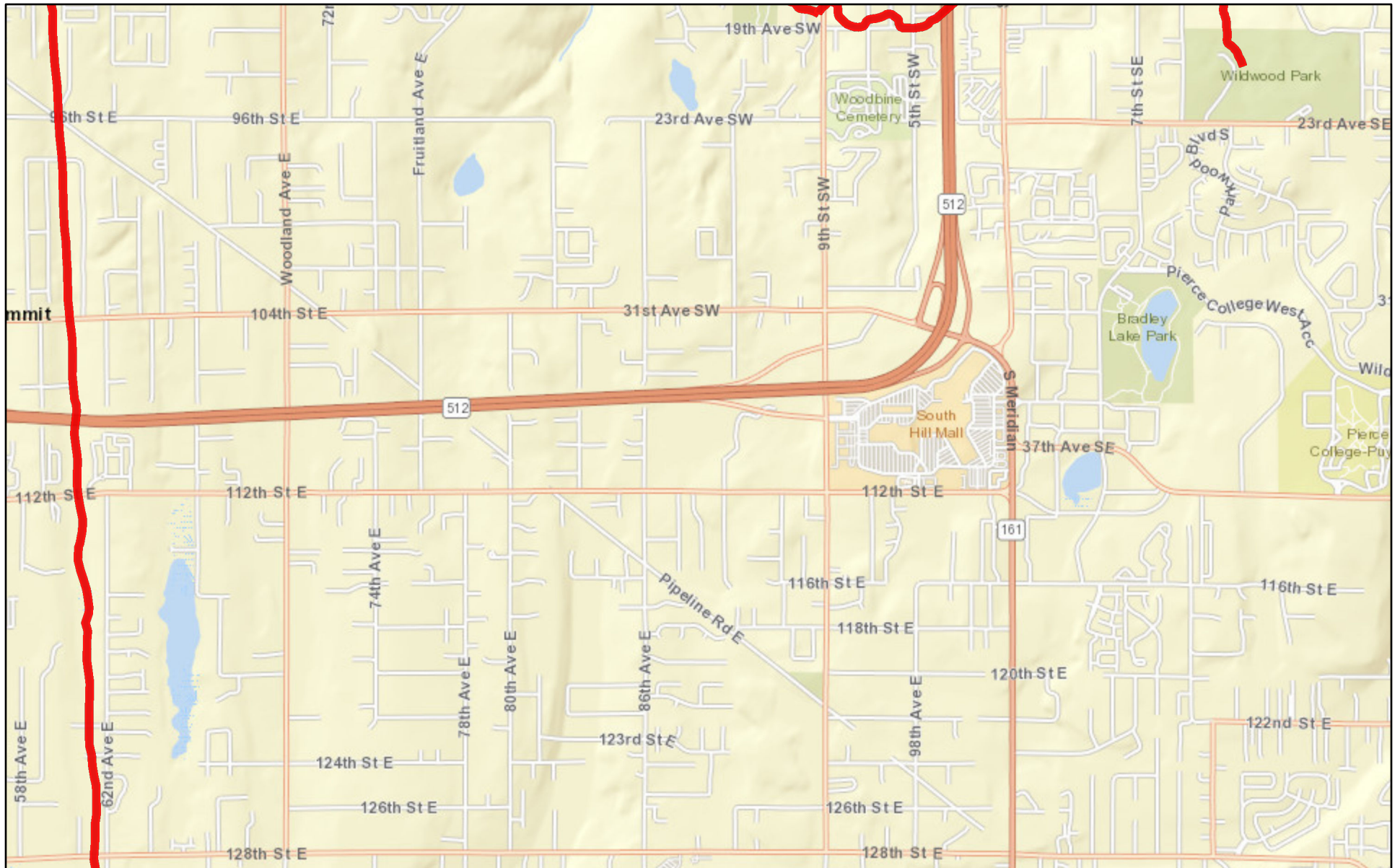
Habitats

Legend

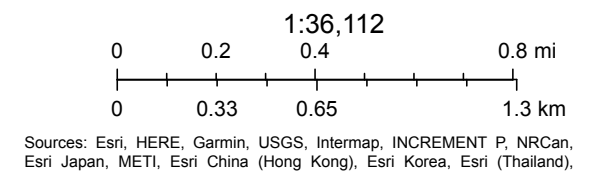
Habitat

Wetland





April 16, 2019



SELECT A STATE / REGION

Washington ⓘ ▼

IDENTIFY A STUDY AREA

Basin Delineated ▶

Step 5: Your delineation is complete. You can now clear, edit, or download your basin, or choose a state or regional study specific function (if available). Click **continue** when you are ready.

 Clear Basin Edit Basin Download Basin ▼

or

 Continue

SELECT SCENARIOS ▼

BUILD A REPORT ▼

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 Exploration Tools

+

-

Zoom Level: 17
Map Scale: 1:4,513
Lat: 47.1571, Lon: -122.3161