AARON MOLEN, RICK MOLEN, AND JARED LOTHYAN

ALCORN AND YMCA PROPERTIES
WETLAND DELINEATION AND ANALYSIS REPORT

MARCH 2015

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS

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WETLAND DELINEATION AND ANALYSIS REPORT

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1. INTRODUCTION

Grette Associates^{LLC} was under contract to conduct a wetland delineation on a parcel owned by Earl Alcorn (Pierce County Tax Parcel No. 0520194086) and on a portion of a parcel owned by the Young Men's Christian Association of Pierce and Kitsap Counties (YMCA) (Pierce County Tax Parcel No. 0520194090). The Study Area is located off 64th Street East in Sumner, WA and comprises approximately 3.25 total acres. The Study Area is within Section 19, Township 20 North, Range 06 East, W.M. (Figure 1). The wetland delineation focused on identifying any wetland areas within 300 feet of Parcel No. 0520194086.

Grette Associates staff wetland specialists, Matt Heddin and Chad Wallin, assessed the Study Area and surrounding areas on February 25, 2015 and delineated one onsite wetland. Field datasheets are attached for reference in Appendix A and wetland rating forms are attached in Appendix B. A parcel map depicting the Study Area is presented in Figures 1 and 2 below.

Figure 1. Parcel Map (Pierce County PublicGIS 2015)

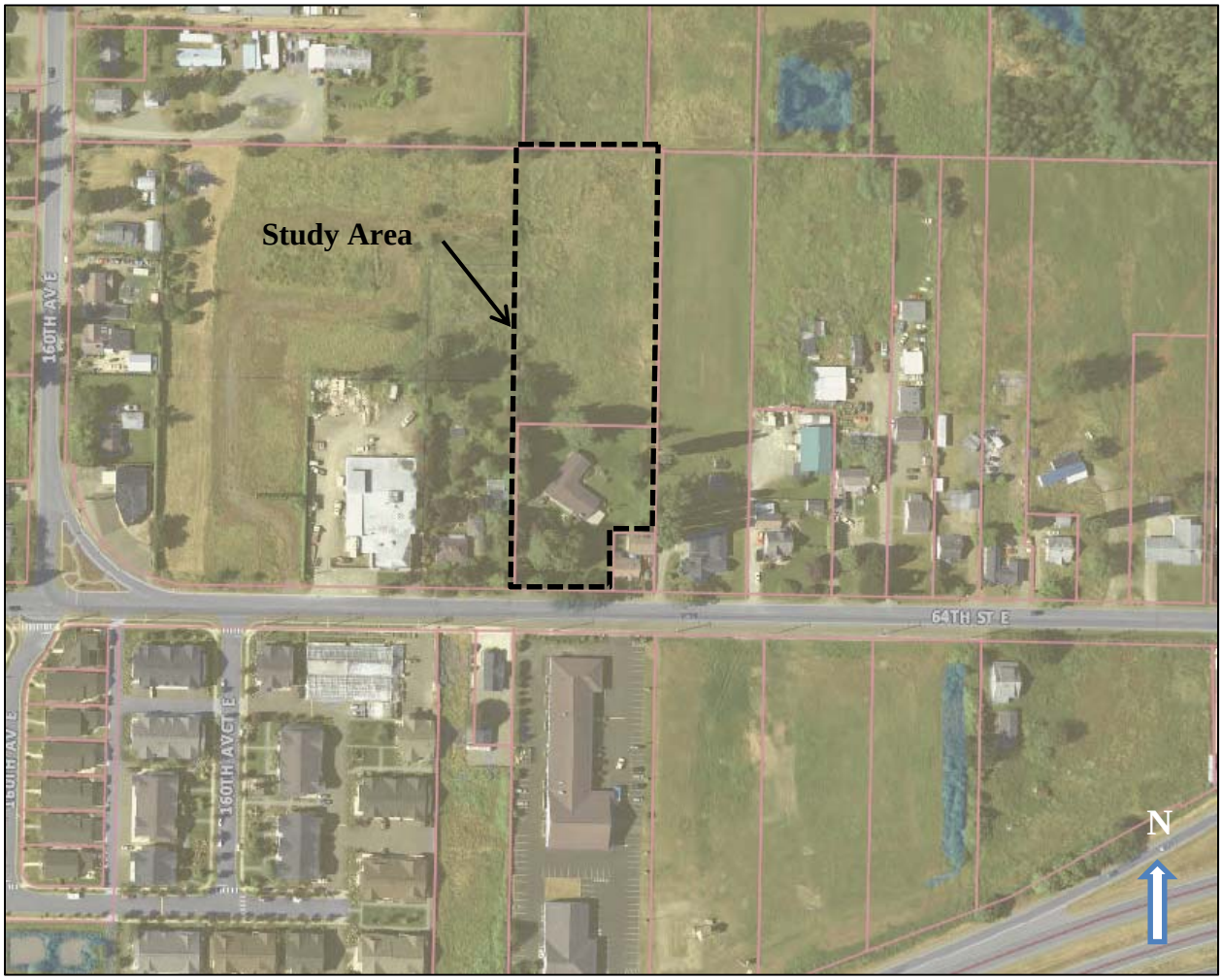
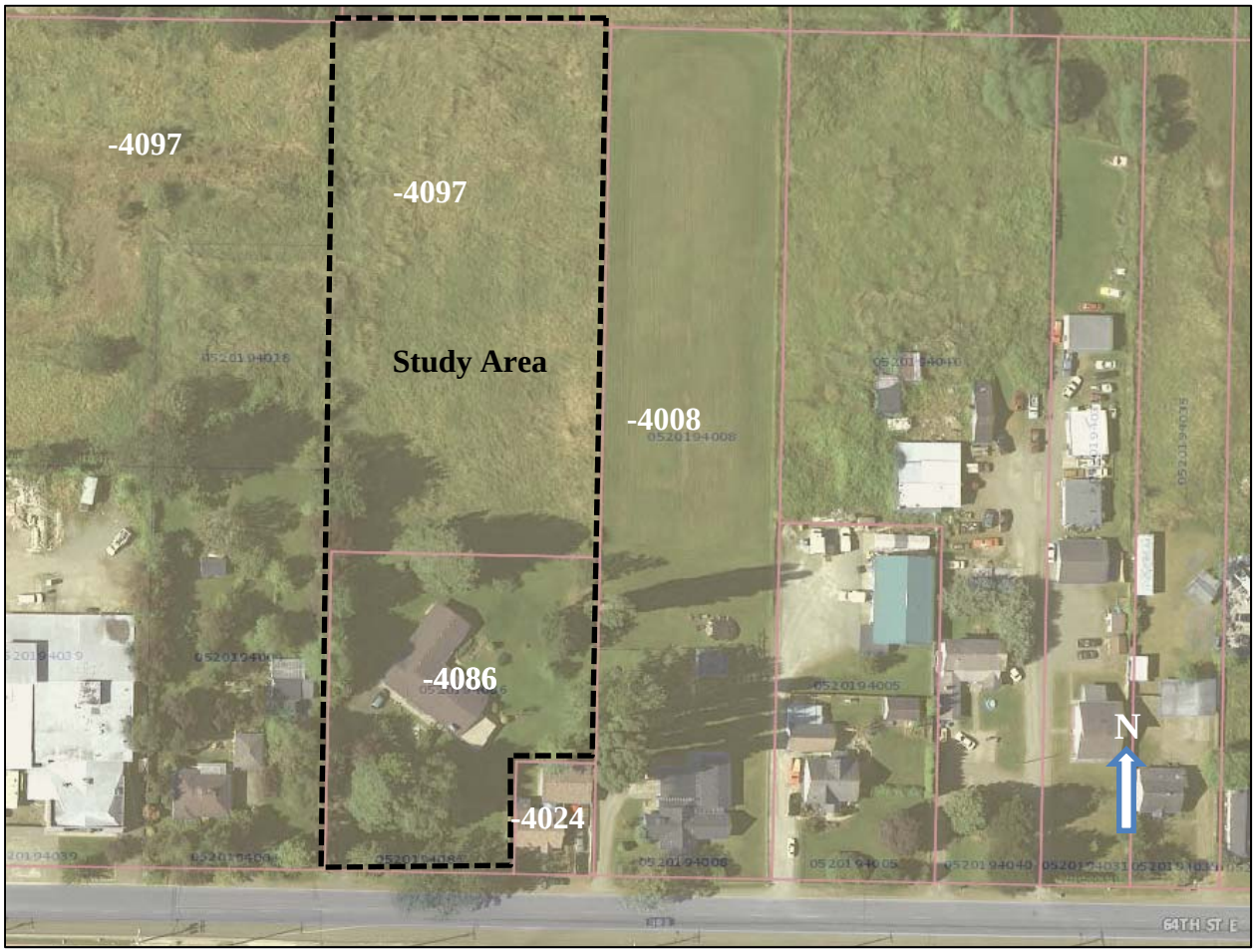


Figure 2. Study Area Map (Study Area shown in dashed line) (Pierce County PublicGIS 2015)



In December 2013, the *Draft Wetland Investigation and Delineation, Sumner, Washington* (Widener Report) prepared by Widener & Associates identified one wetland within the Study Area. The Widener Report is attached in Appendix C.

2. WETLAND SUMMARY

The Study Area was investigated for the presence of jurisdictional wetlands and streams on February 25, 2015. All accessible areas of the Study Area likely to contain wetlands and streams were inspected. The site investigation resulted in the delineation of one wetland (Tables 1 and 2).

Wetland A was delineated according to the procedures described in the U.S. Army Corps of Engineers (USACE) *Federal Wetland Delineation Manual* (1987), the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010) and the City of Sumner Municipal Code (SMC). Paired data plots and soil test pits were excavated to evaluate wetland and upland conditions. Guidance from the USACE *Regional Supplement* was used to evaluate the data at each data point.

Figure 3 shows the approximate wetland boundary. The wetland survey drawing in Appendix D shows the location of the wetland in relation to the property boundaries.

Figure 3. Wetland Boundary Map (approximate wetland boundary shown in green, wetland buffer shown in blue)

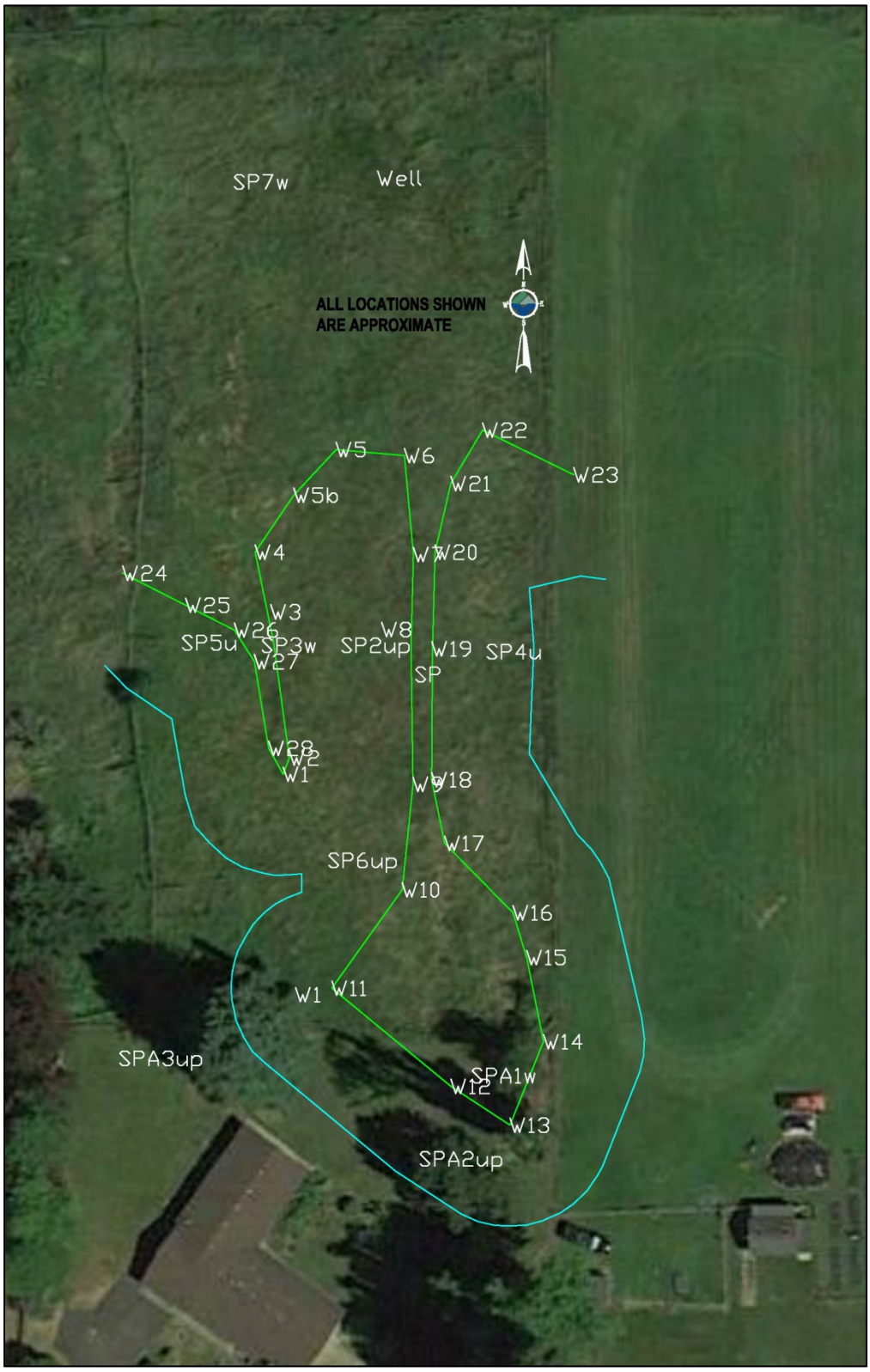


Table 1. Wetland Size, Category, and Buffer Width Summary

Wetland ID	Size (Sq. Ft.)[1]	Size (Acres)[1]	Wetland Category[2]	Buffer Width (Ft)[3]
A	**305,000**	**7**	**IV**	**35**

1. Area shown is approximate.
2. Wetland Rating System for Western Washington, Hruby 2004.
3. Per SMC Chapter 16.46

Table 2. Wetland Classification Summary

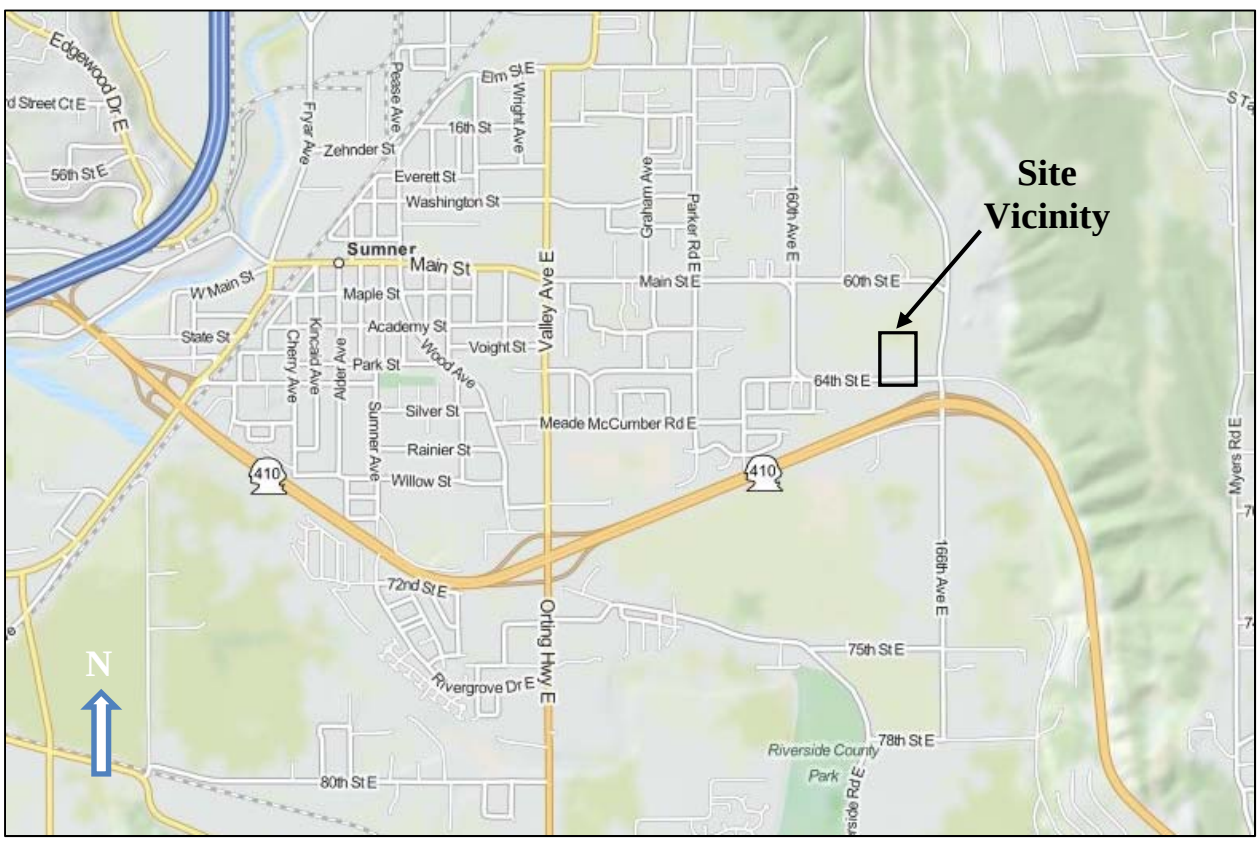
Wetland ID	Cowardin Class[1]	HGM Class[2]	Dominant Vegetation
A	**PEM**	**Depressional**	**reed canarygrass**

1. Classification of Wetlands and Deepwater Habitats of the United States, Cowardin 1979.
2. Hydrogeomorphic Classification - Washington State Wetland Rating System for Western WA.

3. BACKGROUND INFORMATION

The Study Area comprises approximately 3.25 acres. To access the property from Hwy 410, take the 166th Ave Exit north towards 64th St E. At the first intersection, take a left on 64th St E. The Subject Property is located on the right side of the road in approximately 800 ft. A vicinity map is provided in Figure 4 below.

Figure 4. Site Vicinity Map (Mapquest 2015)



The Study Area is currently used for residential purposes. With the exception of the existing single family home, driveway, and associated structures, the majority of the Study Area is largely undeveloped. The adjacent properties to the east and north are developed with single-family homes. As of the writing of this report, a new YMCA facility is being constructed to the west of the Study Area. A list of plant species identified on or adjacent to the Study Area is provided in Table 3 below.

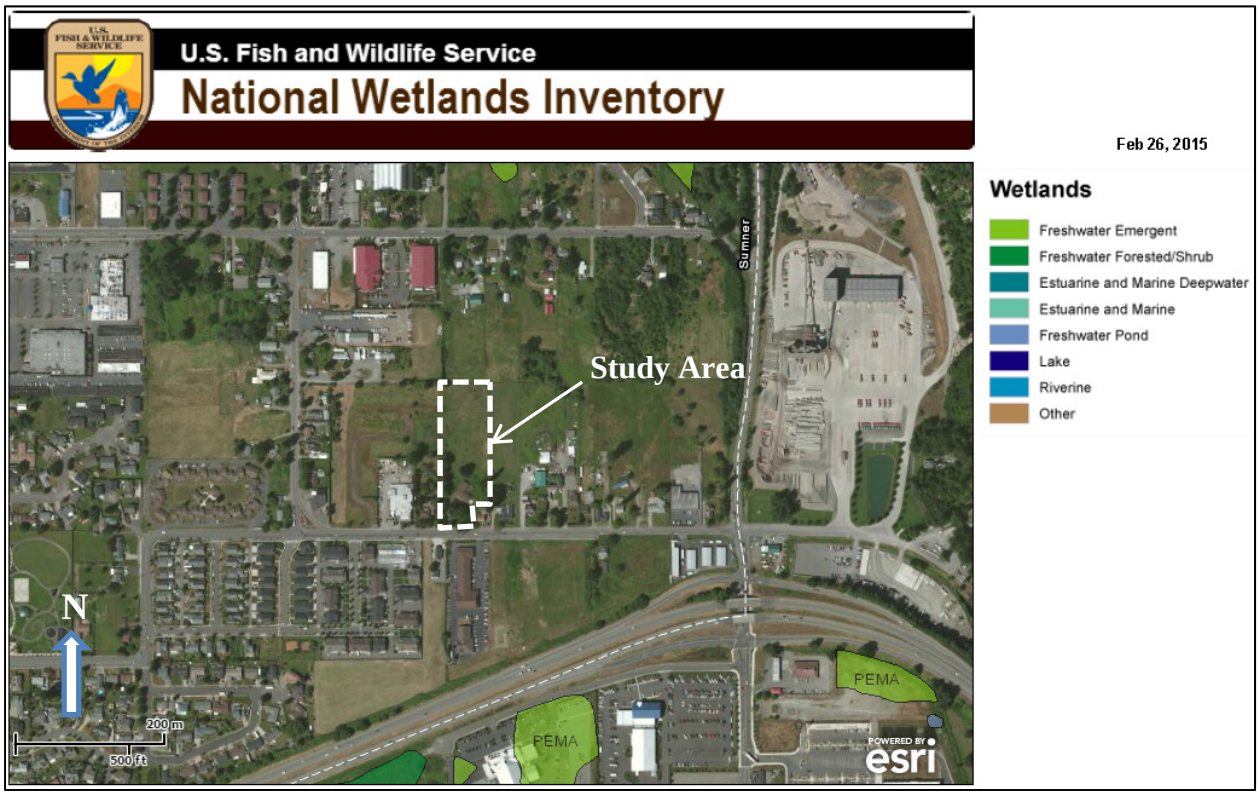
Table 3. Plants Identified within the Study Area

Species Name	Common Name	Indicator Status[2]	Native Species
Acer macrophyllum	big-leaf maple	FACU	YES
Acer circinatum	vine maple	FAC	YES
Agrostis oregonensis	Oregon bentgrass	FAC	YES
Alnus rubra	red alder	FAC	YES
Equisetum arvense	field horse tail	FAC	YES
Equisetum telmateia	giant horsetail	FACW	YES
Lolium perenne	perennial ryegrass	FAC	YES
Poa pratensis	Kentucky bluegrass	FAC	YES
Polystichum munitum	sword fern	FACU	YES
Phalaris arundinacea	reed canarygrass	FACW	NO
Polygonum convolvulus	bindweed	FACU	NO
Populus balsamifera	black cottonwood	FAC	YES
Ranunculus repens	creeping buttercup	FACW	NO
Rubus discolor	Himalayan blackberry	FACU	NO
Rubus ursinus	trailing blackberry	FACU	YES
Thuja plicata	Western red-cedar	FAC	YES
Tolmiea meziesii	Piggyback	FAC	YES
Solanum dulcamara	creeping nightshade	FAC	NO
Quercus garryana	Garry oak	FACU	YES

3.1 National Wetlands Inventory

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) was queried to determine if any previously identified wetlands are present onsite or within the immediate vicinity (USFWS 2015). According to the NWI Interactive Online Mapper (Figure 5), two Palustrine Emergent Wetlands are mapped approximately 0.17 and 0.23 miles, respectively, to the northeast of the Study Area. Three additional Palustrine Emergent Wetlands and one Palustrine Scrub-Shrub Wetland are mapped south of Highway 10.

Figure 5. National Wetlands Inventory Map (NWI 2015) (no wetlands are mapped, Study Area shown with a dashed line)



3.2 Sensitive Wildlife and Plants

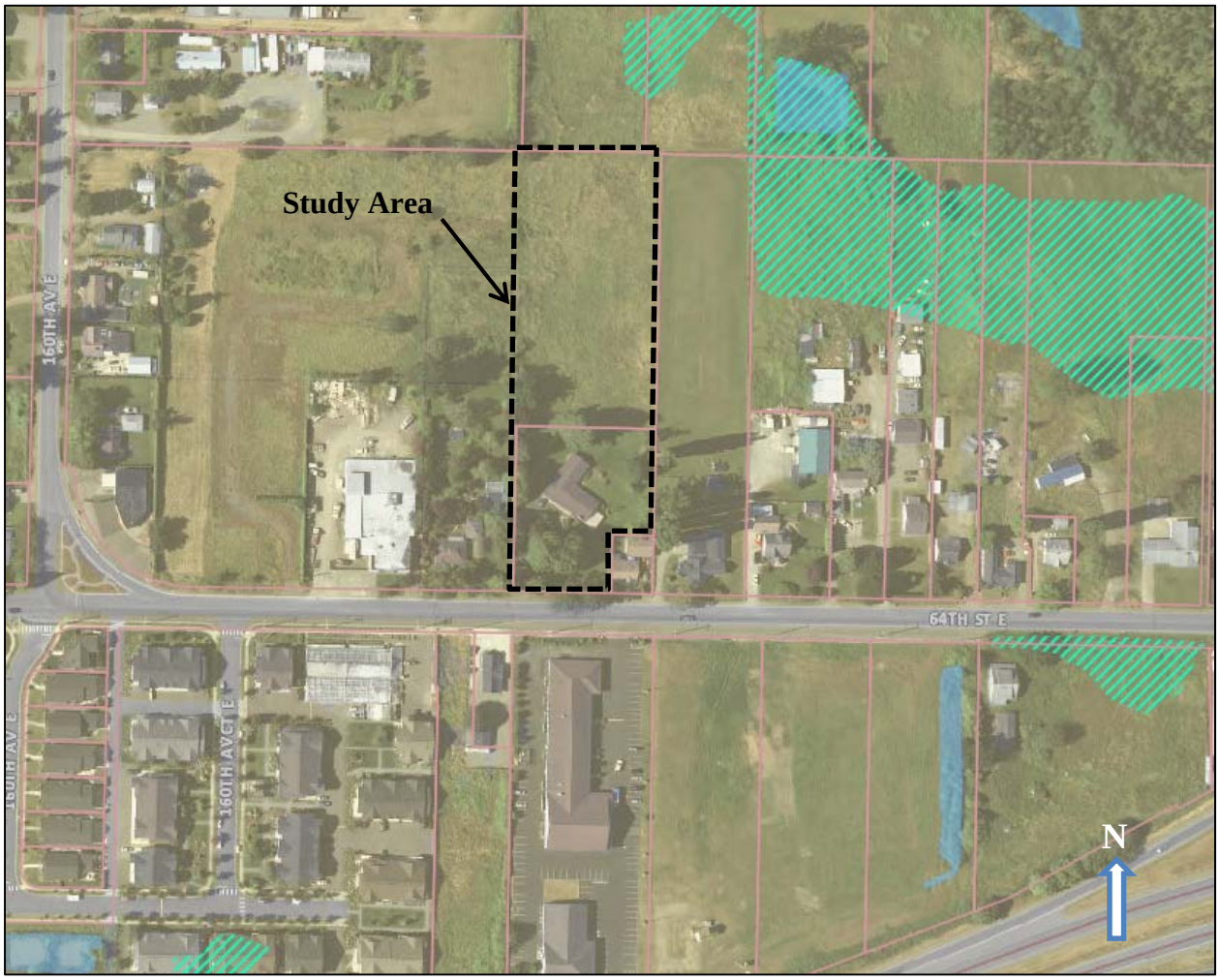
The Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) database was queried to determine if state or federally listed fish or wildlife species occur on or near the Study Area. According to the PHS database, no priority habitats or species are located within or adjacent to the Study Area.

The Washington Department of Natural Resources' (WDNR) Natural Heritage Information System was queried to determine if the Study Area 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 September 24, 2014 there are no records of rare plants or high quality native ecosystems occurring in the vicinity of the Study Area.

3.3 Pierce County PublicGIS

Pierce County's PublicGIS mapper was reviewed to determine if any previously identified wetlands or streams are present on or near the Study Area. According to the mapper, a previously identified pond and large wetland are located to the northeast of the Study Area. No wetlands or streams are mapped within the Study Area (Figure 6).

Figure 6. Pierce County PublicGIS Wetland Mapper (Public GIS 2015)



3.4 WDNR Forest Practices

The WDNR Forest Practices data base was consulted to determine if water bodies occur on or in the vicinity of the Study Area that are previously mapped and classified under the water typing system detailed in WAC 222-16-030 and -031. According to the Water Type Map, no wetlands or streams are located on the subject property.

3.5 Soil Information

The Natural Resource Conservation Service's Soil Survey of Pierce County, Washington identifies two soil series present on the Study Area. The soil series identified within the Study Area are 6A: Briscot loam, 0 to 2 percent slope and 31A: Puyullap fine sandy loam soils, 0 to 3 percent (Figure 7).

Briscot loam soils developed on flood plains from alluvium parent material. These soils are somewhat poorly drained and are hydric. Puyallup fine sandy loam soils are soils that developed on flood plains and terraces from alluvium parent material. These soils are well drained soils and are also considered hydric.

Figure 7. Soil Map (NRCS/Pierce County) (Study Area shown in yellow)

Pierce County Area, Washington (WA653)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6A	Briscot loam	2.5	85.3%
31A	Puyallup fine sandy loam	0.4	14.7%
Totals for Area of Interest		2.9	100.0%

4. METHODS – WETLAND DETERMINATION

The Study Area was traversed and data were collected to confirm wetland boundaries. The wetland boundaries located within the Study Area were delineated according to the procedures described in USACE's *Federal Wetland Delineation Manual* (Environmental Laboratory 1987), and the USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Paired data plots and soil test pits were excavated to evaluate wetland and upland conditions. Guidance from the USACE Regional Supplement was used to evaluate the data at each data point.

The delineation was performed on February 25, 2015. To mark the boundary between wetlands and uplands within the Study Area, orange surveyor's flagging was numerically labeled and tied to vegetation and stakes along the wetland line. To mark the points where data were collected, pink surveyor's flagging was numerically labeled and placed at each sampling location.

4.1 Hydrophytic Vegetation Criteria

The USACE assumed lead responsibility for the National Wetland Plant List (NWPL) in December 2006. The NWPL is a list of wetland plants and their assigned wetland indicator status. 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). 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 USACE's *National Wetland Plant List* (Lichvar et al. 2014) was used to determine vegetation indicator status.

Plants were determined to be more or less associated with wetlands based on their wetland indicator 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 account 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 (Table 4).

Table 4. Definitions for USACE 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)
No Indicator	NI	Not an Indicator due to insufficient information to determine status
Not Listed	NL	Not listed - either non-native species or does not occur in wetlands

4.2 Wetland Hydrology Criteria

The wetland hydrology indicators listed in the Regional Supplement were used by field staff to assist in making wetland determinations (USACE 2010). Primary indicators of wetland hydrology observed within the Study Area included evidence of periodic inundation, evidence of soil saturation, high water table, and oxidized rhizospheres. In addition, geomorphic position and the FAC-Neutral Test were utilized as secondary indicators of wetland hydrology during field analysis of existing features.

4.3 Hydric Soils Criteria

The field hydric soil indicators listed in the USACE Manual were used by field staff to assist in making wetland determinations (USACE 2010). Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons. Field indicators include histosols, the presence of a histic epipedon, a sulfidic odor, depleted soil matrix, and additional indicators specifically listed in the Regional Supplement.

5. RESULTS - WETLANDS

The site investigation resulted in the delineation of one wetland (Wetland A) within the Study Area. Wetland A is located in the northern portion of the Study Area. Indicators of wetland hydrology, hydric soil characteristics, and dominant hydrophytic vegetation observed within the wetland are summarized in Table 5 below.

Table 5. Wetland Indicator Summary

Wetland ID	Hydric Soil Indicators	Wetland Hydrology Indicators	Hydrophytic Vegetation	Dominant Plant Community
A	F3 – Depleted Matrix, A4 – Hydrogen Sulfide	Seasonally Saturated, Seasonally Flooded	Reed canarygrass	Emergent

5.1 Wetland A

Wetland A is a Palustrine Emergent, Seasonally-Flooded wetland located in the west and central portions of Study Area (Figure 3, Appendix D). The wetland extends offsite to the north and east and is approximately 7 acres in size. Wetland A is hydrogeomorphically classified as a Depressional Wetland.

5.1.1 Vegetation

Vegetation within Wetland A is dominated by an emergent plant community consisting of reed canarygrass and other field grasses.

5.1.2 Hydrology

Hydrologic support for the wetland is provided primarily by seasonal high groundwater levels and stormwater runoff from adjacent areas. Indicators of wetland hydrology observed within the wetland include saturation to the surface, hydrogen sulfide odor, oxidized rhizospheres along living roots, and high water table.

5.1.3 Hydric Soils

The soil series mapped throughout the majority of the wetland is Briscot loam soils, 0 to 2 percent. In a typical profile, the surface layer (0 to 6 inches) is composed of 6 inches of a very dark grayish brown (10YR3/2) silt with strong brown (7.5YR5/6) redox features over a 2 inch subsurface layer of dark grayish brown (10YR4/2) compressed silt over a subsurface layer (8 to 16 inches) of dark grayish brown (10YR3/2) mucky silt with dark yellowish brown (10YR4/4)

redox concentrations in the matrix. Indicators of hydric soils observed within the wetland include Depleted Matrix and Hydrogen Sulfide Odor.

5.2 Wetland Determination

At the time of the site investigation, the area flagged as wetland exhibited sufficient indicators of the required parameters for the presence of wetland conditions. These parameters include a predominance of hydrophytic vegetation, presence of wetland hydrology, and indicators of hydric soils. Wetland boundaries are to be considered preliminary until they ae reviewed and approved by the appropriate regulatory agency.

5.3 Wetland Categorization and Standard Buffers

Wetland A was previously rated by Widener and Associations using Ecology's *Washington State Wetlands Rating System for Western WA – Updated* (Hruby 2004) as well as the wetland classification guidelines in SMC 16.46.150. Grette Associates staff reviewed the "Widener" rating form and agreed with both the rating and 35-foot buffer width applied. The Widener Wetland Rating Sheet is provided in Appendix B. The wetland buffer was assigned to the wetland based on the criteria set forth in SMC 16.46.150. The wetland categorization and buffer width requirements are summarized in Table 6 below.

Table 6. Wetland Rating and Buffer Width Summary

Wetland ID	HGM Class[1]	Water Quality Function	Hydrologic Function	Habitat Function	Total Score for Functions	Wetland Category[2]	Standard Buffer Width (Ft)[3]
A	Depressional	**14**	**6**	**7**	**27**	**IV**	**35**

1. Hydrogeomorphic Classification - Washington State Wetland Rating System for Western Washington
2. Washington State Wetland Rating System for Western WA. Updated 2006 (Hruby 2004)
3. Buffer Widths from SMC 16.46.150.

With the exception of the existing farm fields, housing, residential yards and outbuildings, the 35-foot wetland buffer area surrounding Wetland A is largely undeveloped. Much of the buffer is vegetated with maintained or mowed grasses and weeds. The wetland buffer on the Alcorn property functions as residential yard space and consists largely of mowed grasses and weeds. SMC 16 allows for this use and maintenance to continue. The buffer in this area provides no screening of the wetland and provides almost no habitat function.

5.4 Functions and Values

Wetlands provide several functions, such as stormwater retention, storage, and infiltration, water quality enhancement, and fish and wildlife habitat. Values are an estimate of the importance or worth of one or more of a wetland's functions to society. These values may include ecological, economic, recreational, or aesthetic characteristics.

Wetland A filters out sediments and pollutants, retains stormwater, and provides groundwater infiltration functions. Limited wildlife functions include small mammal, passerine, and raptor

and amphibian foraging. Social values include aesthetic, educational, and ecological characteristics.

6. BIOLOGIST QUALIFICATIONS

6.1 Matt Heddin, WPIT

Matt Heddin is a Biologist with professional training and experience in wetland ecology as well as fisheries and wildlife ecology, habitat restoration, wetland, stream, and benthic delineations and assessments, stream assessments, monitoring programs, and mitigation planning and design.

Matt earned a Bachelor's of Science degree in Biology from Kansas State University. He also has professional level training in advanced wetland science and management techniques from University of Washington's Wetlands Science and Management Certificate Program. Matt is a qualified wetland specialist and listed on Pierce County Planning and Land Services' Wetland Specialist List.

For a list of representative projects, please contact him at Grette Associates.

7. REFERENCES

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THE RUSH COMPANIES

ALCORN AND YMCA PROPERTIES
WETLAND DELINEATION AND ANALYSIS REPORT
APPENDIX A
WETLAND FIELD DATA SHEETS

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

Project Site: YMCA Sumner City/County: Sumner/Pierce Sampling Date: 02/25/15
Applicant/Owner: Alcorn State: WA Sampling Point: SP1W
Investigator(s): Heddin and Wallin Section, Township, Range: S 19, T 20N, R 06E
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): ____ Slope (%): <2%
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Briscot loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *None*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Agrostis sp.*	95	yes	FAC
2. *Ranunculus repens*	3	no	FAC
3. *Lolium perenne*	2	no	FAC
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1. *None*	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

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

Project Site: YMCA Sumner

SOIL

Sampling Point: SP1W

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR2/2	96	7.5YR4/6	4	C	M		clay silty sand
8-13	10YR3/2	90	7.5YR4/6	10	C	M	silty sand	
13-16	7.5YR4/1	85	7.5YR4.6	15	C	M	clay sand	likely restrictive layer
16-22	7.5YR4/1	85	7.5YR4/6	15	C	M	silty sand	very little silt

[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: 13-16 inch layer is acting restrictive and may perch water

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):	13
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	11

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Alcorn/YMCA Site City/County: Pierce/Sumner Sampling Date: 02/25/15
Applicant/Owner: Alcorn State: WA Sampling Point: SP-2up
Investigator(s): Matt Heddin & Chad Wallin Section, Township, Range: S19, T20N, R06E
Landform (hillslope, terrace, etc.): Former Ag field Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Briscot 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: Located on the YMCA property, former farm field. Light rain falling during field effort.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *None*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Agrostis oregensis - Oregon bentgrass*	69	yes	FAC
2. *Lolium perenne*	25	yes	FAC
3. *Poa spp.*	15	no	FAC
4. *Ranuculus repens*	1	no	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= 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		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:

Project Site: Alcorn/YMCA site

SOIL

Sampling Point: SP-2up

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 - 6"	10YR 3/2	100	None				loamy slit	
6 - 20"	7.5YR 3/2	100	None				silty sand	some red parent material in matrix

[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: No redox, no restrictive layer, no oxidized roots, no hydrogen sulfilde.

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):	below 20"
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	below 18"

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No redox, no restrictive layer, no oxidized roots, no hydrogen sulfilde. Moist, not saturated soils.

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

Project Site: Alcorn/YMCA Site City/County: Pierce/Sumner Sampling Date: 02/25/15
Applicant/Owner: Alcorn State: WA Sampling Point: SP-3w
Investigator(s): Matt Heddin & Chad Wallin Section, Township, Range: S19, T20N, R06E
Landform (hillslope, terrace, etc.): Former Ag field Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Briscot 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: Light rain falling during sampling. Located on YMCA property.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *None*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Agrostis oregensis*	79	yes	FAC
2. *Poa spp.*	11	no	FAC
3. *Ranuculus repens*	10	no	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(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:

Project Site: Alcorn/YMCA site

SOIL

Sampling Point: SP-3w

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2	80	7.5YR5/6	20	C	M	silty sand	

[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: No oxidized roots, sandy.

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):	16" below surface
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	15" below

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Borderline wetland area, located in former drainage swale.

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

Project Site: YMCA Sumner City/County: Sumner/Pierce Sampling Date: 02/25/15
Applicant/Owner: _____ State: WA Sampling Point: SP4U
Investigator(s): Wallin Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): ____ Slope (%): <2%
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Agrostis sp.*	95	yes	FAC
2. *Ranunculus repens*	3	no	FAC
3. *Lolium perenne*	2	no	FAC
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

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

Project Site: YMCA Sumner

SOIL

Sampling Point: SP4U

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR3/2	100						c;ay silty sand
11-15	7.5YR4/1	98	7.5YR4/3	2	C	M	silty sand	
15-22	7.5YR4/1	95	7.5YR4/6	5	C	M	silty sand	little silt

[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):	19
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	17

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project Site: Alcorn/YMCA Site City/County: Pierce/Sumner Sampling Date: 02/25/15
Applicant/Owner: Alcorn State: WA Sampling Point: SP-5up
Investigator(s): Matt Heddin & Chad Wallin Section, Township, Range: S19, T20N, R06E
Landform (hillslope, terrace, etc.): Former Ag field Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Briscot 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: Light rain falling during sampling.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *None*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Equisetum telmateia*	60%	yes	FACW
2. *Phalaris arundinacea*	30	yes	FACW
3. *Ranuculus repens*	10	no	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum _____

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	_____	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:

Project Site: Alcorn/YMCA site

SOIL

Sampling Point: SP-5up

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 8"	10YR3/2	100					loamy silt	
8 - 20"	10YR3/2	97	10YR4/4	3	C	M	silty sand	

[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: Dry, not saturation, no redox.

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: Dry, No hydrogen sulfide odor.

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

Project Site: Alcorn/YMCA Site City/County: Pierce/Sumner Sampling Date: 02/25/15
Applicant/Owner: Alcorn State: WA Sampling Point: SP-6up
Investigator(s): Matt Heddin & Chad Wallin Section, Township, Range: S19, T20N, R06E
Landform (hillslope, terrace, etc.): Former Ag field Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Briscot 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: Light rain falling during sampling. Sample plot located on YMCA property.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *None*	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Agrostis spp*	90	yes	FAC
2. *Ranuculus repens*	5	no	FACW
3. *Poa spp*	5	no	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1. *None*	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(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:

Project Site: Alcorn/YMCA site

SOIL

Sampling Point: SP-6up

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 8"	10YR3/2	100					silt	
8 - 14"	10YR3/2	99	7.5YR5/6	1	C	M	silty sand	
14 - 17"	10YR3/2	80	10YR4/6	20	C	M	silt	
17 - 20"	10YR3/2	99	7.5YR5/6	1	C	M	silty sand	

[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: compressed silt

Depth (inches): 14"

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Dry, no saturation. No hydrogen sulfide.

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: Dry.

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

Project Site: Alcorn/YMCA Site City/County: Pierce/Sumner Sampling Date: 02/25/15
Applicant/Owner: Alcorn State: WA Sampling Point: SP-7w
Investigator(s): Matt Heddin & Chad Wallin Section, Township, Range: S19, T20N, R06E
Landform (hillslope, terrace, etc.): Former Ag field Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Briscot 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: Light rain falling during sampling. Located in northwest portion of YMCA site within lower elevation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *None*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	90	yes	FACW
2. *Agrostis spp.*	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(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:

Project Site: Alcorn/YMCA site

SOIL

Sampling Point: SP-7w

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6"	10YR3/2	70	7.5YR5/6	30	C	M	silt	
6 - 8"	10YR4/2	80	7.5YR5/6	20	C	M	silt	
8 - 16"	10YR3/2	70	10YR4/4	30	C	M	mucky silt	

[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: compressed silt

Depth (inches): 6 - 8"

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):	below 4"
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	@ surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

AARON MOLEN, RICK MOLEN, AND JARED LOTHYAN

ALCORN AND YMCA PROPERTIES
WETLAND DELINEATION AND ANALYSIS REPORT
APPENDIX B
WETLAND RATING FORM (WIDENER AND ASSOCIATES)

Appendix A - Impacted Wetland Rating Form

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland A Date of site visit:

Rated by: Christina Neff Trained by Ecology? Yes__No X Date of training_____

SEC: TWNSHP: RNGE: Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure ____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

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

Score for Water Quality Functions	14
Score for Hydrologic Functions	6
Score for Habitat Functions	7
TOTAL score for Functions	27

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply___

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

Summary of basic information about the wetland unit

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

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

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

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

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

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

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 YES – the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 YES – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 YES – The wetland class is **Slope**

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

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

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

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

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

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

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

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

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the <u>potential</u> to improve water quality?**	***(see p.38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	**Figure 1** 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	**Figure 2** **3**
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	**Figure 1** 2
D	**Total for D 1** *Add the points in the boxes above*	7
D	**D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* __ Grazing in the wetland or within 150 ft __ Untreated stormwater discharges to wetland __ Tilled fields or orchards within 150 ft of wetland __ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __ Residential, urban areas, golf courses are within 150 ft of wetland __ Wetland is fed by groundwater high in phosphorus or nitrogen __ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	***(see p. 44)*** multiplier 2
D	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	14

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	***(see p.46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	1
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	6
D	**D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	***(see p. 49)*** multiplier **1**
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	6

R	**Riverine and Freshwater Tidal Fringe Wetlands** WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	**Points** (only 1 score per box)
R	**R 1. Does the wetland unit have the <u>potential</u> to improve water quality?**	***(see p.52)***
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland points = 8 Depressions cover > 1/2 area of wetland points = 4 If depressions > ½ of area of unit draw polygons on aerial photo or map Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0	**Figure** ___
R	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): Trees or shrubs > 2/3 the area of the unit points = 8 Trees or shrubs > 1/3 area of the unit points = 6 Ungrazed, herbaceous plants > 2/3 area of unit points = 6 Ungrazed herbaceous plants > 1/3 area of unit points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit points = 0 Aerial photo or map showing polygons of different vegetation types	**Figure** ___
R	*Add the points in the boxes above*	
R	**R 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 feet of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	***(see p.53)*** multiplier _____
R	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from R 1 by R 2 ***Add score to table on p. 1***	

Comments

R	**Riverine and Freshwater Tidal Fringe Wetlands** HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	**Points** (only 1 score per box)
	R 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	***(see p.54)***
R	R 3.1 Characteristics of the overbank storage the unit provides: *Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is between 10 – 20 points = 6 If the ratio is 5 - <10 points = 4 If the ratio is 1 - <5 points = 2 If the ratio is < 1 points = 1 Aerial photo or map showing average widths	**Figure ___**
R	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* (polygons need to have >90% cover at person height NOT Cowardin classes): Forest or shrub for >1/3 area OR herbaceous plants > 2/3 area points = 7 Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	**Figure ___**
R	*Add the points in the boxes above*	
R	**R 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. — There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding — Other_____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* **YES** multiplier is **2** **NO** multiplier is **1**	***(see p.57)*** multiplier _____
R	**TOTAL - Hydrologic Functions** Multiply the score from R 3 by R 4 ***Add score to table on p. 1***	

Comments

L	**Lake-fringe Wetlands** WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
L	**L 1. Does the wetland unit have the <u>potential</u> to improve water quality?**	***(see p.59)***
L	L 1.1 Average width of vegetation along the lakeshore *(use polygons of Cowardin classes)*: Vegetation is more than 33ft (10m) wide points = 6 Vegetation is more than 16 (5m) wide and <33ft points = 3 Vegetation is more than 6ft (2m) wide and <16 ft points = 1 Vegetation is less than 6 ft wide points = 0 Map of Cowardin classes with widths marked	**Figure** ___
L	L 1.2 Characteristics of the vegetation in the wetland: *choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed.* Cover of herbaceous plants is >90% of the vegetated area points = 6 Cover of herbaceous plants is >2/3 of the vegetated area points = 4 Cover of herbaceous plants is >1/3 of the vegetated area points = 3 Other vegetation that is not aquatic bed or herbaceous covers > 2/3 unit points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1 Aquatic bed vegetation and open water cover > 2/3 of the unit points = 0 Map with polygons of different vegetation types	**Figure** ___
L	*Add the points in the boxes above*	
L	**L 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Wetland is along the shores of a lake or reservoir that does not meet water quality standards — Grazing in the wetland or within 150ft — Polluted water discharges to wetland along upland edge — Tilled fields or orchards within 150 feet of wetland — Residential or urban areas are within 150 ft of wetland — Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) — Power boats with gasoline or diesel engines use the lake — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	***(see p.61)*** multiplier _____
L	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from L1 by L2 ***Add score to table on p. 1***	

Comments

L	**Lake-fringe Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce shoreline erosion	**Points** (only 1 score per box)
L	**L 3. Does the wetland unit have the <u>potential</u> to reduce shoreline erosion?**	***(see p.62)***
L	L 3 Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): *(choose the highest scoring description that matches conditions in the wetland)* > ¾ of distance is shrubs or forest at least 33 ft (10m) wide — points = 6 > ¾ of distance is shrubs or forest at least 6 ft. (2 m) wide — points = 4 > ¼ distance is shrubs or forest at least 33 ft (10m) wide — points = 4 Vegetation is at least 6 ft (2m) wide (any type except aquatic bed) — points = 2 Vegetation is less than 6 ft (2m) wide (any type except aquatic bed) — points = 0 Aerial photo or map with Cowardin vegetation classes	**Figure ___**
L	*Record the points from the box above*	
L	**L 4. Does the wetland unit have the <u>opportunity</u> to reduce erosion?** Are there features along the shore that will be impacted if the shoreline erodes? *Note which of the following conditions apply.* — There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. — There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other wetlands) than can be damaged by shoreline erosion — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	***(see p.63)*** multiplier _____
L	**TOTAL - Hydrologic Functions** Multiply the score from L 3 by L 4 ***Add score to table on p. 1***	

Comments

S	**Slope Wetlands** WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
S	**S 1. Does the wetland unit have the <u>potential</u> to improve water quality?**	***(see p.64)***
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance*) points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	**Figure** ___
S	**Total for S 1** *Add the points in the boxes above*	
S	**S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland — Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	***(see p.67)*** multiplier _____
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	

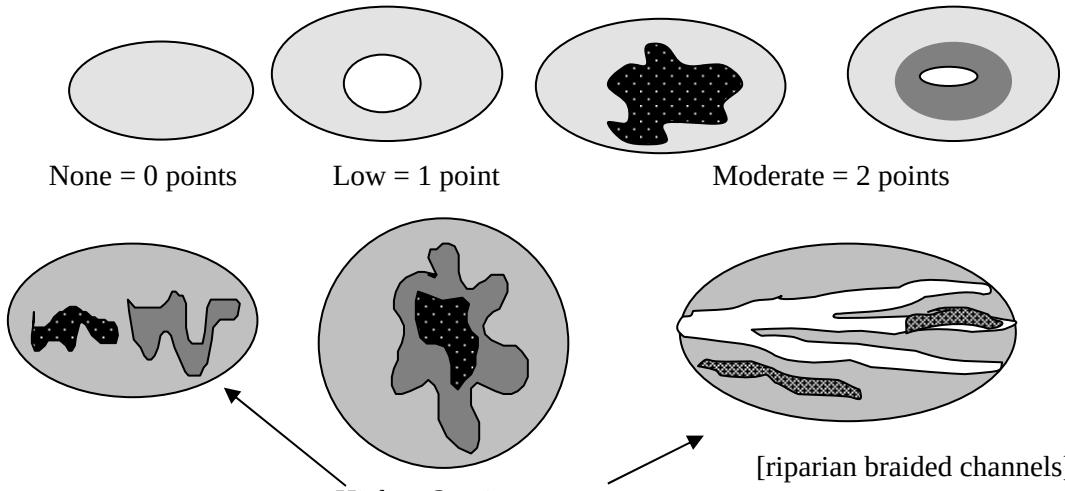
Comments

S	**Slope Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	**Points** (only 1 score per box)
	S 3. Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?	***(see p.68)***
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	*Add the points in the boxes above*	
S	**S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	***(see p. 70)*** multiplier _____
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	

Comments

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* __ Aquatic bed __ Emergent plants __ Scrub/shrub (areas where shrubs have >30% cover) __ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* __ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 Map of Cowardin vegetation classes	**Figure** 0
H 1.2. <u>Hydroperiods</u> ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)* __ Permanently flooded or inundated — 4 or more types present points = 3 __ Seasonally flooded or inundated — 3 types present points = 2 __ Occasionally flooded or inundated — 2 types present point = 1 __ Saturated only — 1 type present points = 0 __ Permanently flowing stream or river in, or adjacent to, the wetland __ Seasonally flowing stream in, or adjacent to, the wetland __ ***Lake-fringe wetland* = 2 points** __ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	**Figure** **1**
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: > 19 species points = 2 *List species below if you want to:* 5 - 19 species points = 1 < 5 species points = 0	1

Total for page __

H 1.4. Interspersion of habitats ***(see p. 76)*** Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  None = 0 points Low = 1 point Moderate = 2 points High = 3 points [riparian braided channels] NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes	**Figure ___** 0
H 1.5. Special Habitat Features: ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ____Standing snags (diameter at the bottom > 4 inches) in the wetland ____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	2

Comments

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

Total for page_____

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see p. 82)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* *These are DFW definitions. Check with your local DFW biologist if there are any questions.* ____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres). ____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. ____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community. ____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages ____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%. ____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development. ____**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons. _____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control). If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	0

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits*) ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	5
TOTAL for H 1 from page 14	2
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	7

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ___	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___ YES____ – contact WNHP/DNR (see p. 79) and go to SC 3.2 NO ___ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ____	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I No___ Is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)* Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* — **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. — **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO ___	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* YES = Go to SC 5.1 NO___ not a wetland in a coastal lagoon SC 5.1 Does the wetland meets all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 acre (4350 square feet) YES = Category I NO = Category II	**Cat. I** **Cat. II**

SC 6.0 Interdunal Wetlands ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1 NO __ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p.1	

AARON MOLEN, RICK MOLEN, AND JARED LOTHYAN

ALCORN AND YMCA PROPERTIES
WETLAND DELINEATION AND ANALYSIS REPORT
APPENDIX C
WIDENER & ASSOCIATES WETLAND REPORT

Draft Wetland Investigation and Delineation Report

YMCA Project
Sumner, Pierce County, Washington

Prepared for:
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December 2013

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SUMMARY

The Young Men's Christian Association (YMCA) is proposing to build a new facility and attendant parking lot, northeast of the corner of 64th St. E and 160th Ave. E. The study area encompasses approximately 10.8 acres of vacant land and abandoned farmland in Sumner, Pierce County, Washington State. The proposed project area is located within Section 19 of Range 05E and Township 20N.

Based on the data collected prior to, and during, site visits, one wetland exists within the study area, covering approximately 2.0 acres in total.

This report documents the investigation, best professional judgment and conclusions of the investigator. It should be considered a preliminary jurisdictional and boundary determination until it has been reviewed and approved in writing by the U.S. Army Corps of Engineers (USACE) in accordance with Section 404 of the Clean Water Act.

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1. Introduction

1.1 Authorizing agency and reason for the investigation

This Wetland Investigation and Delineation Report was prepared by Widener and Associates on behalf of the YMCA to delineate the location and extent of "Waters of the U.S." (USACE 1986), including wetlands, in the study area in the location of a proposed wetland mitigation site.

The primary objective of the delineation was to identify and delineate the waters/wetlands within the project boundaries consistent with the *Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory, 2010).

1.2 Site location

The study area is a 10.8 acres northeast of the corner of 64th St. E and 160th Ave. E. The study area encompasses unused, vacant land and abandoned farmland in Sumner, Pierce County, Washington State. The Pierce County Assessor's website (Pierce County 2013) lists the tax parcels as: "Vacant land, undeveloped," "General/warehouse/storage," and "Single family dwelling." The proposed project area is located within Section 19 of Range 05E and Township 20N. *Refer to Figure 1 – Vicinity Map.*

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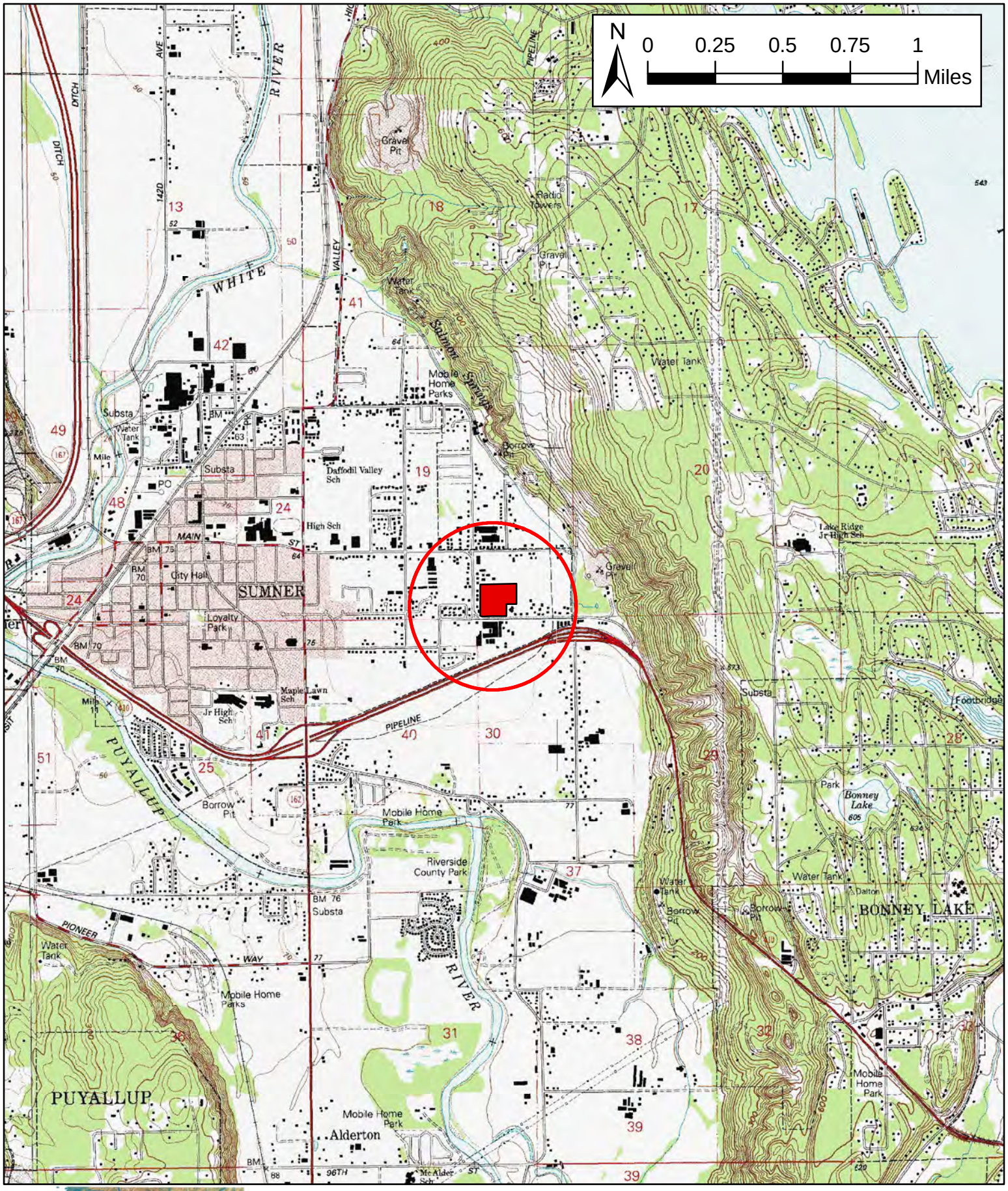

Figure 1: Vicinity Map

Sumner YMCA

City of Sumner

December 19, 2013

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1.3 Project description

1.3.1 Existing Condition

Currently, the 10.8-acre project area is mostly a mowed grass field, with an old gravel road and some piles of old fill material. There are also a few buildings and shade trees outside of the delineated wetland which will be removed. Vegetation throughout most of the site is either mowed or untended grasses, with some Himalayan Blackberry (*rubus armeniacus*) patches and a small patch of the aforementioned larger deciduous and evergreen shade trees.

The project area is within the limits of the City of Sumner and is mostly owned by the YMCA, with a few small parcels under private ownership. The study area and surrounding properties are zoned "Vacant land, undeveloped," "General/warehouse/storage," and "Single family dwelling" (Pierce County 2013).

1.3.2 Proposed Work

The YMCA would use the study property to build a new community facility and associated parking lot. A portion of the existing wetland may be enhanced in order to provide mitigation for wetland impacts created by the project.

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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* (WSDOE, 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 and reference documents. Climate records for 30 years for Sumner, WA were obtained from the National Resource Conservation Service (NRCS), National Water and Climate Center website (NRCS 1990). 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 15-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 Pierce County, 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

Aerial photos and project maps of the area were reviewed. These maps were used to help orientate the delineator in the field. 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. Documents reviewed included the Soil Survey of Pierce County Area, Washington (NRCS 2013), the National Wetlands Inventory Map (USFW 2013), the National List of Hydric Soils in Washington (NRCS 2012a), and the National Wetland Plant List (NRCS 2012b).

3. Affected Environment

3.1 Project Area Setting

The study area is 10.8 acres of mostly undeveloped grassland in east Sumner, WA. It lies in a glacial valley bottom.

3.1.1 Water Features

The project area is located within the Puyallup-White River watershed (WRIA 10). The principal source of hydrology to the area appears to be precipitation and groundwater. There is little opportunity for surface flow to contribute to the study area from any creek or water body. The nearest water body is Salmon Creek, ¼ mile to the east, which flows year-round (*see Figure 1: Vicinity Map*).

Based on data (NRCS 1990) from the nearest monitoring station (Buckley, WA, approximately 10 miles to the southeast), the growing season in Sumner, WA is 262 days in length, from March 6 to November 23 (using the 5 years in 10 criteria and 28°F). Therefore, the area must be inundated or saturated for 33 consecutive days, in order to have wetland hydrology 12.5 percent of the growing season.

Site visits were conducted on multiple days from September 12th to 16th, 2013. *Refer to Appendix A – data sheets for dates*. Approximately 0.08 inches of rainfall were recorded during this period. For the 2 weeks prior to this there was approximately 3.1 inches of precipitation. Thus, the site visits and delineations were performed during a typical September and soil conditions could be considered normal for the time of year. *Refer to Appendix B – Hydrologic Data*.

3.1.2 Plant community

The project is located within the Western hemlock (*Tsuga heterophylla*) major vegetation area (Franklin and Dyrness, 1973). The study area is mostly open grass fields, some of which are mowed. There are also some small Himalayan blackberry patches. Other than the Himalayan blackberry, all species occupy the herbaceous zones. Plants identified on-site include: Reed Canarygrass (*Phalaris arundinacea*), Marsh Foxtail (*Alopecurus genticulatus*), Common

Horsetail (*Equisetum arvense*), Creeping Buttercup (*Ranunculus arvense*) and unidentified grasses (*agrostis* species) and sedges (*carex* species).

3.1.3 Soils mapped and found

The Pierce County soil survey and NRCS (2013) identifies the soils in the project area (Appendix D – Soils Map) as Briscot loam and Puyallup fine sandy loam (NRCS 2013).

The Briscot soil series consists of very deep, poorly drained soils formed in recent alluvium on floodplains. Slopes are 0 to 2 percent. Average annual precipitation is about 40 inches. Mean annual temperature is about 50 degrees F (NRCS 2013).

The Puyallup soil series consists of very deep, well drained soils formed in recent alluvium. Puyallup soils are on floodplains and low terraces. Slopes are 0 to 3 percent. The mean annual temperature is about 10 degrees Celsius. The mean annual precipitation is about 1,140 cm.

3.1.4 Existing wetland mapping

The National Wetlands Inventory (NWI) map (USFWS 2013, Appendix E – NWI Map) lists two “freshwater emergent” wetlands approximately 1,000 feet to the northeast (Appendix E). The wetland delineated in this report is not shown on the national wetlands map.

4. Results

4.1 Wetlands

One wetland (Wetland A) was identified within the study area, covering approximately 2.0 acres (*refer to Figure 2 – Delineated Wetlands*). This wetland significantly[1] contributes to wetlands to the east, which significantly contribute to Salmon Creek, which has surface flow year-round. Salmon Creek is a tributary to the White River, which is a major tributary to the Puyallup River, which drains directly into Puget Sound at the Port of Tacoma, WA. Thus, this wetland is under USACE jurisdiction.

Wetland A

Wetland A (88,400 square feet, 2.03 acres) is a palustrine freshwater wetland (Cowardin *et al*, 1979) and is roughly rectangular in shape. It is mostly an open grassland. Plants include: Reed Canarygrass (*Phalaris arundinacea* - FACW), Marsh Foxtrail (*Alopecurus genticulatus* - FAC), Common Horsetail (*Equisetum arvense* - FAC), Creeping Buttercup (*Ranunculus arvense* FACW) and unidentified grasses (*agrostis* species) and sedges (*carex* species). These species are all representative of hydrophytic vegetation.

The soil was described as mostly loam or sandy loam. The Hydric Soil indicators were Depleted Matrix (F3) and Depleted Below dark matrix (A11).

The primary source of hydrology was determined to be precipitation. The wetland hydrology indicators were Oxidized Rhizospheres along Living Roots (C3) and Fac-Neutral Test (D5).

The boundary of the wetland was flagged where indicators of wetland vegetation, hydric soil and wetland hydrology were present, in addition to topology of the landscape. Adjacent uplands were distinguished from the wetland by lack of hydric soils, lack of hydrology, lack of hydrophytic vegetation and/or the presence of upland plants.

[1] A significant nexus exists if the tributary, together with its adjacent wetlands, has more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of a downstream traditional navigable water as defined under RGL 07-01

This wetland significantly contributes to wetlands to the east, which significantly contribute to Salmon Creek, which has surface flow year-round. Salmon Creek is a tributary to the White River, which is a major tributary to the Puyallup River, which drains directly into Puget Sound at the Port of Tacoma, WA. Thus, this wetland is under USACE jurisdiction.

4.2 Jurisdictional drainages

No substantial open drainage ditches run through the study site. The area is relatively flat and level. No jurisdictional drainage ditches were identified during field visits.

Upland Test Pits

Wetland Test Pits

Study Area

Jurisdictional Wetland

Figure 2: Delineated Wetland

Sumner YMCA

City of Sumner

December 19, 2013

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5. Conclusion

Based on the data collected prior to and during site visits, one wetland exists within the study area and was determined to be jurisdictional under USACE guidelines. The wetland is approximately 2.03 acres in size, or roughly 22% of the study area's total 9.2 acres. Water from the wetland contributes to Salmon Creek, a tributary of the White River, which feeds the Puyallup River. This, in turn, drains into Puget Sound at Tacoma, WA. Thus, the delineated wetland is under USACE jurisdiction.

No jurisdictional drainage ditches were identified during field visits.

Once impacts to the wetland have been identified and quantified, mitigation will be undertaken in accordance with USACE guidelines if necessary.

This report documents the investigation, best professional judgment and conclusions of the investigator. It should be considered a preliminary jurisdictional determination until it has been reviewed and approved in writing by the USACE in accordance with Section 404 of the Clean Water Act.

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Appendix A: Data Sheets

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

Project/Site: Sumner YMCA City/County: Sumner/Pierce Sampling Date: 9/12/13

Applicant/Owner: YMCA of Pierce and Kitsap Counties State: WA Sampling Point: 1-W

Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E

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

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____	= Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	

Herb Stratum (Plot size: _____)			
1. Phalaris arundinacea	20	Y	FACW
2. Equisetum arvense	10	N	FAC
3. Ranunculus repens	5	N	FACW
4. Alopecurus genticulatus	5	N	OBL
5. Alopecurus pratensis	10	N	FACW
6. Agrostis spp	40	Y	FAC
7. unknown grass	5	N	
8. Agropyron repens	1	N	FAC
9. carex spp	1	N	
10.			
11.			
	97	= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____

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:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 1-W

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	10YR 3/3	100					silty loam	
4-17	10YR 4/1	70	5YR 4/6	30	C	PL	silty loam	

[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:

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): >17

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:

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

Project/Site: Sumner YMCA City/County: Sumner/Pierce Sampling Date: 9/16/13

Applicant/Owner: YMCA of Pierce and Kitsap Counties State: WA Sampling Point: 2-U

Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E

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

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Phalaris arundinacea	100	Y	FACW
2. Equisetum arvense	5	N	FAC
3. Lotus corniculatus	5	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 2-U

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
0-17	10YR 3/3	100					loam	rocky

[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:

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:

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

Project/Site: Sumner YMCA City/County: Sumner/Pierce Sampling Date: 9/16/13

Applicant/Owner: YMCA of Pierce and Kitsap Counties State: WA Sampling Point: 4-U

Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E

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

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

Soil Map Unit Name: _____ NWI classification: _____

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

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	40	Y	FACU
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Phalaris arundinacea	60	Y	FACW
2. unknown grass	10	N	
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

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		x 1 =
FACW species	60	x 2 = 120
FAC species		x 3 =
FACU species	40	x 4 = 160
UPL species		x 5 =
Column Totals:	100 (A)	280 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 4-U

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
0-17	7.5YR 3/2	100					loam	

[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:

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:

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

Project/Site: Sumner YMCA City/County: Sumner/Pierce Sampling Date: 9/16/13

Applicant/Owner: YMCA of Pierce and Kitsap Counties State: WA Sampling Point: 5-W

Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E

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

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____	= Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	

Herb Stratum (Plot size: _____)			
1. Equisetum telmateia	60	Y	FACW
2. Agropyron repens	40	Y	FAC
3. unknown grass	5	N	
4. Phalaris arundinacea	1	N	FACW
5. Ranunculus repens	10	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	116	= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____

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:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 5-W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/2						loam	
4-17	7.5YR 4/1	80	5YR 3/4	20	C	PL	sandy loam	

[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:

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:

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

Project/Site: Sumner YMCA City/County: Sumner/Pierce Sampling Date: 12/1/13

Applicant/Owner: YMCA of Pierce and Kitsap Counties State: WA Sampling Point: 6-U

Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E

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

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

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

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

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 6-U

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
0-9	10YR 3/2	100					loam	
9-17	10YR 5/1	70	10YR 5/6	30	C	M	sandy loam	

[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:

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): 20

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 18

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

Appendix B: Hydrologic Data

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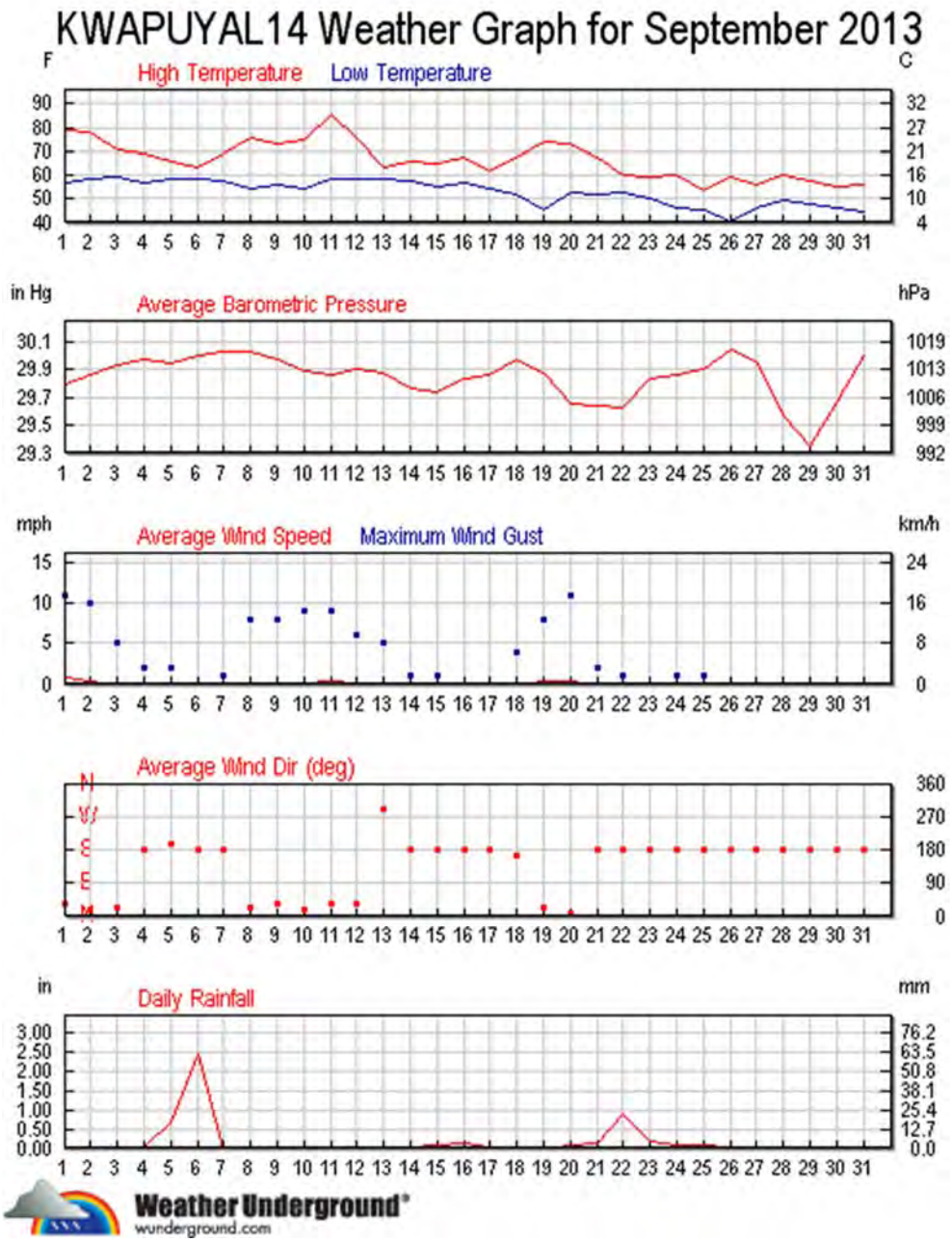
September, 2013

	High:	Low:	Average:
Temperature:	85.6 °F	40.8 °F	59.4 °F
Dew Point:	66.2 °F	39.5 °F	54.6 °F
Humidity:	100.0%	46.0%	85.4%
Wind Speed:	11.0mph from the North-		0.1mph
ind Gust:	11.0mph from the North-		-
Wind:	-	-	SE
Pressure:	30.10in	29.13in	-
Precipitation:	5.04in		



2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)			Precip (in)
Sep	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	gust	sum
1	79	69	56	62	58	54	93	70	55	29.85	-	29.75	-	-	-	11	1	11	0.00
2	78	67	58	61	57	53	86	71	51	29.91	-	29.82	-	-	-	7	0	10	0.00
3	71	64	59	62	59	57	95	85	69	29.97	-	29.90	-	-	-	1	0	5	0.04
4	69	64	57	62	59	56	96	84	76	30.01	-	29.95	-	-	-	2	0	2	0.01
5	65	61	59	61	58	57	96	91	83	30.00	-	29.89	-	-	-	1	0	2	0.68
6	63	60	58	62	59	57	97	96	95	30.08	-	29.91	-	-	-	0	0	0	2.41
7	69	62	58	62	59	56	97	89	75	30.08	-	29.97	-	-	-	1	0	1	0.00

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)		Visibility (mi)			Wind (mph)			Precip (in)
8	76	64	54	64	58	53	97	82	62	30.07 -	29.98	-	-	-	8	0	8	0.00
9	73	63	56	63	58	55	96	86	66	30.02 -	29.93	-	-	-	8	0	8	0.00
10	75	63	55	64	58	53	97	86	67	29.94 -	29.84	-	-	-	9	0	9	0.00
11	86	74	58	66	62	57	96	69	49	29.89 -	29.83	-	-	-	5	0	9	0.00
12	76	65	58	65	60	57	96	85	64	29.95 -	29.86	-	-	-	6	0	6	0.00
13	63	61	58	60	58	56	96	92	88	29.92 -	29.83	-	-	-	5	0	5	0.01
14	65	62	58	61	59	56	96	91	85	29.84 -	29.69	-	-	-	1	0	1	0.01
15	65	60	55	61	58	54	97	94	87	29.80 -	29.68	-	-	-	0	0	1	0.06
16	68	60	57	61	57	55	95	90	74	29.90 -	29.78	-	-	-	0	0	0	0.12
17	62	57	54	56	52	50	95	86	67	29.91 -	29.82	-	-	-	0	0	0	0.02
18	67	58	52	54	51	48	94	78	54	30.04 -	29.90	-	-	-	2	0	4	0.00
19	74	59	45	56	49	43	93	72	46	30.00 -	29.74	-	-	-	8	0	8	0.00
20	73	65	52	56	54	47	94	68	49	29.74 -	29.56	-	-	-	11	0	11	0.09
21	67	58	52	57	54	51	96	88	62	29.68 -	29.61	-	-	-	0	0	2	0.15
22	60	55	52	55	52	48	95	90	68	29.72 -	29.53	-	-	-	0	0	1	0.90
23	59	53	50	54	50	48	94	90	75	29.93 -	29.73	-	-	-	0	0	0	0.20
24	60	51	46	51	47	44	96	87	64	29.93 -	29.80	-	-	-	1	0	1	0.09
25	54	49	45	50	48	44	96	94	84	30.00 -	29.81	-	-	-	1	0	1	0.09
26	60	50	41	50	46	40	100	86	66	30.10 -	29.99	-	-	-	0	0	0	0.04
27	56	52	46	52	48	44	92	86	81	30.10 -	29.82	-	-	-	0	0	0	0.04
28	60	54	50	58	53	47	96	93	86	29.82 -	29.33	-	-	-	0	0	0	0.02
29	58	51	48	52	48	46	95	91	74	29.56 -	29.13	-	-	-	0	0	0	0.03
30	55	49	46	51	47	44	96	92	81	29.91 -	29.44	-	-	-	0	0	0	0.03

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Appendix C: Observed Plants

Scientific name	Common name	Stratum	Indicator
Phalaris arundinacea	Reed Canarygrass	H	FACW
Agrostis species	unidentified Bentgrass	H	FAC
Equisetum arvense	Common Horsetail	H	FAC
Ranunculus repens	Creeping Buttercup	H	FACW
Rubus armeniacus	Himalayan Blackberry	WV	FACU
Alopecurus genticulatus	Marsh Foxtail	H	FAC
Alopecurus pratensis	Meadow Foxtail	H	FACW
Agropyron repens	Quackgrass	H	FAC
Equisetum telmateia	Great Horsetail	H	FACW
Carex species	unidentified sedge	H	

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Appendix D: Pierce County Soil Survey Data

LOCATION BRISCOT WA+CA
Established Series
Rev. RFP/RJE
06/2005

BRISCOT SERIES

The Briscot series consists of very deep, poorly drained soils formed in recent alluvium on floodplains. Slopes are 0 to 2 percent. Average annual precipitation is about 40 inches. Mean annual temperature is about 50 degrees F.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts

TYPICAL PEDON: Briscot silt loam-cultivated (Colors are for moist soil unless otherwise noted)

Ap--0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; slightly hard, friable, moderately sticky and moderately plastic; many roots; few fine tubular pores; neutral (pH 6.8); abrupt smooth boundary. (8 to 10 inches thick)

Bg--9 to 17 inches; grayish brown (2.5Y 5/2) silt loam, light brownish gray (2.5Y 6/2) dry; many large prominent dark brown (7.5YR 4/4 and 3/4) redox concentrations, brownish yellow (10YR 6/6) dry; weak very coarse prismatic structure; slightly hard, friable, moderately sticky and moderately plastic; common roots; many fine tubular pores; neutral (pH 6.6); abrupt wavy boundary. (7 to 9 inches thick)

Cg1--17 to 44 inches; grayish brown (2.5Y 5/2) finely stratified silt loam, fine sand, and fine sandy loam, light brownish gray (2.5Y 6/2) dry; many large prominent brown (7.5YR 4/4) redox concentrations, yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) dry; massive; slightly hard, very friable, slightly sticky, nonplastic; few roots; many fine tubular pores; neutral (pH 6.8); diffuse smooth boundary. (25 to 28 inches thick)

Cg2--44 to 60 inches; dark gray (5Y 4/1) finely stratified silt loam, fine sand and fine sandy loam, grayish brown (2.5Y 5/2) dry; many large prominent brown (7.5YR 4/4) and dark red (2.5YR 3/6) redox concentrations, brown (7.5YR 5/4) and yellowish brown (10YR 5/6) dry; massive; very friable, slightly sticky, nonplastic; few roots; common fine tubular and many very fine interstitial pores; neutral (pH 6.8).

TYPE LOCATION: King County, Washington, 1,000 feet north and 1,410 feet east of southwest corner sec. 25, T. 22N., R. 4 E.

RANGE IN CHARACTERISTICS: The mean annual soil temperature is 48 to 54 degrees F. The particle-size section contains 5 to 15 percent clay, and 0 to 2 percent coarse fragments. These soils are usually moist, and contain irregular distribution of organic matter with depth. It is slightly acid or neutral throughout. More than 40 percent of the soil between a depth of 10 and 30 inches has a hue of 2.5Y, a value moist of 5 or less, and chroma of 2.

The Ap horizon has hue of l0YR or 2.5Y, value of 3 or 4 moist, 5 through 7 dry, and chroma of 2 or 3 moist and dry. It has weak or moderate granular or blocky structure.

The Bg horizon has hue of 2.5Y or 5Y, and value of 4 through 7 moist and dry, and chroma of 1 or 2 moist and dry. Redox features have hue of 2.5YR through 2.5Y, value of 3 through 5 moist, 4 or 5 dry and chroma of 4 through 6 moist and dry.

The Cg horizon has hue of 2.5Y or 5Y, and value of 4 through 7 moist and dry, and chroma of 1 or 2 moist and dry. Redox features have hue of 2.5YR through 2.5Y, value of 3 through 5 moist, 4 or 5 dry, and chroma of 4 through 6 moist and dry. This horizon is stratified with layers of silt loam, fine sand, sand, and fine sandy loam.

COMPETING SERIES: These are the Hockinson and Rippowan series. Rippowan soils have less than 8 percent clay in the particle-size control section. Hockinson soils have surface colors of 2 or 3 moist value, and 0 to 2 moist chroma (Mollic subgroup).

GEOGRAPHIC SETTING: These soils are on floodplains in river valleys at elevations of 20 to 250 feet. The soils formed in recent alluvium. Briscot soils occur in a humid climate with an average January temperature of 38 degrees F.; average July temperature is 64 degrees F.; and mean annual temperature is 50 degrees F. The frost-free season is 160 to 210 days. The average annual precipitation ranges from 30 to 55 inches, most of which falls as rain during the winter months. Each of the summer months generally has at least 1 inch of rainfall. Snow is infrequent.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Oridia, Puget, Puyallup, Renton, Skagit, and Woodinville soils. Oridia soils are coarse silty.

Puget, Skagit and Woodinville soils have more than 18 percent clay in the particle-size control section. Puyallup and Renton soils are coarse-loamy over sandy or sandy-skeletal.

DRAINAGE AND PERMEABILITY: Poorly drained; very slow runoff; moderate permeability. These soils are subject to occasional, brief flooding from November through April. An apparent water table is at 0 to 1 foot from November through April unless drained.

USE AND VEGETATION: Most soils are drained and used for cropland. Row crops and seeded grass pasture are common crops. Native vegetation was western redcedar, western hemlock, red alder, and Douglas-fir with an understory of western swordfern, salal, vine maple, western brackenfern, trailing blackberry, rose, northern bedstraw, and northern twinflower.

DISTRIBUTION AND EXTENT: Northwestern Washington. The series is moderately extensive.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Portland, Oregon

SERIES ESTABLISHED: King County, Washington, 1971.

REMARKS: Diagnostic horizons and features recognized in this pedon are an ochric epipedon from the surface to 9 inches, and a cambic horizon from 9 to 17 inches.

LOCATION PUYALLUP WA

Established Series
Rev. RJE/CRF
05/2012

PUYALLUP SERIES

The Puyallup series consists of very deep, well drained soils formed in recent alluvium. Puyallup soils are on floodplains and low terraces. Slopes are 0 to 3 percent. The mean annual temperature is about 10 C. The mean annual precipitation is about 1,140 cm.

TAXONOMIC CLASS: Coarse-loamy over sandy or sandy-skeletal, isotic over mixed, mesic Fluventic Haploxerolls

TYPICAL PEDON: Puyallup fine sandy loam - cultivated. (Colors are for moist soil unless otherwise stated.)

Ap--0 to 10 cm; very dark brown (10YR 2/2) fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and medium roots; slightly acid (pH 6.2); abrupt smooth boundary.

A2--10 to 20 cm; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and medium roots; moderately acid (pH 6.0); clear smooth boundary.

A3--20 to 46 cm; dark brown (10YR 3/3) fine sandy loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine roots; many fine and medium and few coarse irregular pores; slightly acid (pH 6.3); abrupt wavy boundary. (Combined thickness of the A horizons is 25 to 50 cm)

2Cl--46 to 69 cm; dark brown (10YR 3/3) loamy sand, grayish brown (10YR 5/2) dry; single grained; loose; few fine roots; slightly acid (pH 6.4); abrupt wavy boundary. (20 to 45 cm thick)

2C2--69 to 152 cm; very dark grayish brown (2.5Y 3/2) gravelly sand, grayish brown (2.5Y 5/2) dry; single grained; loose; 20 percent gravel; neutral (pH 6.8).

TYPE LOCATION: Clark County, Washington; along Lower East Fork Lewis River Road about 2,240 feet north and 600 feet west of the southeast corner of sec. l9, T. 4 N., R. 2 E.

RANGE IN CHARACTERISTICS:
Mollic epipedon thickness - 25 to 50 cm

Reaction - Moderately acid to neutral
Particle -size control section - 0 to 15 percent clay; 0 to 20 percent gravel
Mean annual soil temperature - 8 to 12 degrees C.
Moisture control section - dry 60 to 75 consecutive days following the summer soltice.
Some pedons have a Bw or C horizon.

A horizons
Hue: 2.5YR to 10YR
Value: 3 to 5 dry, 2 or 3 moist
Chroma: 1 to 4 dry: 1 to 3 moist
Texture: very fine sand, sandy loam, fine sandy loam, loam, silt loam

C horizons
Hue: 2.5YR to 10YR
Value: 3 to 7 dry, 2 to 5 moist
Chroma: 2 to 5 dry; 1 to 4 moist
Texture: sand, fine sand, loamy sand, loamy fine sand, sandy loam, silt loam

COMPETING SERIES: These are the Boesel, Chamokane, Newberg, and Snakelum series in other families. Boesel soils are frigid. Chamokane soils have a mollic epipedon more than 20 inches thick. Newberg soils lack contrasting textures within the particle-size control section. Snakelum soils lack a mollic epipedon and have a regular decrease in organic matter content as depth increases.

GEOGRAPHIC SETTING: These soils are on floodplains and low stream terraces at elevations of 6 to 198 m. The soils formed in mixed recent alluvium. The climate is humid; summers are cool and dry, and winters are mild and moist. The mean annual precipitation is 889 to 1,524 mm. Mean January temperature is 3 degrees C, mean July temperature is 17 degrees C, mean annual temperature is about 10 degrees C. The frost-free season is l70 to 200 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Briscot, Mt. Vernon, Oridia, Pilchuck, Puget, and Sultan soils. Briscot, Oridia, and Puget soils have an aquic moisture regime. Pilchuck soils are sandy throughout. Mt. Vernon soils are medial over loamy. Sultan soils are fine-silty and have an ochric epipedon.

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Well drained; high saturated hydraulic conductivity.

USE AND VEGETATION: Used for cropland. Principal crops are hay, pasture, and row crops. Native vegetation is Douglas-fir, western redcedar, bigleaf maple, black cottonwood, western hemlock, and red alder, with an understory of trailing blackberry, salmonberry, Oregon-grape, western swordfern, vine maple, and western brackenfern.

DISTRIBUTION AND EXTENT: Western Washington, MLRA 2. The series is of moderate extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Portland, Oregon

SERIES ESTABLISHED: Snohomish County, Washington, l936.

REMARKS: Diagnostic horizons and features recognized in this pedon are; a mollic epipedon from the surface to 46 centimeters and a textural change to sandy material at 46 centimeters. Organic carbon content is assumed to decrease irregularly with depth.

National Cooperative Soil Survey
U.S.A.

References

NRCS (Natural Resources Conservation Service). 1992. Official Soil Series Descriptions (OSDs) with series extent mapping capabilities. Accessed November 12, 2013. https://soilseries.sc.egov.usda.gov/OSD_Docs/B/BRISCOT.html

NRCS (Natural Resources Conservation Service). 1992. Official Soil Series Descriptions (OSDs) with series extent mapping capabilities. Accessed November 12, 2013. https://soilseries.sc.egov.usda.gov/OSD_Docs/P/PUYALLUP.html

Hydric Rating by Map Unit—Pierce County Area, Washington

Map Scale: 1:1,830 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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 Rating Polygons

Hydric (100%)

Predominantly Hydric (66 to 99%)

Partially hyrdic (33 to 65%)

Predominatly nonhydric (1 to 32%)

Nonhydric (0%)

Not rated or not available

Soil Rating Lines

Hydric (100%)

Predominantly Hydric (66 to 99%)

Partially hyrdic (33 to 65%)

Predominatly nonhydric (1 to 32%)

Nonhydric (0%)

Not rated or not available

Soil Rating Points

Hydric (100%)

Predominantly Hydric (66 to 99%)

Partially hyrdic (33 to 65%)

Predominatly nonhydric (1 to 32%)

Nonhydric (0%)

Not rated or not available

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: http://websoilsurvey.nrcs.usda.gov
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 7, Jul 19, 2012

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

Date(s) aerial images were photographed: Jul 9, 2010—Aug 20, 2011

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.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Pierce County Area, Washington (WA653)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
6A	Briscot loam	100	11.9	77.8%
31A	Puyallup fine sandy loam	2	3.4	22.2%
Totals for Area of Interest			**15.3**	**100.0%**

Description

This rating indicates the proportion of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is designated as "hydric," "predominantly hydric," "partially hydric," "predominantly nonhydric," or "nonhydric" depending on the rating of its respective components and the percentage of each component within the map unit.

"Hydric" means that all components listed for a given map unit are rated as being hydric. "Predominantly hydric" means components that comprise 66 to 99 percent of the map unit are rated as hydric. "Partially hydric" means components that comprise 33 to 66 percent of the map unit are rated as hydric. "Predominantly nonhydric" means components that comprise up to 33 percent of the map unit are rated as hydric. "Nonhydric" means that none of the components are rated as hydric. The assumption here is that all components of the map unit are rated as hydric or nonhydric in the underlying database. A "Not rated or not available" map unit rating is displayed when none of the components within a map unit have been rated.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as being hydric is displayed.

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). Under natural conditions, these soils 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).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

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Appendix E: National Wetlands Inventory Map

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Appendix E - NWI Wetland MAP

U.S. Fish and Wildlife Servic

National Wetlands Inventory

Wetlands Near YMCA Site

Nov 15, 2013

Wetlands

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

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.

User Remarks:

AARON MOLEN, RICK MOLEN, AND JARED LOTHYAN

ALCORN AND YMCA PROPERTIES
WETLAND DELINEATION AND ANALYSIS REPORT
APPENDIX D
WETLAND SURVEY FIGURE

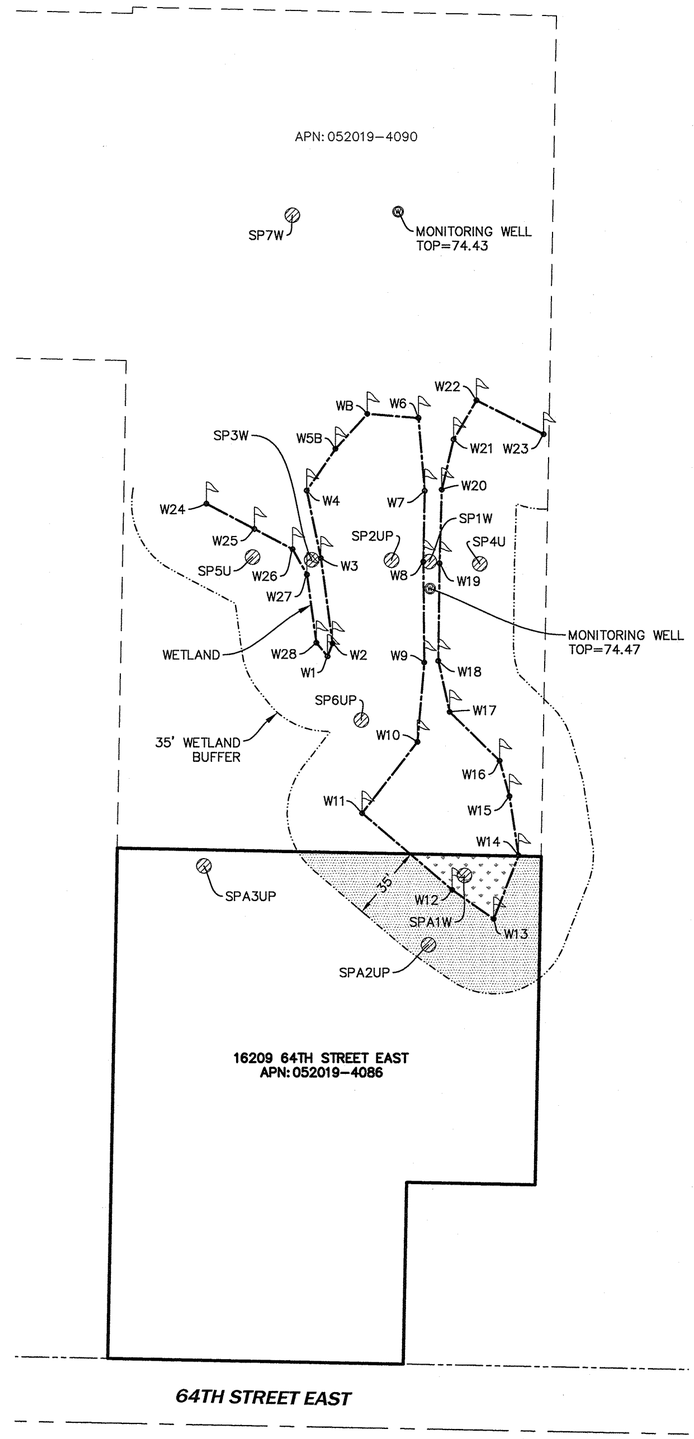
WETLAND EXHIBIT

A PORTION OF THE SE 1/4 OF THE SE 1/4 OF SECTION 19, TOWNSHIP 20 NORTH, RANGE 05 EAST, W.M.,
CITY OF SUMNER, PIERCE COUNTY, WASHINGTON.

GRAPHIC SCALE

0 25 50 100 FEET

1" = 50 FEET



BASIS OF BEARING

NAD 1983
WASHINGTON STATE PLANE NORTH PROJECTION, BASED ON GPS OBSERVATIONS USING WSRN AND GEOID 2012A. UNITS OF MEASUREMENT ARE US SURVEY FEET.

SURVEY FOR

THE RUSH COMPANIES
6622 WOLLOCHET DRIVE NW
GIG HARBOR, WA 98335

EQUIPMENT USED

3" TOTAL STATION USING STANDARD FIELD TRAVERSE METHODS FOR CONTROL AND STAKING.

SURVEYOR'S CERTIFICATE

I, DAVID C FOLLANSBEE, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF WASHINGTON, HEREBY CERTIFY THAT THIS MAP CORRECTLY REPRESENTS A SURVEY ~~MADE BY ME~~ OR UNDER MY DIRECT SUPERVISION IN FEBRUARY/MARCH 2015, AT THE REQUEST OF THE RUSH COMPANIES.

3·2·15

DAVID C. FOLLANSBEE, PLS 45161 — DATE

DAVID C. FOLLANSBEE
STATE OF WASHINGTON
45161
REGISTERED
PROFESSIONAL LAND SURVEYOR

WETLAND NOTE

WETLAND DELINEATED BY GRETTE ASSOCIATES AND FIELD LOCATED BY AHBL FEBRUARY 28, 2015.

WETLAND AFFECTING SITE=775 SQUARE FEET
BUFFER AFFECTING SITE=4,075 SQUARE FEET

LEGEND

- MONITORING WELL
- SAMPLE PLOT
- WETLAND FLAG

DWN. BY	DATE
TD	3/2/15
CHKD. BY	**JOB NO.**
DF	2140681.50

AHBL
TACOMA · SEATTLE · SPOKANE · TRI-CITIES
2215 North 30th Street, Suite 300 Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB