Aquatic Resource Delineation Report – Zone 4 Brownfields Cleanup

Prepared for:
City of Ponderay

October 20, 2023

Prepared by:
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Alta
Science & Engineering, Inc.

Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

ABCA	Analysis of Brownfields Cleanup Alternatives
AgACIS	Agricultural Applied Climate Information System
Alta	Alta Science & Engineering, Inc.
APE	Area of Potential Effect
bgs	below ground surface
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
POBT	Pend d'Oreille Bay Trail
PSRC	Panhandle Smelting and Refining Company
RROW	Railroad Right-of-Way
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USEPA	United States Department of Environmental Quality
USFWS	United States Fish and Wildlife Service
VRWP	Voluntary Remediation Workplan

Executive Summary

A total of 4 aquatic resources were identified and delineated within the approximate 6-acre study area. These aquatic resources total approximately 0.426 acres of which the area of potential disturbance (APE) from proposed construction actions overlaps 0.191 acres. These aquatic resources include two tributaries, a wetland, and Lake Pend Oreille shoreline.

Classifications for aquatic resources within the study area include perennial streams, lacustrine (Lake Pend Oreille), and palustrine emergent (PEM)/palustrine forested (PFO) wetlands. A formal functional assessment for wetlands was not completed as impacts to wetlands were less than the jurisdictional mitigation threshold of 1/10th of an acre.

Section 1 Introduction

The purpose of the Aquatic Resource Delineation Report is for use in preliminary jurisdictional determination for the aquatic resources in the Zone 4 Ponderay Brownfields Cleanup (Project). The City of Ponderay (the City) will use the aquatic resource information to identify potential Project impacts and obtain applicable environmental permits associated with construction of the Project.

1.1 Contact Information

Contact information for the agent(s) and applicants are below.

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1.2 Survey Area Location

The area investigated for this project (study area) includes the Area of Potential Effect (APE) and any adjacent aquatic resource. This generally encompasses the Pend d'Oreille Bay Trail (POBT) from its western terminus to (and including) the footprint of the former Panhandle Smelting and Refining Company site (PSRC) in the east. It is bounded by the Burlington Northern Santa Fe (BNSF) Railway right of way (RROW) to the north and Lake Pend Oreille to the south.

Legal:

- Township 57N, Range 2W; Section 11

Approximate Coordinates:

- Northern terminus; 48.302213°N, -116.531088°W
- Southern terminus: 48.300316° N, -116.531248° W
- Western terminus: 48.295641° N, -116.538598° W
- Eastern terminus: 48.302164° N, -116.530441° W

The location map (included in Appendix A) illustrates the area investigated for aquatic resources.

1.3 Project Description

In September 2019, the City entered into a Brownfields Multipurpose Cooperative Agreement with the United States Environmental Protection Agency (USEPA) to clean up the former PSRC (the Site). Because of past smelting activities, the Site soils contain elevated levels of lead (Pb), Arsenic (As), and other metals that present potential impacts to human health (e.g., Site users) and the environment.

In preparation for cleanup of the PSRC, the City contracted with Alta Science & Engineering, Inc. (Alta) to conduct additional site assessment activities, develop an Analysis of Brownfields Cleanup Alternatives (ABCA), develop a Voluntary Remediation Workplan (VRWP), and to provide a design of the selected alternative from the VRWP.

The selected alternative involves managing all materials on Site using a combination of waste consolidation and isolation. Contaminated soils and smelter waste will be excavated and consolidated into an on-Site repository. The slag pile will be isolated from contact using physical barriers. Additionally, historic Site features will be preserved and safely retrofitted for public enjoyment.

Proposed project actions are divided into construction schedules; Schedule A, Schedule B, and Schedule C. Schedule C actions do not have funding secured and are seperated accordingly in the Summary (Section 5).

1.4 Field Investigation

The study area encompasses approximately 6 acres and includes the existing POBT and the former PSRC. See Appendix A for a map of the study area with the APE included.

The aquatic resources were delineated by Alta staff on September 6 and 8, 2023. Wetland boundaries and data point locations were recorded with a Trimble Geo7X handheld unit capable of sub-meter accuracy.

Section 2 Methods

Delineation methodology used were routine and no “Difficult Wetland Situations” were encountered during the field investigation. Prior to field investigation, wetland data was collected from the United Stated Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) database (USFWS 2023) and soil data was collected from the United States Department of Agriculture (USDA) Natural Resources Conservation District (NRCS) Web Soil Survey (NRCS 2023a). Aerial imagery was collected from NAIP Imagery from United States Geological Survey (USGS) Earth Explorer (USGS 2023). Climate data was acquired from USDA Agricultural Applied Climate Information System (AgACIS) database (USDA 2023). The following section describes methodology used to delineate wetlands and the ordinary high-water mark (OHWM) in the survey area.

2.1 Wetland Delineation

The wetland delineation was conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Western Mountains Valleys and Coast Region Supplement (WMVC; USACE 2010).

The wetland delineation was conducted by gathering field observations, interpreting site-specific aerial photographs, and using online tools to determine the likely occurrence of wetlands at the site.

To be considered a wetland, a site must meet three criteria; (1) dominant presence of hydrophytic vegetation, (2) soils that have indicators of anaerobic conditions in the upper strata due to saturation, ponding, or flooding, and (3) a presence of one primary or two or more secondary hydrologic indicators listed in the Wetland Delineation Manual (USACE 1987) and WMVC.

Alta personnel walked the extent of the study area and visually inspected it for wetland criteria. Specific emphasis was placed on areas that, topographically, may receive catchment from contributing water sources, contain hydrophytic vegetation, or appear to be saturated at the surface. Alta dug a test pit at areas that met these criteria to examine soils and hydrology. If all three criteria were met, Alta filled out a WMVC wetland determination form, chose a corresponding upland location to define the wetland boundary, and recorded the following information for both wetland and upland data points:

- Vegetation was observed and all plant species were recorded within a 10–20-foot radius and noted major vegetation changes along contours.
- Soils were examined by digging sample pits with a trench-spade shovel to determine if hydric soil criteria were present.
- Hydrology was examined through visual observation of the soil pit for surface water, water table depth, and saturation depth. The Alta field crew also determined if secondary hydrology indicators were present (e.g., drainage patterns, visible inundation through aerial imagery, geomorphic positioning, etc.).Appendix B

Data point locations were recorded with GPS equipment capable of sub-meter accuracy. Wetland data was recorded in locations adjacent to or within the project footprint. The Aquatic Resource Map for the study area is included in Appendix B.

2.2 Ordinary High-Water Mark (OHWM) Delineation

The OHWM delineation was conducted using the appropriate OHWM characteristics, as defined in 33 CFR § 328.3(e) and 33 CFR § 329.11(a)(1), and guided by Western Mountains, Valleys, and Coast Guide to OHWM Delineation for Non-perennial Streams (Lichvar and Mersel 2014).

OHWM boundaries were determined by breaks in slope, distinctive vegetation changes, and sediment patterns. Field documentation included flagging OHWM at representative cross-sections, measuring channel dimensions with a tape measurer, and collecting locations with GPS equipment capable of sub-meter accuracy.

Section 3 Existing Conditions

The study area is located along the POBT from the trail to the BNSF RROW. Lake Pend Oreille is adjacent to the study area to the east and forested hillsides from the RROW to POBT dominate the majority of the study area. The surrounding landscape is heavily developed with residences, businesses, roadways, POBT, and the BNSF Railway. Lake Pend Oreille water levels are controlled on the Pend Oreille River at the Albeni Falls Dam between Newport, WA and Priest River, Idaho. The dam is approximately 24 river miles east of the confluence of the lake. Additionally, the eastern portion of the project has been impacted by the PSRC resulting in elevated metals concentrations in the soils. The elevation of the project area is approximately 2063 to 2120 feet above mean sea level.

According to the USFWS NWI mapping database, no wetlands or aquatic resources aside from Lake Pend Oreille are documented within the study area (USFWS 2023). The NWI map and NRCS soils map for the study area are included in Appendix C.

3.1 Climate

According to the NRCS AgACIS 30-year averages for the weather station in Priest River, Idaho, the area receives an average annual rainfall of 31.43 inches. Summer temperatures generally reach the mid-60s (°Fahrenheit[°F]) and winter temperatures dip into the high 20s (°F) (USDA 2023). Precipitation during the five months leading up to the delineation (March through August) were below average by 1.29 inches (USDA 2023). According to the NRCS WETS table data (USDA 2023b), the growing season in the area is typically from late May to mid-September when using a surface temperature threshold of 32°F. Despite below average precipitation for the year, climatic and hydrologic conditions were considered normal for the time of the year as substantial rainfall had occurred in August (2.25 inches compared to the average of 0.92 inches). The delineation took place at the end of the growing season. WETS tables and climatic data are included in Appendix D.

3.2 Floodplains

FEMA floodplain mapping (Flood Map #16017C0716E, effective on November 18, 2009) indicates the shoreline of Lake Pend Oreille is in a Zone AE flood zone (FEMA 2023). No other aquatic resources are listed within the study area in the FEMA map.

3.3 Vegetation

The locations within and surrounding the study area are primarily comprised of mixed deciduous and coniferous forest along the hillside between the RROW and POBT. Dominant species in the tree stratum include black cottonwood (*Populus balsamifera*), western red cedar (*Thuja plicata*),

paper birch (*Betula papyrifera*), mountain ash (*Sorbus sitchensis*), and grey alder (*Alnus incana*). Dominant species in the shrub/sapling stratum include red osier dogwood (*Cornus alba*), common snowberry (*Symphoricarpus albus*), and vine maple (*Acer circinatum*). A variety of native and non-native herbs and forbs occur throughout the study area with the most dominant species being scouring-rush horsetail (*Equisetum hyemale*), field horsetail (*Equisetum arvense*), reed canarygrass (*Phalaris arundinacea*), and common tansy (*Tanacetum vulgare*). Photographs of vegetation and the study area are included in Appendix E.

3.4 Soils

Two USDA soil unit types occur within the study area, neither of which has a hydric soil rating (NRCS 2023a). Detailed soil descriptions from the USDA Web Soil Survey are included below (NRCS 2023a) and the soil map is included in Appendix C:

14- Haploxeralfs and Xerochrepts, 30 to 55 percent slopes
This soil series forms from volcanic ash and loess over silty glaciolacustrine deposits and are found in escarpments. These soils have a depth to water table of more than 80 inches and are well drained. The series consists of silt loam and silty clay loam for the first 36 inches and stratified fine sand to silty clay from 36-60 inches. The average depth to a restrictive layer is more than 80 inches (NRCS 2023a).

31- Mission silt loam, 0 to 2 percent slopes
This soil series consists of somewhat poorly drained soils that formed from volcanic ash and loess over silty glaciolacustrine deposits and are found in lake terraces. The first 48 inches of the soil profile consists of silt and silt loams, and fine sand from 48-67 inches. These soils have an average depth to water table of 6-18 inches and a depth to restrictive fragipan of 10-20 inches (NRCS 2023a).

3.5 Hydrology

The project area falls within the Hydraulic Unit Code (HUC) 17010214 Pend Oreille Lake. Numerous groundwater springs/seeps emanate from the hillside between the RROW and POBT often resulting in ponded water between the toeslope of the hill and the man-made trail prism. In a number of locations, the water between the hillside and Lake Pend Oreille travels through previously constructed culverts underneath the trail to the lake. This occurs in two locations within the study area and is described further below in Section 4.

Section 4 Aquatic Resources

Four aquatic resources occur within the study location: one wetland adjacent to POBT, two small tributaries (one east of the wetland and one west of the wetland), and Lake Pend Oreille. The following sections describe characteristics of aquatic resources observed within the study area and explain mapped boundaries. A map of the aquatic resources within the study area is included in Appendix B.

4.1 Wetlands

Wetland plots were examined in locations likely to meet all three wetland criteria and upland areas were investigated to establish contrast between upland and wetland plots. Wetland data points were paired with upland data points to indicate boundaries.

Wetland data points were selected based on topography, vegetation, soils, and hydrology. Each wetland data point was assigned a number and a wetland determination data form from the WMVC Supplement and data points were intended to span the wetland and upland boundary to delineate wetland boundaries. Throughout the study area, soil pits were dug in areas suspected to meet wetland criteria, but no data points were collected if soils or hydrology criteria were not observed in the soil test pits. Photos of an example test pit in which an area was expected to contain all three wetland criteria but only exhibited one or two criteria are include in Figure 1 below.

Figure 1. Non-Wetland Test Pits

Non-wetland test pit location facing west

Soils from non-wetland test pit

The wetland delineated within the study area is approximately 0.04 acres in size and contains emergent (primarily reed canarygrass [*Phalaris arundinacea*]), sapling/shrub (highbush cranberry [*Viburnum opulus*] and red osier dogwood [*Cornus sericea*]) vegetation with paper birch (*Betula papyrifera*) and black cottonwood (*Populus balsamifera*) in the tree stratum. Multiple vegetation types occur within the wetland plot but the plot is dominated by reed canarygrass. This wetland is fed by a groundwater seep from the hillside to the west. No visible surface water connection to Lake Pend Oreille from the wetland was observed at the time of the investigation. Wetland determination forms are included in Appendix F and photos of this wetland are included in Appendix E. These wetland types are common to this region of Idaho.

4.2 Seeps/Springs/Tributaries

Two seeps from the hillside below the RROW create tributaries to Lake Pend Oreille that flow through the study area. Herein they are referred to as Tributary A and Tributary B and their locations are depicted in Appendix B.

4.2.1 Tributary A

Tributary A is located in the western end of the study area and photos of this tributary are included in Figure 2 below.

Figure 2. Tributary A

Upstream view of Tributary A

View of culvert inlet of Tributary A

Downstream view of Tributary A terminus with Lake

The OHWM cross-section width of Tributary A ranged from approximately 1 foot to 2 feet across in the section delineated. Tributary A was delineated from the northwest side of the POBT to the hillside below the RROW at its origin seep location. Tributary A was delineated primarily using vegetation changes and slight slope breaks in the soil. Tributary A receives its hydrology from groundwater seeps and is therefore characterized as a perennial stream.

4.2.2 Tributary B

Tributary B is located west of the PSRC and east of Tributary A. This tributary is larger than Tributary A, with OHWM cross-section width varying from approximately 3 to 4.5 feet. Upstream of Tributary B are potential wetlands that were not delineated as part of the project because they are not overlapping or adjacent to proposed construction activities. Tributary B was delineating using slope breaks, sediment deposits, and vegetation changes. Tributary B receives its hydrology from groundwater seeps and is therefore characterized as a perennial stream.

Tributary B flows from the wetlands heading southeast for approximately 60 feet before it goes subsurface below a rockpile, prior to intersecting POBT. The outlet where the tributary meets Lake Pend Oreille was not located in the field and is suspected to be subsurface to the confluence with the Lake. Photos of Tributary B are included in Figure 3 below.

Figure 3. Tributary B

Tributary B facing west

Location where Tributary B goes subsurface facing west

4.3 Lake Pend Oreille

The OHWM of Lake Pend Oreille was evident in the field because of the steep riprap banks and shoreline deposits on the rocks. Historical aerial imagery was utilized to verify field findings for this open water aquatic resource. The OHWM was only delineated along the extent of which impact as a result of construction actions are expected to occur.

4.4 Aquatic Resources Table

Table 1. Table 1 summarizes information for each aquatic resource within the survey area. Aquatic Resources Table

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acres) For all aquatic resource features	Aquatic Resource Length (linear feet) For ditches, canals stream, river features
	Cowardin	Location (lat/long)		
Lake Pend Oreille	L2RB2	48.300003°, -116.532827°	0.424	
Tributary A	R2SB6	48.297730°, -116.536245°	0.003	168
Tributary B	R2SB6	48.300127°, -116.533093°	0.003	62
Wetland	PEM1F/PF01F	48.299083°, -116.534275°	0.037	
Total			**0.467**	**230**

4.5 Vegetation

Table 2 below includes a list of commonly observed plants within the study area.

Table 2. Plant Species Observed Onsite

Stratum	Common Name	Scientific Name	Wetland Indicator Status
Tree	Black cottonwood	*Tsuga heterophylla*	FACU
Tree	Western red cedar	*Pinus monticola*	FACU
Tree	Vine maple	*Abies grandis*	FACU
Tree	Paper birch	*Betula papyrifera*	FAC
Tree	Grey Alder	*Alnus incana*	FACW
Tree	Mountain ash	*Sorbus sitchensis*	FAC
Shrub	Red osier dogwood	*Cornus sericea*	FACW
Shrub	Highbush cranberry	*Viburnum opulus*	FACW
Shrub	Western serviceberry	*Amelanchier alnifolia*	FACU
Shrub	Common Snowberry	*Symphoricarpos albus*	FACU
Shrub	Nootka rose	*Rosa nutkana*	FAC
Herb	Scouring-rush horsetail	*Equisetum hyemale*	FACW
Herb	Field horsetail	*Equisetum arvense*	FACW
Herb	Reed canarygrass	*Phalaris arundinacea*	FACW
Herb	broadleaf cattail	*Typha latifolia*	OBL
Herb	Western skunk cabbage	*Lysichiton americanus*	OBL
Herb	Common tansy	*Tanacetum vulgare*	FACU
Herb	Bracken fern	*Pteridium aquilinum*	FACU
Herb	Thimbleberry	*Rubus parviflorus*	FACU
Herb	Climbing nightshade	*Solanum dulcamara*	FAC
Herb	Small-fruited bullrush	*Scirpus microcarpus*	OBL

4.6 Soils

Soils encountered in test pits and within the wetland were consistent with the USDA soil survey and were primarily silt loams in the top 4-6 inches and silty very fine sands from 6 inches to the bottom of the test pit (12 to 18 inches below ground surface [bgs]). Hydric soils encountered in the wetland exhibited characteristics that met the Thick Dark Surface (A12) criteria with a low value and chroma coloration from 0-12 inches bgs and a depleted or gleyed matrix below (12-18 inches bgs). No other test pits within the study area met hydric soil criteria.

4.7 Wetland Determination Data Forms

Wetland determination data forms are included in Appendix F.

Section 5 Summary

Using the methods described in Section 2, 0.467 acres of aquatic resources were delineated within or adjacent to the APE. For planning purposes, Table 3 includes the acreage of aquatic resource that overlaps the APE for construction schedules.

Table 3. Aquatic Resource Impacts

Aquatic Resource Name	Location (lat/long)	Aquatic Resource Impact (acres) For all aquatic resource features
Schedule A & B Actions		
Lake Pend Oreille	48.300003°, -116.532827°	0.233
Tributary A	48.297730°, -116.536245°	0.001
Tributary B	48.300127°, -116.533093°	NA
Wetland	48.299083°, -116.534275°	0.001
Total		**0.235**
Schedule C Actions		
Lake Pend Oreille	48.300003°, -116.532827°	0.191
Total		**0.191**
Total with Schedules A, B, & C		**0.426**

Construction Schedules A, B, overlap 0.235 acres while construction schedule C overlaps a total of 0.191 acres of aquatic resources. In total, all construction schedules overlap 0.426 acres of aquatic resources with the majority of acreage (0.424 acres) being comprised of Lake Pend Oreille. If construction footprints are adjusted in the future, the total acreage of aquatic resources that may be impacted is subject to change. The aquatic resource impact thresholds above which compensatory mitigation may be required are 0.03 acres for stream bed and 0.10 acres for wetlands.

Based on our current understanding of the proposed project actions, Nationwide Permits 3 (Maintenance), 38 (Cleanup of Hazardous and Toxic Waste), and 42 (Recreational Facilities) may be applicable to this project.

Section 6 References

Lichvar, Robert W. and Mersel, Matthew K., 2014. A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coastal Region of the Unites States. United States Army Corps of Engineers (USACE).

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Appendix A
Location Map

U:\Moscow\Project_Maps\City_of_Ponderay\Ponderay_Wetlands\Figure 1 - Project Location Map\Figure 1 - Project Location Map.aprx

Alta Science & Engineering, Inc.

Print Date: October 2, 2023	Project Manager: T. Harju
Project Number: 22075	Cartographer: A. Ward

Scale: 1:11,924

0 500 1,000 Feet

N

Figure 1: Project Location Map

Appendix B
Aquatic Resources Map

G:\Project_Maps\City_of_Ponderay\Ponderay_Wetlands\City_of_Ponderay_Wetlands\City_of_Ponderay_Wetlands.aprx

Alta Science & Engineering, Inc.

Print Date	Project Manager
September 29, 2023	T. Harju
Project Number	**Cartographer**
22075	A. Ward

Scale: 1:2,642

0 75 150Ft

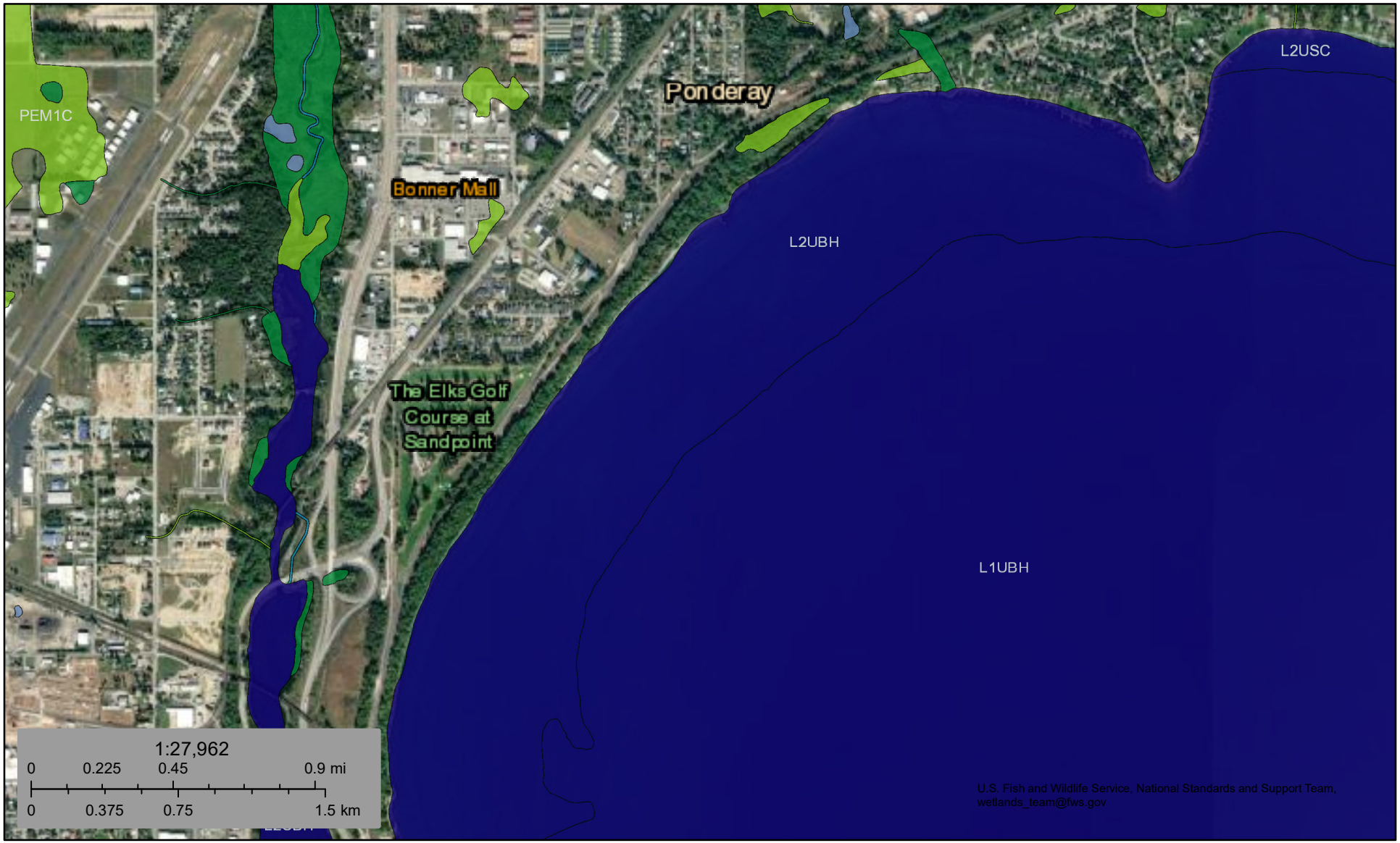
N

Figure 2: Aquatic Resource Map

Appendix C
Supplementary Maps

U.S. Fish and Wildlife Service
National Wetlands Inventory

PLC NWI Map



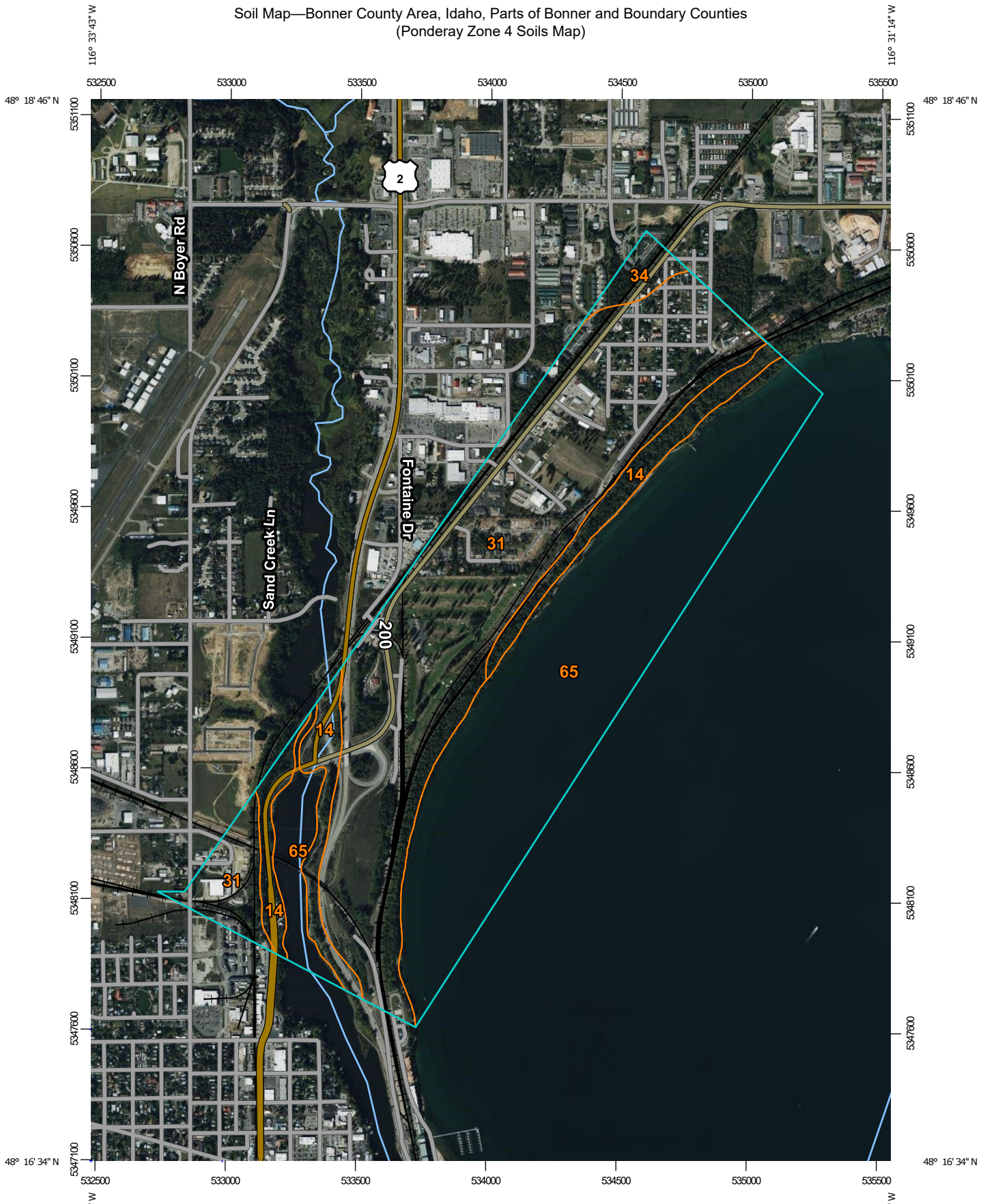
September 15, 2023

Wetlands

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

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

Soil Map—Bonner County Area, Idaho, Parts of Bonner and Boundary Counties
(Ponderay Zone 4 Soils Map)



Map Scale: 1:19,800 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 250 500 1000 1500

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Bonner County Area, Idaho, Parts of Bonner and Boundary Counties
Survey Area Data: Version 18, Sep 2, 2022

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

Date(s) aerial images were photographed: Jul 16, 2021—Oct 18, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
14	Haploxeralfs and Xerochrepts, 30 to 55 percent slopes	64.8	9.0%
31	Mission silt loam, 0 to 2 percent slopes	342.4	47.3%
34	Odenson silt loam, 0 to 2 percent slopes	12.0	1.7%
65	Water	304.0	42.0%
Totals for Area of Interest		**723.3**	**100.0%**

Appendix D
Supplementary Data

WETS Table

WETS Station: PRIEST RIVER EXP STATION, ID								
Requested years: 1971 - 2000								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0. 10 or more	Avg Snowfall
Jan	30.1	19.9	25.0	3.74	2.49	4.48	10	21.1
Feb	36.2	22.6	29.4	3.12	2.14	3.72	9	14.0
Mar	45.6	26.5	36.1	2.72	2.00	3.20	8	4.8
Apr	56.8	31.3	44.1	2.25	1.61	2.67	6	0.3
May	66.6	38.8	52.7	2.60	1.90	3.06	7	0.0
Jun	73.5	44.6	59.0	2.24	1.51	2.68	6	0.0
Jul	81.2	47.7	64.4	1.39	0.67	1.67	4	0.0
Aug	81.4	46.7	64.0	1.32	0.59	1.61	3	0.0
Sep	70.9	39.2	55.1	1.43	0.68	1.75	4	0.0
Oct	55.3	32.3	43.8	1.92	1.02	2.34	6	0.3
Nov	37.3	27.1	32.2	4.30	2.95	5.12	10	11.1
Dec	30.1	21.3	25.7	4.39	3.05	5.22	11	21.9
Annual:					28.30	34.09		
Average	55.4	33.2	44.3	-	-	-	-	-
Total	-	-	-	31.43			84	73.6

GROWING SEASON DATES			
Years with missing data:	24 deg = 0	28 deg = 0	32 deg = 0
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 30	28 deg = 30	32 deg = 30
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	4/11 to 10/14: 186 days	5/6 to 9/28: 145 days	5/26 to 9/14: 111 days
70 percent *	4/6 to 10/19: 196 days	5/1 to 10/3: 155 days	5/21 to 9/20: 122 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1898		M1.58	1.55	1.31	3.52	1.72	0.87	0.07	1.23	1.11			12.96
1899		1.95	1.23	5.02	2.76	1.23	0.14	3.21	1.35	2.68	10.42	1.74	31.73
1900	3.04	1.81	3.16	1.27	2.47	M0.07	0.11	1.50	1.92	5.07	2.74	3.33	26.49
1901	3.02	2.59	1.97	1.83	3.80	2.22	2.17	0.31	3.01	1.09	3.67	2.15	27.83
1902	1.75	4.51	2.44	3.29	5.18	1.38	5.61	0.75	1.24	0.49	6.98	4.39	38.01
1903	5.11	0.77	2.79	1.74	1.73	3.17	1.41	1.36	1.63		5.40	1.88	26.99
1904	2.34	M3.84	4.76	1.44	0.66	1.65	1.26	0.25					16.20
1905	2.80	2.05	3.00	0.48	3.79	2.40	0.76	0.11	1.24	3.78	2.23	2.65	25.29
1906	M4.31	3.12				2.03							9.46

1907													
1908													
1909													
1910													
1911												4.37	4.37
1912	5.14	3.30	1.27	2.46	2.68	2.14	2.58	2.68	1.51	3.35	5.83	4.06	37.00
1913	3.77	0.57	2.17	1.33	2.24	3.31	1.22	0.69	2.10	1.76	7.02	0.91	27.09
1914	5.95	M3.12	2.02	2.58	2.36	2.94	1.83	0.17	3.70	3.85	4.57	1.20	34.29
1915	1.10	2.36	1.55	2.34	3.65	1.53	3.05	0.28	1.72	2.24	5.12	5.57	30.51
1916	4.51	2.54	5.93	2.00	2.59	3.23	1.66	1.22	1.86	1.15	3.30	2.82	32.81
1917	2.86	2.38	3.29	3.41	3.00	1.76	0.04	0.06	0.66	M0.88	1.76	7.36	27.46
1918	3.16	4.18	2.89	0.37	1.24	0.84	0.60	4.22	0.61	4.36	3.80	2.86	29.13
1919	5.75	5.35	4.31	M2.28	2.23	0.20	0.04	1.52	1.62	1.44	2.68	2.30	29.72
1920	1.86	2.83	1.47	2.89	2.99	2.07	1.07	0.82	3.99	1.98	4.65	4.52	31.14
1921	3.73	2.59	3.20	2.96	0.91	0.87	0.14	0.48	1.03	2.54	3.72	2.23	24.40
1922	2.00	1.66	2.75	3.59	1.07	0.14	0.20	0.68	2.04	3.85	0.59	7.54	26.11
1923	5.96	0.90	1.55	1.07	2.26	2.06	0.68	1.12	0.63	1.77	3.21	4.45	25.66
1924	4.08	3.55	0.99	0.30	0.82	1.50	0.33	1.41	1.19	2.96	4.32	2.78	24.23
1925	5.63	4.81	1.91	1.24	2.59	1.22	0.07	0.40	1.01	0.73	2.33	4.55	26.49
1926	3.25	4.19	0.25	0.70	2.06	0.85	0.16	4.24	2.40	2.44	4.00	2.99	27.53
1927	4.61	5.23	1.65	1.29	2.71	3.23	0.76	1.52	7.50	3.62	6.29	2.93	41.34
1928	1.90	0.74	4.66	2.80	0.81	1.79	1.93	0.60	0.05	3.12	2.50	3.76	24.66
1929	M1.79	0.62	1.61	1.62	0.74	2.76	0.03	0.31	0.38	1.13	0.11	4.92	16.02
1930	1.39	3.73	1.14	2.15	2.18	1.63	0.06	1.78	0.61	2.29	2.20	1.42	20.58
1931	4.01	2.88	3.99	1.32	1.10	1.55	0.49	T	2.10	3.00	4.37	6.82	31.63
1932	4.67	3.63	3.84	3.63	3.01	0.84	0.48	0.41	0.50	2.79	5.71	5.75	35.26
1933	4.82	2.03	3.57	0.64	1.49	1.97	0.08	0.29	2.28	3.37	1.95	11.22	33.71
1934	6.67	1.05	2.74	1.78	1.47	0.75	0.04	0.08	0.81	4.95	5.85	5.63	31.82
1935	6.70	1.15	2.59	0.64	0.72	1.28	1.36	0.69	0.15	2.13	2.55	3.08	23.04
1936	4.99	2.30	1.75	0.98	1.36	2.37	0.57	0.73	2.84	0.59	0.40	4.21	23.09
1937	2.93	4.78	1.29	4.42	0.37	4.35	2.65	0.83	1.73	2.68	7.69	6.40	40.12
1938	4.44	3.26	3.83	1.42	0.91	1.41	0.68	0.66	0.43	2.81	2.23	3.72	25.80
1939	3.97	2.84	1.79	0.61	0.82	3.03	0.33	0.07	0.69	2.48	1.41	6.15	24.19
1940	2.18	5.96	3.65	2.65	1.30	0.63	0.55	M0.25	2.91	4.23	3.37	4.17	31.85
1941	3.25	1.76	1.44	0.48	6.24	2.73	0.72	1.94	4.69	2.31	3.66	6.66	35.88
1942	1.54	1.93	1.80	1.95	4.69	4.06	2.60	0.30	0.71	2.96	6.02	4.29	32.85

1943	3.14	2.09	3.55	2.92	3.15	3.24	0.65	1.19	0.03	5.25	1.37	2.96	29.54
1944	2.48	1.67	0.96	2.55	2.42	3.16	0.40	0.69	1.86	1.49	2.97	2.39	23.04
1945	3.88	2.71	5.99	1.59	3.14	1.83	0.62	0.36	3.15	3.20	4.88	3.70	35.05
1946	4.20	3.57	3.50	3.03	1.11	4.19	0.42	0.41	2.24	2.84	5.53	3.83	34.87
1947	3.64	1.75	2.31	1.84	0.94	4.24	0.47	2.11	2.80	8.31	2.14	2.84	33.39
1948	3.09	4.23	1.56	4.51	5.18	4.92	3.43	0.91	1.06	1.41	5.03	4.10	39.43
1949	0.70	6.53	3.65	1.22	1.65	0.85	0.40	0.62	1.76	3.22	4.79	5.01	30.40
1950	5.58	3.82	5.57	1.70	0.92	3.54	1.26	1.39	0.51	8.12	3.62	4.73	40.76
1951	5.42	3.51	3.28	0.56	1.82	2.31	0.91	0.62	1.78	8.19	3.89	6.62	38.91
1952	5.32	2.14	2.00	1.34	1.04	4.10	0.46	0.22	0.45	0.47	1.25	4.84	23.63
1953	8.31	2.23	2.32	2.47	2.33	2.88	0.09	2.42	0.38	0.89	3.10	4.40	31.82
1954	8.38	3.29	1.92	2.17	1.95	3.31	1.49	2.84	0.89	0.97	3.31	3.61	34.13
1955	2.46	3.33	2.37	4.53	1.60	2.93	2.72	0.01	3.19	5.46	5.75	7.46	41.81
1956	4.99	3.92	3.16	0.47	1.27	2.21	2.06	1.57	0.66	3.68	0.66	4.31	28.96
1957	2.31	5.20	2.53	1.40	4.83	2.30	0.19	1.23	0.64	3.29	2.40	5.37	31.69
1958	4.71	5.57	2.29	3.82	0.61	4.13	0.70	0.90	1.36	1.95	5.47	4.10	35.61
1959	7.57	2.57	2.18	1.99	3.98	1.93	0.21	1.16	4.04	2.77	7.79	3.26	39.45
1960	3.11	2.33	3.84	2.18	4.10	0.97	T	1.81	1.19	2.93	8.58	1.74	32.78
1961	3.58	5.96	3.04	2.23	4.52	1.53	0.90	0.84	0.79	4.05	2.57	6.52	36.53
1962	2.42	1.85	3.36	1.82	4.67	0.60	0.44	0.99	2.92	3.04	6.71	3.89	32.71
1963	1.40	3.43	3.25	3.02	2.03	2.93	1.20	0.43	1.26	2.45	6.11	2.71	30.22
1964	5.12	0.78	3.86	1.25	1.37	2.16	1.50	2.72	2.20	0.50	5.49	6.95	33.90
1965	3.34	3.43	0.36	2.87	1.64	1.35	0.72	2.79	1.00	0.38	4.07	3.76	25.71
1966	5.19	1.18	4.80	0.54	1.46	4.09	1.15	0.92	0.31	1.61	6.65	6.51	34.41
1967	7.93	1.40	4.12	2.12	1.48	2.54	0.26	0.05	0.35	4.79	2.46	3.12	30.62
1968	4.88	4.24	2.41	1.07	1.68	2.17	0.84	3.27	2.39	5.09	4.46	5.84	38.34
1969	6.78	2.06	1.16	3.39	2.89	2.24	0.80	T	2.98	1.55	1.94	4.15	29.94
1970	6.87	3.77	2.17	1.42	1.49	2.06	0.53	0.12	2.20	3.31	2.28	6.07	32.29
1971	4.43	2.54	3.37	2.58	1.78	3.13	0.87	1.84	2.07	1.89	2.98	5.25	32.73
1972	4.23	3.59	2.60	2.43	1.90	3.23	1.34	1.42	1.83	0.78	2.57	5.24	31.16
1973	4.09	1.09	1.71	0.81	2.30	0.61	T	0.47	2.61	2.51	10.46	7.77	34.43
1974	8.26	3.96	3.58	1.98	3.49	0.73	2.19	0.86	0.98	0.18	7.81	5.02	39.04
1975	3.55	4.32	2.61	2.14	1.62	2.31	2.13	2.83	0.33	3.68	2.98	3.76	32.26
1976	2.80	4.50	1.75	2.52	1.98	1.28	0.90	3.66	0.12	0.89	1.36	1.85	23.61

1977	1.24	1.11	2.28	0.32	2.42	1.02	0.50	2.20	2.21	1.66	4.02	7.27	26.25
1978	3.62	2.15	1.45	2.53	4.73	1.22	3.41	2.98	1.73	0.25	2.48	1.46	28.01
1979	1.10	6.45	1.46	2.05	2.44	0.72	1.36	0.84	0.98	2.81	1.46	5.64	27.31
1980	3.92	3.17	2.65	2.53	2.77	1.72	1.56	1.72	2.32	1.03	4.91	6.78	35.08
1981	1.09	4.25	1.66	3.20	3.14	4.32	1.96	0.04	1.59	3.02	2.96	4.30	31.53
1982	4.28	6.04	4.08	4.15	1.60	2.15	1.94	0.64	2.49	2.06	4.05	5.24	38.72
1983	5.06	4.40	3.81	1.53	1.46	2.86	4.03	2.41	1.14	1.33	8.38	3.04	39.45
1984	2.56	2.22	2.97	2.16	3.90	3.77	0.15	0.60	1.14	1.81	7.17	4.09	32.54
1985	0.27	3.43	2.36	1.00	1.40	1.26	0.20	2.07	2.11	2.58	3.94	0.93	21.55
1986	4.24	3.62	2.80	1.64	2.21	1.30	0.98	0.02	3.09	0.87	4.64	1.80	27.21
1987	2.29	1.31	4.94	1.94	1.59	1.08	2.37	1.44	0.53	0.13	2.37	6.34	26.33
1988	M2.67	M1.38	3.02	3.41	2.08	2.51	0.29	0.56	1.86	0.56	6.02	3.61	27.97
1989	3.90	M1.95	M4.21	1.87	2.52	1.19	0.47	3.14	0.43	2.30	3.63	2.48	28.09
1990	7.72	3.91	1.30	1.76	4.60	3.66	1.21	1.64	0.01	3.37	3.10	2.35	34.63
1991	3.24	1.76	M2.28	2.93	2.33	1.69	0.88	0.82	0.17	1.00	3.62	3.13	23.85
1992	4.85	1.87	0.73	1.96	0.74	4.43	2.27	0.50	1.23	1.27	3.51	4.63	27.99
1993	2.92	0.92	2.32	3.87	1.85	1.72	3.91	1.11	1.25	0.78	1.31	4.35	26.31
1994	3.04	2.29	2.01	2.18	2.01	2.54	0.05	0.22	1.09	2.92	5.01	4.68	28.04
1995	4.67	2.54	4.88	1.84	1.82	4.16	0.75	1.45	1.61	3.95	4.26	4.57	36.50
1996	3.91	5.25	1.34	4.51	4.38	3.30	0.63	0.87	1.35	4.69	8.20	8.78	47.21
1997	4.83	2.01	5.36	2.85	3.58	1.78	2.03	0.55	3.52	3.88	2.40	2.09	34.88
1998	4.66	M2.11	3.25	1.16	7.13	1.75	2.13	0.86	1.32	0.94	6.58	7.42	39.31
1999	4.02	6.66	1.66	0.98	1.97	2.28	0.50	1.67	0.33	2.42	4.33	5.67	32.49
2000	4.78	2.84	3.19	2.78	2.26	3.56	0.79	0.28	1.55	1.92	2.34	2.10	28.39
2001	1.20	1.29	2.29	4.49	1.86	2.53	0.95	0.33	0.40	3.86	5.01	M5.11	29.32
2002	M4.47	2.12	1.65	M2.09	2.39	1.99	0.70	0.22	0.79	0.72	3.29	M6.08	26.51
2003	M4.92	M1.33	4.89	1.68	2.49	1.79	0.00	0.64	2.03	2.69	M3.85	3.61	29.92
2004	3.59	1.71	1.63	1.66	4.01	1.80	0.53	4.12	1.82	2.82	3.43	M2.06	29.18
2005	2.68	M0.20	4.94	1.47	3.59	2.98	1.57	0.84	0.86	2.79	2.89	3.93	28.74
2006	M7.35	2.70	M2.92	2.69	2.79	3.36	0.23	0.30	0.14	1.23	9.34	M3.42	36.47
2007	3.18	2.88	3.49	0.93	1.75	1.82	0.50	0.70	0.94	3.34	2.65	8.08	30.26
2008	5.31	1.73	3.34	1.63	1.28	2.03	0.45	2.25	1.95	1.86	2.75	M5.66	30.24
2009	2.48	M1.83	4.03	2.35	2.19	1.08	2.22	1.15	0.41	4.93	2.56	3.44	28.67
2010	2.70	1.32	2.92	2.92	3.62	5.61	0.90	0.61	3.76	4.54	5.17	4.09	38.16

2011	4.77	2.58	4.69	3.78	4.78	2.31	0.54	0.03	0.28	2.67	5.76	2.06	34.25
2012	4.03	2.87	8.12	3.93	2.07	6.84	1.89	0.28	0.33	4.41	6.14	6.35	47.26
2013	2.26	1.20	2.29	3.07	2.95	4.85	0.12	0.68	4.54	0.81	4.00	1.90	28.67
2014	2.63	3.37	6.04	3.43	2.33	3.64	0.59	2.40	0.81	2.95	4.04	4.01	36.24
2015	3.18	3.95	4.10	1.39	1.77	0.66	0.58	0.48	0.35	2.43	3.85	7.48	30.22
2016	4.68	2.48	5.08	1.47	3.78	0.74	1.33	0.49	1.33	10.64	3.80	2.37	38.19
2017	1.92	7.32	6.84	3.85	2.06	1.76	0.14	0.10	1.44	2.51	6.28	3.97	38.19
2018	5.92	3.62	2.33	3.99	1.70	1.81	0.42	0.70	0.72	2.30	3.74	4.16	31.41
2019	3.18	3.84	1.23	2.65	1.02	1.07	0.66	1.20	1.64	2.44	2.08	M4.46	25.47
2020	8.71	1.20	1.64	0.62	6.16	2.25	0.84	0.08	1.09	3.01	2.58	3.86	32.04
2021	5.70	1.48	0.69	0.81	0.55	0.91	0.15	1.77	2.77	2.73	4.25	4.25	26.06
2022	4.40	2.75	2.40	1.21	3.54	3.81	0.88	0.17	0.47	1.26	4.32	6.37	31.58
2023	1.67	1.35	1.75	3.41	3.31	0.58	0.09	2.25					14.41
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2023-09-28													

Appendix E
Photo Log and Field Notes

Photo 1

Surface water adjacent to plot 1W

Photo 2

Plot 1W facing north

Photo 3

Plot 1W facing north from POBT

Photo 4

Plot 1W soil pit

Alta Science & Engineering, Inc.	PRINT DATE: October 4, 2023	PROJECT MANAGER: Tarita Harju	PROJECT NAME: City of Ponderay – Ponderay Brownfields Cleanup	APPENDIX F, PHOTO LOG Aquatic Resource Delineation
	PROJECT NUMBER: 22075-80-10	CREATED BY: Tom Jenkins		

Photo 5

Plot 1W soils (0 -12” bgs)

Photo 6

Plot 1W soils (12-18” bgs)

Photo 7

Plot 1U facing north

Photo 8

Plot 1U soil pit

Alta Science & Engineering, Inc.	PRINT DATE: October 4, 2023	PROJECT MANAGER: Tarita Harju	PROJECT NAME: City of Ponderay – Ponderay Brownfields Cleanup	APPENDIX F, PHOTO LOG Aquatic Resource Delineation
	PROJECT NUMBER: 22075-80-10	CREATED BY: Tom Jenkins		

Photo 9

Plot 1U soils

Photo 10

Lake Pend Oreille shoreline southeast of Plots 1W and 1U.

Photo 11

View of riprap shoreline along APE facing northeast

Photo 12

View of riprap shoreline along APE facing southwest

Alta Science & Engineering, Inc.	PRINT DATE: October 4, 2023	PROJECT MANAGER: Tarita Harju	PROJECT NAME: City of Ponderay – Ponderay Brownfields Cleanup	APPENDIX F, PHOTO LOG Aquatic Resource Delineation
	PROJECT NUMBER: 22075-80-10	CREATED BY: Tom Jenkins		

Photo 13

View of shoreline from PSRC facing south

Photo 14

View of shoreline from PSRC facing southwest

Photo 15

View of non-wetland test pit location adjacent to slag pile in PSRC facing north

Photo 16

Soils from non-wetland test pit location adjacent to slag pile in PSRC

Alta Science & Engineering, Inc.	PRINT DATE: October 4, 2023	PROJECT MANAGER: Tarita Harju	PROJECT NAME: City of Ponderay – Ponderay Brownfields Cleanup	APPENDIX F, PHOTO LOG Aquatic Resource Delineation
	PROJECT NUMBER: 22075-80-10	CREATED BY: Tom Jenkins		

Appendix F
Wetland Determination Data Forms

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

Project/Site: Ponderay - Zone 4 City/County: Ponderay/Bonner Sampling Date: 9/6/23

Applicant/Owner: City of Ponderay State: ID Sampling Point: 1W

Investigator(s): T. Jenkins Section, Township, Range: S11 T57N R2W

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): LRRE Lat: 48.299083° Long: -116.534275° Datum: NAD83

Soil Map Unit Name: Haploxeralfs and Xerochrepts, 30 to 55 percent slopes (Map Unit 14) NWI classification: NA

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: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula papyrifera	30	Y	FAC
2. Populus balsamifera	30	Y	FAC
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1. viburnum opulus	20	Y	FACW
2. Rosa nutkana	10	N	FAC
3. Cornus sericea	10	N	FACW
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 10')			
1. Phalaris arundinacea	60	Y	FACW
2. Equisetum arvense	25	N	FAC
3. Scirpus microcarpus	10	N	OBL
4. Solanum dulcamara	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 4/4= 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1W

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
0-12	10YR 2/1	100					silt	
12-18	10YR 5/1	100					sandy 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 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): Adjacent

Water Table Present? Yes ✓ No ___ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 4

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: Ponderay - Zone 4 City/County: Ponderay/Bonner Sampling Date: 9/6/23

Applicant/Owner: City of Ponderay State: ID Sampling Point: 1U

Investigator(s): T. Jenkins Section, Township, Range: S11 T57N R2W

Landform (hillslope, terrace, etc.): trail slope Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): LRRE Lat: 48.299072° Long: -116.534258° Datum: NAD83

Soil Map Unit Name: Haploxeralfs and Xerochrepts, 30 to 55 percent slopes (Map Unit 14) NWI classification: NA

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:

Edge of trail

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	80	Y	FAC
2.			
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1. Populus balsamifera	20	Y	FAC
2. Betula papyrifera	15	N	FAC
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 10')			
1. Bromus inermis	20	Y	UPL
2. Tanacetum vulgare	10	N	FACU
3. Phalaris arundinacea	10	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/3= 66% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1U

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	2.5Y 3/2	100					sandy gravel	Fill

[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: