Critical Area Review Application Form

PA-02
APPLICATION

Community Development Department
501 N. Anderson, Ellensburg, WA 98926 (509) 962-7239 (Building) (509) 962-7231 (Planning) permits@ci.ellensburg.wa.us

The Critical Area Information Form is used to identify whether a proposed project involves any Critical Areas as defined in ECC 15.130. If it is determined that the proposed project does involve a Critical Area, then additional Critical Area review will be required pursuant to ECC 15.610. A complete Critical Area Information Form must be submitted along with the complete permit application. Staff will then review the form, perform a site inspection, and render a decision as to whether any Critical Areas may be affected by the proposal and if a more detailed Critical Area Report shall be required.

The Planning Division will be unable to accept your Critical Area Information Form if you fail to provide ALL of the following required material.

OFFICIAL USE ONLY:	
Staff Person:	
Date Submitted:	
Fee Total:	
CA FILE #:	
Associated Permit File #:	

PROPERTY OWNER: (Note: If the Applicant is not the Owner, attach written authorization from the legal owner(s).			
Legal Owner Name(s):	Laura Osiadacz, Chair	Day Phone:	509-962-7508
Mailing Address:	Kittitas County Board of Commissioners, 205 W 5th Ave, Suite 108, Ellensburg, WA 98926		
E-mail:	laura.osiadacz@co.kittitas.wa.us	Cell Phone:	
*APPLICANT:	[x] Owner [ ] Contractor [ ] Tenant [ ] Other		
Name:	Patti Johnson, Director	Day Phone:	(509) 962-7542
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CONTACT PERSON:	[ ] Owner [ ] Contractor [ ] Tenant [x] Other Engineering Consultant		
Name:	Tom Parker, PE	Day Phone:	(626) 578-3500
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E-mail:	tom.parker@jacobs.com	Cell Phone:	(505) 991-4987

PROJECT INFORMATION:	
Parcel Number(s) of Site:	611033
Site Address (if any):	Highway 97
Describe Proposal & Underlying Permit:	The Site Description and Project Description are provided in the Critical Area Report. The underlying permit is a Conditional Use Permit and Variance.

(OVER)

	PROJECT INFORMATION:		
1.	Is the proposed site adjacent to, or does it include, a body of water (e.g. exposed standing water, pond, year round stream, river or lake)?		☐ Yes ☒ No
	If Yes, Identify water body:		
	If yes, how close to the boundary of the water is the proposed development?		
2.	Does the site have floodplains?		☒ Yes ☐ No
	If Yes, Identify the FEMA Map Community Panel No. and Flood Zone No.	COMMUNITY-PANEL NUMBER 530095 0439 B EFFECTIVE DATE: MAY 5, 1981 Flood Zone A	
	If yes, how close to the boundary of the floodplain is the proposed development?	The development would require the diversion of the floodplain ditch D1 to the eastern perimeter of the parcel. This is shown in the General Site Plan (Figure 1) in the Critical Areas Report.	
3.	Does the site have any wetlands (open water, seasonal water, marsh areas, water saturated soils or wetland plans such as "cat tails")?		☒ Yes ☐ No
	If Yes, Identify wetland:	Wetlands W1-W3 and Nonwetland Waters Ditches D1-D12	
	If yes, how close to the boundary of the wetland is the proposed development?	The development would achieve a minimum 50 ft buffer averaging.	
4.	Does the site presently have fish or wildlife habitat:		☐ Yes ☒ No
	If Yes, identify the known types of wildlife:		
5.	Does the site have other critical Areas (such as slopes over 40%, unstable soils, rocks prone to landslides?		☐ Yes ☒ No
	If Yes, Identify:		

SITE PLAN REQUIREMENTS:

Provide A General Site Plan That Shows:

1. The proposed project and dimensions in relation to the property boundaries.
2. The proposed project and dimensions in relation to all existing and proposed development on the property.
3. The proposed project and dimensions in relation to any known or suspected Critical Areas on or adjacent to the property. Please identify the location and type of the Critical Area on the site plan.

(The site plan shall be legibly drawn to a minimum scale of 1:20 on substantial paper a minimum 11" x 17" size)

SIGNATURE OF LEGAL OWNER or REPRESENTATIVE AS AUTHORIZED BY THE LEGAL OWNER:

I, Patti Johnson, (print name) AFFIRM THAT THE ABOVE RESPONSES ARE MADE TRUTHFULLY AND TO THE BEST OF MY KNOWLEDGE.

I FURTHER AFFIRM THAT I AM THE OWNER OF RECORD OF THE AREA PROPOSED FOR THE ABOVE-IDENTIFIED LAND USE ACTION OR, IF NOT THE OWNER, ATTACHED HEREWITHIN IS WRITTEN PERMISSION FROM THE OWNER(s) AUTHORIZING MY ACTIONS ON HIS/HER/THEIR BEHALF.

Signature of Legal Owner: (or Authorized Agent)	Patti Johnson	**Date:**	9/10/19

Kittitas County Transfer Station and Maintenance Facility Relocation Project, Ellensburg, Kittitas County, Washington

Critical Areas Report

Draft

September 2019

Kittitas Solid Waste

Kittitas County Transfer Station and Maintenance Facility Relocation Project, Ellensburg, Kittitas County, Washington

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Document Title:	Critical Areas Report
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Client Name:	Kittitas County Solid Waste
Project Manager:	Tom Parker
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Acronyms and Abbreviations

BMPs	best management practices
cfs	cubic feet per second
CY	cubic yards
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FEMA	Federal Emergency Management Agency
FIRM	flood insurance rate map
ft	feet
GHG	greenhouse gas
HGM	hydrogeomorphic classification method
HUC	hydrologic unit code
IPac	Information for Planning and Consultation
LOMR	letter of map revision
KCC	Kittitas County Code
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	national pollutant discharge elimination system
NRCA	Natural Resources Conservation Areas
OBL	obligate
OHWM	ordinary high water mark
PEM	palustrine emergent (wetland)
PHS	Priority Habitat and Species
SFHA	special flood hazard area
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology
WNHP	Washington Natural Heritage Program
WDNR	Washington Department of Natural Resources
WOUS	water of the United States

1. Introduction

This report presents the findings of the critical areas investigation conducted for Kittitas County Solid Waste Department at the proposed Kittitas County Transfer Station (hereafter referred to as the project) site in Ellensburg, Kittitas County, Washington as required by Ellensburg City Code (ECC 15.61.100). The proposed project site is located in the northwestern portion of the city of Ellensburg. Current use of the site is livestock grazing.

1.1 Project Information

1.1.1 Applicant Information

Patti Johnson, Director Kittitas County Solid Waste
925 S Industrial Way
Ellensburg, WA 98926
(509) 962-7070

1.1.2 Project Description

Kittitas County proposes to relocate its solid waste transfer station and Public Works Maintenance Facility to a new location. The projected population growth and solid waste management needs of Kittitas County combined with frequent flooding events and limitations to its existing facilities requires construction of both new facilities.

The new transfer station facility will include a transfer building, composting area, moderate-risk waste building, and recycling drop-off area as well as various administrative, parking, and other required elements. The new maintenance facility will include an administrative building, large equipment and vehicle storage, wash and maintenance bays, and salt, sand and de-icing chemical storage.

1.1.3 Project Location

The project is located in northwestern portion of the city of Ellensburg, in Kittitas County, Washington (Appendix A: Figure 1). The project survey area is bound to the west by state highway 97, to the north by the Burlington Northern railroad and Old Highway 10 and to the east and south by private, undeveloped properties. The Interstate 90 corridor is approximately 0.3 mile southwest of the survey area. The project survey area is within the U.S. Geological Survey (USGS) 7.5-minute Ellensburg North quadrangle in Section 28, Township 18 North, Range 18 East (USGS, 2018); Willamette Meridian (latitude 47.016181°, longitude -120.590401°) within the Upper Yakima watershed unit (Hydrologic Unit Code 17030001).

1.2 Permits Requested

Permits are requested for floodplain development and for impacts to wetland buffers located in critical areas.

1.3 Investigator Information

The critical areas investigation was conduction by Jacobs senior environmental biologist Peggy O'Neill, M.S., PWS. Ms. O'Neill has over 20 years' experience conducting environmental surveys and investigations in the Pacific Northwest. Field work for this investigation was conducted on October 25 and 26, 2018.

2. Methods

The investigation was limited to the survey area (approximately 51 acres) that corresponds with Tax Map No. 18-18-28030008, parcel ID 611033. The following subsections describe the procedures and methods used to determine, map, and evaluate critical area resources within the survey area. Site-specific information reviewed during the pre-field investigation and collected during, or produced from, the field survey is provided in the appendixes. The following appendixes are provided:

- Appendix A, Figures
- Appendix B, Revised Wetland Delineation Report
- Appendix C, Site Plan

2.1 Pre-field Investigation

General information on climate, vegetation, soils, hydrology, and existing wetlands was reviewed before the field survey. Data and information sources included the following:

- Wetland Delineation Report: Kittitas County Waste Transfer Station (Jacobs, 2019b)
- Critical Aquifer Recharge Areas Map (Kittitas County, 2014c)
- Washington Priority Habitat and Species (PHS), (WDFW, 2018)
- Fish and Wildlife Habitat Conservation Areas Map (Kittitas County, 2014b)
- Washington Natural Areas Map (WDNR, 2019b)
- WNHP Historic Rare Plant Element Occurrences (WDNR, 2019c)
- Floodplain Mapping (FEMA, 2018)
- Information for Planning and Consultation (IPaC) (USFWS, 2018).
- Geologically Hazardous Areas Map (Kittitas County, 2014a)
- U.S. Geological Survey Topographic Map, North Ellensburg, Washington Quadrangle (USGS, 1983)

2.2 Field Survey

2.2.1 Method for Delineating Wetlands

The survey method for identifying wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (USACE, 2008). These methods use three criteria (vegetation, soils, and hydrology) to determine the presence of wetlands.

At each delineation sample point, the three required criteria were evaluated. Data collection included:

- Plant species were identified, and percent cover was visually estimated and recorded. Dominant species included the most abundant species whose cumulative cover accounted for at least 50 percent of the total cover, as well as any species that accounted for at least 20 percent of the total vegetative cover. The wetland indicator status for plant species was determined using the National Wetland Plant List (Lichvar et al., 2016).
- Soil characterization was determined from direct observation of soils between 0 and 18 inches below ground surface.
- Wetland hydrology was determined from direct observation of soil saturation and inundation or other indicators.

Additional soil pits were dug throughout the site to document hydric/nonhydric soil conditions and provide additional detail for wetland boundary mapping. Aquatic resources within the survey area were mapped using a Trimble GeoXH global positioning system with submeter accuracy.

2.2.2 Method for Delineating Waters

Within nontidal waters, in the absence of adjacent wetlands, the extent of USACE jurisdiction is defined by the ordinary high water mark (OHWM). In 33 *Code of Federal Regulations* 328.3, the OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, or the presence of litter and debris" (Environmental Laboratory, 1987). Generally, USACE considers the OHWM to be the elevation to which water flows at a 2-year frequency (for example, 50 years out of 100 years). Typically, OHWM is indicated by the presence of a defined streambed with bank shelving but may also include flow lines; sediment deposition or scour; and mineral staining, salt deposits, or deep or surficial cracking.

Any delineation of nontidal stream boundaries identified is consistent with OHWM Regulatory Guidance Letter No. 05-05 (USACE, 2005). Additionally, *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Arid West Region of the United States* (USACE, 2008) was used.

Within the survey area, OHWM indicators were identified and mapped in the field. OHWM indicators were recorded, and the average width and depth of OHWM channels were documented. Measured field data were compared with aerial photographs to refine and adjust OHWM boundaries. Photographs of the channel are provided in Appendix B as attachments to the wetland delineation report.

2.2.3 Method for Conducting Wetland Functional Assessments

Wetland Functional Assessments were conducted according to the *Washington State Wetland Rating System for Eastern Washington. 2014 Update* (WDOE, 2014). All on site wetlands were rated as "Slope" wetlands according to this methodology.

2.2.4 Method for Evaluating Special Status Species

The USFWS and NMFS species lists were accessed on their websites on March 29, 2018 (USFWS, 2018; NOAA, 2019). The Washington Natural Heritage Program *List of Animal Species with Ranks* (WDNR, 2017) was consulted for state species listings.

A field review of the project site was conducted to determine if potential habitat is present on site to support any of the listed species. The field survey also assessed the site to determine if suitable nesting habitat for birds subject to the Migratory Bird Treaty Act is present within or adjacent to the work area.

3. Results

3.1 Critical Areas

"Critical areas" include the following areas and ecosystems: wetlands; areas with a critical recharging effect on aquifers used for potable water; fish and wildlife habitat conservation areas; frequently flooded areas; and geologically hazardous areas (ECC 15.600).

3.1.1 Wetlands, Waters, and Buffers

A field delineation of the entire survey area identified 2.07 acres of palustrine emergent (PEM) wetlands, and 11,836 linear feet of excavated watercourses constructed for the purpose of agricultural irrigation. A summary of the delineated aquatic resources is presented in Table 1 and in the following sections. The complete wetland delineation report is provided in Appendix B. Three wetlands (2.07 acres) were delineated within the survey area.

Table 1. Delineated Aquatic Resources

Feature ID	Classification (Cowardin et al., 1979)	Latitude/ Longitude	Size (acres)	Size (linear feet)
Wetlands (3)				
Wetland-1	PEM	47.01443°/ -120.5926°	1.44	
Wetland-2	PEM	47.0160°/ -120.5929°	0.26	
Wetland-3	PEM	47.0169°/ -120.5924°	0.37	
	TOTAL Wetlands		**2.07**	
Nonwetland Waters (12)				
Ditch D1	Perennial	47.0164°/ -120.5913°	0.75	2,170
Ditch D2	Intermittent	47.0163°/ -120.5922°	0.07	473
Ditch D3	Intermittent	47.0161°/ -120.5931°	0.12	1,705
Ditch D4	Intermittent	47.0175°/ -120.5918°	0.03	340
Ditch D5	Intermittent	47.0177°/ -120.5894°	0.25	1,096
Ditch D6	Intermittent	47.0191°/ -120.5894°	0.04	760
Ditch D7	Intermittent	47.0189°/ -120.5892°	0.07	1,044
Ditch D8	Intermittent	47.0164°/ -120.5873°	0.07	1,185
Ditch D9	Intermittent	47.0158°/ -120.5878°	0.02	415
Ditch D10	Intermittent	47.01666°/ -120.5896°	0.03	825
Ditch D11	Intermittent	47.0168°/ -120.5920°	0.02	420
Ditch D12 (partially offsite)	Intermittent	47.0140°/ -120.5908°	0.20	1,403
	Total Nonwetland Waters	**Perennial**	**0.75**	**2,170 feet**
		Intermittent	**0.92**	**9,666 feet**

3.1.1.1 Wetlands

Three wetlands (2.07 acres) were delineated within the survey area. Each wetland resource is described in the following subsections and summarized in Table 1. An aquatic resource delineation map (Appendix A; Figure 2) is provided in Appendix A. Site photographs, field datasheets, wetland rating

forms, and a list of plant species observed are provided in Appendix B as attachments to the wetland delineation report. A preliminary determination of potential jurisdictional status is provided in Table 2. In addition to the three delineated wetlands, ten additional areas were investigated as potential wetlands and were determined to not meet wetland criteria. These are identified on the wetland delineation map as possible wetland areas (PW1, PW2, etc.).

Wetland-W1, Palustrine Emergent Wetland (1.44 acres)

Wetland W1 (1.44 acres) is a PEM (Cowardin classification)/Slope (Hydrogeomorphic Classification (HGM)) (USDA-NRCS, 2008). wetland located in the southwestern portion of the survey area. Vegetation is comprised of heavily grazed planted grasses including creeping bentgrass (*Agrostis stolonifera*) (FACW) and Kentucky bluegrass (*Poa pratensis*) (FAC), willow dock (*Rumex salicifolius*) (FACW), celery leaved buttercup (*Ranunculus sceleratus*)(OBL), and common rush (*Juncus effusus*) (FACW). Soils sampled are a very dark gray (10YR 3/1) silty clay from 0 to 8 inches with 5 percent redoximorphic features (5.5YR 4/6). From 8 to 18 inches, soils continue as a very dark grayish-brown (10YR 3/2) clayey silt loam with up to 10 percent redoximorphic features (7.5YR 4/6). Soils within Wetland W1 meets hydric soil indicator F6: Redox Dark Surface. Soil saturation was observed between eight and ten inches.

Adjacent upland areas are dominated by pasture grasses, predominantly Idaho fescue (*Festuca idahoensis*) (FACU) and Kentucky bluegrass (FAC). Soils do not meet the hydric soil indicator for F6 Redox Dark Surface because they do not contain at least 4 inches of redox within the top 12 inches of soil profile. Upland soils were very dark grayish-brown (10YR 3/2) and typically lacking redoximorphic features. Wetland hydrology was not observed at the adjacent upland data points. Soils were not saturated in the upper 18 inches.

Wetland 1 is a Category IV wetland, requiring a 50-foot buffer (wetland rating forms are provided in Appendix B as attachments to the wetland delineation report).

Wetland-W2, Palustrine Emergent Wetland (0.26 acres)

Wetland W2 is a PEM (Cowardin)/Slope (HGM) wetland (0.26 acre) located in the north-central portion of the survey area. Vegetation is dominated and comprised of heavily grazed planted facultative species including creeping bentgrass (FACW), Kentucky bluegrass (FAC), willow dock (FACW), watercress (*Nasturtium officinale*) (OBL), and common rush (FACW). Soils sampled are a very dark gray (10YR 3/1) cobbly silt loam from 0 to 8 inches with no redoximorphic features. From 8 to 18 inches, soils continue as a very dark gray (10YR 3/1) gravelly silty clay with 5 percent redoximorphic features (7.5YR 4/6). Soils within Wetland W2 meets hydric soil indicator F6: Redox Dark Surface. Soils were saturated below six inches.

Adjacent upland areas are dominated by pasture grasses, predominantly Idaho fescue (FACU) and Kentucky bluegrass (FAC). Soils do not meet the hydric soil indicator for F6 Redox Dark Surface because they do not contain at least 4 inches of redox within the top 12 inches of soil profile. Upland soils were very dark grayish-brown (10YR 3/2) with no redoximorphic features typically observed. Wetland hydrology was not observed at the adjacent upland data points. No soil saturation was observed in the upper 18 inches.

Wetland 2 is a Category IV wetland, requiring a 50-foot buffer (wetland rating forms are provided in Appendix B as attachments to the wetland delineation report).

Wetland-W3, Palustrine Emergent Wetland (0.37 acre)

Wetland-W3 is a PEM (Cowardin)/Slope (HGM) wetland (0.37 acre) located in the north-central portion of the survey area. Vegetation is dominated by comprised of heavily grazed planted grasses including creeping bentgrass (FACW) and Kentucky bluegrass (FAC), willow dock (FACW), watercress (OBL), and celery-leaved buttercup (OBL). Soils sampled are a very dark gray (10YR 3/1) cobbly silt loam from 0 to 6 inches with no redoximorphic features. From 6 to 18 inches, soils continue as a very dark gray (10YR 3/1) gravelly silty clay with 5 percent redoximorphic features (7.5YR 4/6). Soils within Wetland W3 meets hydric soil indicator F6: Redox Dark Surface. Soils were saturated at eight inches.

Adjacent upland areas are dominated by pasture grasses, predominantly Idaho fescue (FACU) and Kentucky bluegrass (FAC). Soils do not meet the hydric soil indicator for F6 Redox Dark Surface because they do not contain at least 4 inches of redox within the top 12 inches of soil profile. Upland soils were very dark grayish-brown (10YR 3/2) with no redoximorphic features typically observed. Wetland hydrology was not observed at the adjacent upland data points. No soil saturation was observed in the upper 18 inches.

Wetland 3 is a Category IV wetland, requiring a 50-foot buffer.

Table 2. Wetlands: Preliminary Jurisdictional Determination

Wetland ID	Bordering, Contiguous with, or Neighboring a WOUS[a]	Within 100 feet of the OHWM[b] of a WOUS	Within the 100-Year Floodplain and Within 1,500 Feet of a WOUS	Potential Jurisdiction Notes
Wetland W1	Yes	Yes	No	Likely jurisdictional as it is contiguous with ditch D1, which is presumed jurisdictional
Wetland W2	Yes	Yes	No	Potentially jurisdictional as it is contiguous with ditch D2, which is potentially jurisdictional
Wetland W3	Yes	Yes	No	Potentially jurisdictional as it is contiguous with ditch D4, which is potentially jurisdictional

[a] WOUS – water of the United States

[b] OHWM – ordinary high water mark

3.1.1.2 Nonwetland Waters

A system of excavated irrigation ditches (nonwetland waters) is present on the project site. The field investigation delineated twelve ditches (11,836 lineal feet) within the survey area. A water control structure at the northern end of the site regulates flow into the ditches for irrigation purposes. The ditches also carry flow in response to precipitation events. All ditches show evidence of trampling by livestock.

Each nonwetland water is a constructed watercourse for the purpose of agricultural irrigation and is described in the following subsections and summarized in Table 1. An aquatic resource delineation map (Appendix A: Figure 2) is provided in Appendix A. Site photographs and watercourse or ditch characterization field data forms are provided in Appendix B as attachments to the wetland delineation report. Preliminary determinations of potential jurisdictional status are provided in Table 3.

Ditch D1

Ditch D1 is an excavated ditch that traverses the site from north to south. Clear bed and banks are present. Ditch D1 averages 15 feet across at top of bank. Depth from top of bank to substrate averages 3 to 4 feet. Ditch substrate consists of silty clay with some gravels. The ditch drains to offsite to ditch D12, appearing to eventually reach the Yakima River. Flow was present to a depth of 6 to 8 inches with areas of ponding 1 to 1.5 feet deep. Ponding occurs up and downstream at the locations of two culvert crossings, a ford crossing, and areas of dense vegetation. Flow is assumed to be perennial due to the amount of flow present during the field visit in late October following a dryer than normal summer and no measurable precipitation in the month prior to the field visit.

Ditch D2

Ditch D2 is an excavated ditch that traverses the site east to west. D2 connects ditches D1 and D3. No flow was present in the ditch at the time of the field visit. Direction of flow is not clear, though based on elevation (GoogleEarth Pro, 2018), it appears to convey water east to west, from ditch D1 to ditch D3. Evidence of flow included scour marks and a predominantly unvegetated bottom. Flow is assumed to be

intermittent in response to precipitation events or irrigation. Substrate is silty clay. Clear bed and shallow banks were observed. Ditch D2 averages 6 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Ditch D2 bisects wetland W2. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D3

Ditch D3 generally follows the western boundary of the site, with a short east-west segment at the northern end. The east-west portion of the ditch is lined with concrete which continues a short way into the north-south segment. Ditch D3 is connected to ditch D5 via a culvert that crosses over ditch D1. No flow was present at the time of the field visit; however, direction of flow appears to be to the west from the culvert at ditch D1 and then south along the western site boundary. Substrate is silty clay. Evidence of flow includes scour marks, lack of vegetation, and presence of clear bed and banks. Ditch D3 averages 3 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D4

Ditch D4 traverses the site diagonally from the intersection of ditches D1 and D3 southwest to the northern end of wetland W3. No flow was present at the time of the field visit. Direction of flow appears to be northeast to southwest. Flow from this ditch may provide some hydrological support for wetland W3. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses and watercress. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D4 averages 4 feet across at top of bank and an average 0.75 feet from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D5

Ditch D5 traverses the site east to west, beginning at the eastern site boundary and flowing due west to its connection with ditch D3 via a culvert over ditch. At the eastern end ditch D5 is connected with ditch D7 from the north and ditch D8 to the south. Ditch D5 consists of two parallel channels separated by a low vegetated berm. No flow was observed at the time of the field visit, however shallow standing water was present in places. Direction of flow appears to be east to west. Evidence of flow includes scour mark, lack of vegetation, and presence of clear bed and banks in both channels. The substrate consists of silty clay. Including both channels ditch D5 averages 10 feet across at top of bank with the center berm 2 to 3 feet wide. Channel depth averages 1.5 feet from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D6

Ditch D6 traverses the site from southeast to northwest along the northern site boundary. No flow was present at the time of the field visit. Evidence of flow includes scour marks, lack of vegetation, and presence of clear bed and shallow banks. Direction of flow appears to be southwest to northeast with ditch D6 draining into the northernmost segment of ditch D1. No surface connection was observed between ditch D6 and ditch D7 immediately southeast of D6. Ditch D6 averages 2.5 feet across at top of bank. Channel depth averages 0.5 feet. Substrate is silty clay. Adjacent vegetation consists of pasture grasses to the southwest and a thicket of shrubs with some trees offsite to the northeast.

Ditch D7

Ditch D7 traverses the site from northwest to southeast. No flow was present at the time of the field investigation. The western portion of ditch D7 runs parallel to and a short distance away from ditch D6. Evidence of flow includes scour marks and presence of bed and shallow banks. The channel is mostly devoid of vegetation. This segment of ditch D7 averages 3 feet across at top of bank and 0.5 feet from top of bank to substrate. Substrate is silty clay. Flow in this segment appears to be southeast to northwest, originating at a water control structure that connects the western and eastern segments of ditch D7. Adjacent upland vegetation is planted pasture grasses.

The eastern segment of ditch D7 originates at the water control structure and appears to flow northwest to southeast. This segment of the channel is lined in concrete and averages 3 feet across at top of bank and 1.25 feet from top of bank to substrate. Adjacent upland vegetation consists of pasture grasses to the southwest and unmaintained grasses and forbs offsite to the northeast.

Ditch D8

Ditch D8 traverses the site from north to south along the eastern boundary of the site. Ditch D8 is a continuation of ditch D7 south of its intersection with ditch D5. No flow was present at the time of the field investigation, however shallow standing water was observed in some places. Direction of flow appears to be north to south. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses and watercress. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D8 averages 2.5 feet across at top of bank and an average 0.75 feet from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D9

Ditch D9 extends diagonally from ditch D8 to the southwest site. No flow was present at the time of the field investigation. Direction of flow appears to be northeast to southwest. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D9 averages 2 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Adjacent upland vegetation is planted pasture grasses.

Ditch D10

Ditch D10 extends due south from ditch D5. No flow was present at the time of the field investigation. Direction of flow appears to be north to south. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D10 averages 1.5 feet across at top of bank and an average 0.3 feet from top of bank to substrate. Adjacent upland vegetation is planted pasture grasses.

Ditch D11

Ditch D11 extends slightly northwest to southeast from ditch D4 to ditch D2. No flow was present at the time of the field investigation. Direction of flow appears to be north to south. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses and occasional rushes. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D11 averages 2 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Adjacent upland vegetation is planted pasture grasses.

Ditch D12

Ditch D12 is located just south of and parallel to the southern boundary of the site. Description of this ditch is based on offsite observation. Ditch D12 averages 6 to 8 feet across at top of bank and is an average 2 feet from top of bank to substrate. The ditch begins approximately 300 feet east of Old Highway 10 and flows east to the eastern end of the project site boundary, then turns south where is continues for an indeterminant distance. Flow was present in the ditch at the time of the field visit.

Table 3. Nonwetland Waters: Preliminary Jurisdictional Determinations

Nonwetland Waters #	Length (ft)	Average Width (ft)	Flow Regime	OHWM?	Relocates or Excavated in a Tributary?	Drains Wetlands?	Intersects a Regulated Feature?	Flows to WOUS[a]?	Potential Jurisdiction Notes
D1	2170.0	15	perennial	Yes	No	unknown	Yes	No	Likely jurisdictional due to perennial flow
D2	473.0	6	intermittent	Yes	No	unknown	Yes	No	Potentially jurisdictional as it intersects Wetland W2
D3	1705.0	3	intermittent	Yes	No	unknown	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D4	340.0	4	intermittent	Yes	No	No	Yes	No	Potentially jurisdictional as it intersects Wetland W3
D5	1096.0	10	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D6	760.0	2.5	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D7	1044.0	3	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D8	1185.0	2.5	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D9	415.0	2	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D10	825.0	1.5	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D11	420.0	2	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D12 (partially offsite)	1,427	6	intermittent	Yes	No	No	Yes	Unknown	Likely jurisdictional as it intersects and drains Ditch D1 and is adjacent to wetland W1

3.1.2 Critical Aquifer Recharge Areas

According to the Kittitas County Critical Aquifer Recharge Area Map the project site is located within an area identified as a high aquifer susceptibility area (Kittitas County, 2014c) (Appendix A: Figure 3). However, according to the city of Ellensburg Draft Critical Areas Revisions (15.660.030) the city does not believe there are any critical aquifer recharge areas within the city limits relating to public drinking supplies.

3.1.3 Fish and Wildlife Habitat Conservations Areas

According to ECC 15.650.010 fish and wildlife habitat conservation area includes seven categories or definitions. The categories are defined below with a description of observed onsite habitat within the Project area relative to each category.

> *1. Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association.*

Habitat present on site includes managed pasture and emergent wetlands. The site is entirely comprised of managed pasture. A total of 2.07 acres of emergent wetland is present in three locations. The site is bisected by a series of interconnecting irrigation ditches. All habitat on site is degraded from activities associated with historic agricultural use of the site and is unlikely to provide suitable habitat for any state or federally designated endangered, threatened, or sensitive terrestrial or aquatic species. A list of potentially occurring state or federal listed species is provided in Table 4.

> *2. State priority habitats and areas associated with state priority species. Priority habitats and species are considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element. Priority habitats and species are identified by the State Department of Fish and Wildlife.*

WDFW identifies one priority habitat on the project site (WDFW, 2018) (Appendix A: Figure 4). WDFW identifies wetlands in the southwestern portion of the site. The WDFW-mapped wetland roughly corresponds with the delineated wetland W1 described in section 3.1.1.1 above. No other state priority habitats or state priority species are identified. No Fish and Wildlife Habitat Conservation areas are identified within or immediately adjacent to the study area (Appendix A: Figures 5a and 5b).

> *3. Naturally occurring ponds under 20 acres. Naturally occurring ponds are those ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds.*

No ponds are present on the project site.

> 4*. Waters of the state. Waters of the state include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington, as classified in WAC 222-16-031 (or WAC 222-16-030 depending on classification used).*

Seven potentially jurisdictional waters of the state are present on the project site. They include three wetlands (wetlands W1, W2, and W3) and four ditches (ditches D1, D2, D4, and D12) with hydrological connections to other potentially jurisdictional features. Waters of the state are described in Section 3.1.1 above.

> 5. *Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.*

No lakes, streams, or rivers are present within the project boundaries.

> *6. State natural area preserves and natural resource conservation areas. Natural area preserves and natural resource conservation areas are defined, established, and managed by the Washington State Department of Natural Resources.*

No state natural area preserves or natural resource conservation areas (NRCA) are identified with Kittitas County. (Appendix A: Figure 6) (WDNR, 2019a; WDNR 2019b). Natural Area Preserves protect the best

remaining examples of many ecological communities including rare plant and animal habitat. The preserve system presently includes more than 38,290 acres in 56 sites throughout the state. Natural Resource Conservation Areas (NRCAs) protect outstanding examples of native ecosystems, habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes. More than 118,700 acres are conserved in 36 Washington state NRCAs.

> 7. *Areas of rare plant species and high-quality ecosystems as identified by the Washington State Department of Natural Resources through the Natural Heritage Program.*

No rare plant species element occurrences or high quality ecosystems are mapped on or in the vicinity of the project site (Appendix A: Figures 7a and 7b) (WDNR, 2019c). The field survey identified no suitable habitat to support rare plant species.

3.1.3.1 Federal Species and Protected Habitat

Results of the USFWS database searches identified six special-status species as having the potential to occur on or adjacent to the project site (USFWS, 2018). No designated or proposed critical habitat (USFWS, 2018a) was identified within the survey area. A list of the potentially occurring special-status species is presented in in Table 4.

Table 4. Special-status Species Potentially Occurring in Kittitas County

Common Name	Scientific Name	Federal Status[a]	Ciritical Habitat Identified[a]	State Status[b]	Potential Suitable Habitat Present on Site
Mammals					
Canada lynx	*Lynx canadensis*	T	No	E	No
Gray wolf	*Canis lupus*	E	No	E	No
North American Wolverine	*Gulo gulo luscus*	PT	No	C	No
Birds					
Marbeled murrelet	*Brachyramphus marmoratus*	T	No	E	No
Yellow-billed cuckoo	*Coccyzus americanus*	T	No	C	No
Fishes					
Bull trout	*Salvelinus confluentus*	T	No	C	No

[a] Source: USFWS, 2018
E = Endangered
T = Threatened
PT = Proposed Threatened
[b] WNHP, 2017
E = Endangered
C = Candidate

A field review of the project site was conducted on October 25 and 26, 2018, by Peggy O'Neill, senior Jacobs biologist. No federally listed special-status species were observed during the field evaluation. No suitable habitat to support any listed species was observed on site. Given species habitat and range requirements, and existing habitat observed onsite, suitable nesting habitat for birds subject to the Migratory Bird Treaty Act is present within and adjacent to the work area.

3.1.3.2 State Species and Protected Habitat

No state listed endangered species are identified as occurring on or in the vicinity of the project site (WDFW, 2019) (Appendix A: Figure 4). No state listed special-status species were observed during the field evaluation. No suitable habitat to support any listed species was observed on site.

3.1.4 Frequently Flooded Areas

The project site is located on FEMA Flood Insurance Rate Map (FIRM) No. 5300950439B, which was revised to reflect a Letter of Map Revision (LOMR) effective August 17, 2018 (Appendix A: Figure 8). Within the boundaries of Parcel No. 611033, there are three zones delineated on the FIRM: the first zone includes two ditches, D1 and D12, which are delineated as Zone A1, while the second zone is delineated as Zone B and represents an area immediately surrounding Zone A1. The third zone delineated is Zone C, which represents the area between the D1 and Reecer Creek. Zone A1 is defined as an area of the 100-year flood, and base flood elevations and flood hazard factors have been determined, while the second zone, Zone B, is defined as an area between the limits of the 100-year flood and the 500-year flood. Zone C is defined as an area of minimal flooding. Per Kittitas County Code (KCC) 14.08.020, Zone A1 is considered a special flood hazard area (SFHA), while Zone B and Zone C are not.

3.1.5 Geologically Hazardous Areas

The project site is not located in an identified geologically hazardous area (Kittitas County, 2014a).

3.2 Statement of Accuracy

Information presented in this report is accurate to the best of my knowledge and represents the expertise and best professional judgement of the preparers

3.3 Cumulative Impacts Analysis

This analysis addresses actions in the recent past, the present, and the reasonably foreseeable future that could combine with the proposed action to cause a measurable impact. If measurable cumulative effects are identified, then and evaluation of whether those effects would be significant is made. The geographic resources study area is the Currier Creek sub-basin (HUC 170300010510) of the Upper Yakima watershed unit (Hydrologic Unit Code 17030001).

Actions in the recent past in the vicinity of the proposed project include the following:

- Road construction: Interstate 90, Washington Highway 97, Old Highway 10, West University Way
- Agricultural activities including tilling, planting, and long-term grazing
- Construction of a network of irrigation canals
- Commercial development: light industrial, hotels, restaurants, service station, etc.
- Residential development
- Gravel quarry

Reasonably foreseeable future actions in the vicinity of the proposed project include the following:

- Planned residential developments north, east, and northeast of the site
- Commercial and light industrial development on US 97
- Construction of connector roads

3.3.1 Wetlands, Waters, and Buffers

Wetlands, waters, and their buffers contribute critical functions to watershed health, including water quality improvement, filtration, flood attenuation, groundwater recharge and discharge, and fish and wildlife habitats. Impacts to wetlands, waters, and buffers have occurred as a result of human activities over the past century and half associated with the arrival of euro-American settlers. Agricultural practices including tilling, draining through tiles or channels, or by removing the wetland vegetation and planting

upland vegetation have resulted in loss or degradation of wetland habitat. Livestock grazing in streams and wetlands has affected the physical structure of wetlands. Diversion of water for agricultural use has resulted in less available water to support wetlands. Soil disruption from tilling and grazing has resulted in downstream transport of sediment. Fragmentation of wetland habitat has also occurred as a result of road construction, residential and commercial development, resulting in a reduction of total area of wetlands and elimination of connections between wetlands and other habitats (Sheldon, et al., 2005).

Wetlands, waters, and their buffers identified on the Project site are considered highly degraded as a result of long-term agricultural use. Impacts include site modifications associated predominantly with agricultural use including removal of natural historically occurring vegetation, planting with agricultural crops, use of the site for grazing, construction of an interconnecting network of ditches for draining and/or irrigation purposes, and fill and relocation of an historical stream channel that meandered through the site. Other activities that have impacted the natural resources include construction of roads west and north of the site (state highway 97 and Old Highway 10), and construction of a rail line north of the site (Burlington Northern railroad), effectively disconnecting the resources from their historic counterparts.

The proposed Project will avoid all impacts to onsite wetlands and to nearly all of the wetland buffers. Implementation of the Project would have no direct adverse effects on wetlands during construction and operation of the Project, as the Project has been designed to avoid impacts to all wetlands identified on site. As a result of the project, direct buffer impacts would occur (12,836 square feet (0.29 acres); approximately 15 percent of the wetland W1 buffer). Project impacts to the wetland W1 buffer are self-mitigating, in that mitigation for impacts to this buffer will be performed on-site as replacement of the functions and values by delineating, protecting, and enhancing in an equal amount (1:1) of buffer immediately adjacent to and contiguous with the existing buffer. (Figure 9a). Direct ditch impacts would occur to (3,767 linear feet (1.05 acres) as a result of the project. Project impacts to potentially jurisdictional ditches are self-mitigating, in that mitigation for impacts to these ditches will be performed on-site as replacement of the functions and values and flow volumes in part at 1:0.6 in the creation of a 2,364-foot diversion ditch with additional compensation provided through enhancement planting along the length of the new ditch providing significant functional uplift compared to the existing highly degraded ditches. Therefore, there would be no net loss of either wetlands, waters, or wetland buffers as a result of the Project.

Wetlands on the Project site are highly degraded from past and current agricultural use. As a result of the Project, agricultural use of the wetlands will cease and the wetlands will be protected from further degradation and from activities associated with the proposed adjacent developments. Therefore, based on the proposed mitigation activities, implementation of Project in combination with the cumulative projects would generate no cumulative impacts on wetlands, waters, or buffers.

3.3.2 Fish and Wildlife Habitat Conservations Areas

The WDFW and the Washington State Department of Natural Resource's Natural Heritage Program (WNHP) compile and map fish and wildlife habitats throughout the state. Priority habitats are habitat types or elements with unique or significant value to a large number of species. A Priority Habitat may consist of a unique vegetation type (such as shrub-steppe), dominant plant species (such as juniper savannah), or a specific habitat feature (such as cliffs). WDFW identifies freshwater wetlands as a Priority Habitat.

Historical impacts to fish and wildlife habitat have occurred as a result of human activities and alterations over the past century and half associated with the arrival of euro-American settlers in the region. Habitat loss has occurred through conversion, fragmentation, or the increase in isolation and decrease in the size of habitat areas, and degradation of natural habitats (Kittitas County, 2014d). Habitat conversion, fragmentation, and degradation have resulted in the loss of more than half of the highest priority functioning habitats in Washington state. Invasive alien plant and animal species area displacing native species, profoundly altering natural systems. Other impacts to fish and wildlife and their habitat have resulted from introduction of disease and pathogens and reduction and degradation of natural water sources (Sheldon, et al., 2005).

WDFW identifies a wetland area in the southwestern portion of the site as a priority habitat. Two other wetland areas were identified on site part of a wetland delineation conducted for the Project and would also be considered priority habitats. All three wetlands are highly degraded as a result of grazing activities. The wetlands have been impacted by removal of native vegetation and planting with non-native pasture grasses. Vegetation and soils have been trampled and compacted by grazing cattle. Hydrology has been altered by construction of irrigation ditches through and/or adjacent to the wetlands.

The proposed Project area provides negligible habitat value for wildlife and will avoid all impacts to the wetlands on the site. Therefore, the Project would result in no net loss of wetland habitat and overall loss of potential wildlife habitat would be negligible.

Therefore, implementation of the Project in combination with the cumulative projects would generate no cumulative impacts on fish and wildlife habitat or species.

3.3.3 Frequently Flooded Areas

The Proposed Action would not adversely affect the functions and values of the 100-year floodplain in the long term. The proposed project diverts D1 ditch around the perimeter of the site and fill will be placed within the existing regulatory SFHA as part of the proposed design. Ditch D12 is directly downstream and receives the majority of its flow from ditch D1. Flow to D12 will be rerouted as a result of the diversion of ditch D1. Compensatory storage mitigation will be provided for both ditches in the diversion ditch. The compensatory storage mitigation will provide equal or greater conveyance and floodplain storage volume to offset any impacts due to the diversion of ditches D1 and D12. Structures that may be located in the regulatory SFHA will have a lowest floor elevated to 1 foot or more above base flood elevation to meet local floodplain regulations. The proposed project will be designed to comply with federal and local floodplain regulations.

The current conceptual design includes a limited amount of fill within a SFHA with the proposed Project design diverting and building over most of ditch D1. Ditch D12 would be filled in conjunction with the county-required construction of a collector road along the southern site boundary. The floodplain function of both ditches would be maintained by relocating ditch D1 approximately 1,000 feet to the east to follow the eastern perimeter of the site. The relocated ditch would divert flow from ditches D1 and D12 and rejoin the existing downstream ditch at the southeastern corner of the site.

A floodplain and hydraulic analysis was conducted for the project that analyzed the conveyance through D1 and approximated the volume of proposed fill in the SFHA (Jacobs, 2019). The analysis concluded that flow through ditch D1 on the site has a 100-year peak discharge of approximately 16 cfs, and up- and downstream channel cross-sectional area of approximately 10.3 square feet. The proposed mitigation is providing compensatory storage mitigation in the form of a perimeter ditch (Figure 9b). The perimeter ditch will rejoin the downstream ditch at the southeastern corner of the site. The compensatory storage mitigation will provide equal or greater conveyance and storage volume to offset any impacts due to proposed fill in the floodplain.

Therefore, implementation of the Project in combination with mitigation measures (relocation of ditches with equal water storage and capacity), and the adjacent proposed projects which would be required under Ellensburg City Code to provide similar mitigation for floodplain impacts would generate no cumulative impacts to frequently flooded areas.

4. Mitigation Sequencing

4.1 Avoidance

The applicant shall avoid all impacts that degrade the functions and values of a critical area or areas when possible. Unless otherwise provided in this chapter, if alteration to the critical area is unavoidable, all adverse impacts to or from critical areas and buffers resulting from a development proposal or alteration shall be mitigated using the best available science in accordance with an approved critical area report and SEPA documents, so as to result in no net loss of critical area functions and values.

The project was designed to avoid impacts to wetlands and waters and their buffers to the maximum extent possible and still meet the project objectives. Impacts to Wetlands W1, W2, and W3 are entirely avoided. All onsite Project facilities were located to avoid impacts to all wetlands and their buffers. Prior to these adjustments, the construction of a City-required collector road along the southern site boundary would have directly impacted a portion of wetland W1. However, the Project has reached an agreement with the owner of the Triple L property south of the project site to purchase a portion of the property in order to locate the road outside of the wetland, thus avoiding wetland impacts.

4.2 Minimization

Minimize impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts.

Impacts to wetland buffers have been minimized to the maximum extent possible. The project avoids all impacts to the Wetland W2 and W3 buffers. The project will permanently impact 12,836 square feet (0.29 acre) (approximately 15 percent of the Wetland W1 buffer) as a result of City-required collector road. As noted above the Project will purchase a portion of an adjacent parcel to avoids impacts to the wetland W1. Impact to the wetland W1 buffer were minimized by locating the road as far south as practicable.

In addition, during construction all appropriate best management practices (BMPs) will be implemented including, but not limited to erosion control BMPs required by the City Code and the *Stormwater Management Manual for Eastern Washington* (Ecology, 2019). The BMPs include use of mulch, silt barriers, containment systems, interim stormwater controls, cover measures (straw or plastic), and stream bypasses, as well as reseeding of areas temporarily disturbed by construction.

During construction, BMPs for project impacts to air quality, odor, and GHG emissions could include, but would not be limited to the following:

- Spraying water, when necessary, during construction operations to reduce emissions of fugitive dust.
- Covering dirt, gravel, and debris piles as needed to reduce fugitive dust and wind-blown debris.
- Covering open-bodied trucks, wetting materials in trucks, or providing adequate freeboard (space from the top of the material to the top of the truck) to reduce fugitive dust emissions.
- Turning off construction equipment when not in use to minimize idling and reduce GHG emissions.
- Replanting all vegetation temporarily disturbed by construction activities with native vegetation within 1 year or growing season after construction was complete.

4.3 Mitigation

Mitigation for impacts to critical areas, including floodplains, wetlands and their buffers is required according to Ellensburg City Code (ECC 15.610.060). According to the code, buffer width may be reduced provided the applicant mitigates for the proposed buffer to result in no net loss of buffer functions per best available science.

Compensatory mitigation for impacts to waters of the U.S. is required under the Clean Water Act. EPA's Section 404 rules allow compensatory mitigation to be carried out by one of four methods: 1) the restoration of a previously-existing wetland or other aquatic site, 2) the enhancement of an existing aquatic site's functions, 3), the establishment (i.e., creation) of a new aquatic site, or 4) the preservation of an existing aquatic site (EPA, 2008).

Mitigation for impacts to the floodplain is required under Kittitas County Code (KCC). According to KCC 14.08.315, filling, grading, or other activity that reduces storage in the floodplain is allowable, granted effective floodplain compensatory storage volume (herein referred to as compensatory storage) is preserved and there are no up- or downstream floodplain impacts.

4.3.1 Wetland Buffer

The project will result in permanent impacts to 12,836 square feet (0.29 acre) of the wetland W1 buffer. Mitigation for loss of 12,836 square feet (0.29 acre) of buffer will be accomplished through buffer averaging, that is, by delineating, protecting, and enhancing an equal amount of buffer adjacent to the existing wetlands W1 buffer at a 1:1 ratio (Figure 9a). Table 5 provides a summary of the wetland buffer impacts and proposes mitigation.

Table 5. Summary of Wetland Buffer Impacts and Proposed Mitigation

ID	Impact Area (sf)	Impact Area (acres)	Replacement Ratio	Mitigation Area (acres)
W1 Buffer	12,836	0.29	1:1	0.29
Totals	**12,836**	**0.29**		**0.29**

4.3.2 Nonwetland Waters

The project would result in permanent impacts to 3,767 linear feet of nonwetland waters. Table 6 identifies impacts to all or portions of four potentially jurisdictional ditches associated with the project – ditches D1, D2, D4, and D12, and proposed mitigation.

Table 6. Summary of Impacts to Nonwetland Waters and Proposed Mitigation

ID	Length (ft)	Area (acres)	Mitigation
D1	2,000	0.7	Function replacement with 2,364 linear feet of new perimeter ditch with enhancement plantings along the length of the new ditch.
D2	288	0.04	
D4	76	0.01	
D12 (partially offsite)	1,427	0.2	
Totals	**3,767**	**0.95**	

The proposed project diverts D1 ditch around the perimeter of the site and fill will be placed within the existing ditch D1 as part of the proposed design. The Project will also fill portions of ditched D2 and D4 as a result of the proposed Project design and all of ditch D12 as a result of the City-required collector road along the southern site boundary. Project impacts to potentially jurisdictional ditches are self-mitigating, in that mitigation for impacts to these ditches will be performed on-site as replacement of the functions and values in part at 1:0.6 in the 2,364 linear foot created diversion ditch. Additional compensation will be provided through enhancement plantings along the length of the new ditch, thereby providing significant functional enhancement compared with the existing highly degraded ditches. (This proposed mitigation for impacts to nonwetland waters will be further developed and refined in coordination with the Corps during preparation of the Section 404 permit application). As such, the compensatory mitigation will offset any impacts due to the diversion of D1 ditch and fill of ditches D2, D4, and D12.

4.3.3 Frequently Flooded Areas

Ditches D1 and D12 are coincident with the 100-year floodplain. The proposed Project diverts flow from ditches D1 and D12 into a proposed new ditch to be constructed around the northern and eastern perimeter of the site (Figure 9b). Fill will be placed within the existing regulatory SFHA (ditches D1 and D12) as part of the proposed design. The compensatory storage mitigation provided by the diversion ditch will provide equal or greater conveyance and floodplain storage volume to offset any impacts due to the fill of ditches D1 and D12.

Table 7. Summary of Impacts to 100-Year Floodplain and Proposed Mitigation

ID	Length (ft)	Width (ft)	Area (acres)	Depth (ft)	Volume at OHWM (cy)	Mitigation	Mitigation Ditch Volume (CY)
D1	2000	15	0.7	varies	770	1:1 volume replacement with perimeter ditch	
D12 (partially offsite)	1,427	6	0.2	varies	295		
Totals	**3,767**		**0.95**		**1,105**		**1,065**

The compensatory storage requirement is to ensure that flow attenuation remains the same during a base flood event, thus mitigating any downstream floodplain impacts. By examining the length of the existing ditches D1 and D12 and the proposed diversion ditch as well as their respective cross-sectional areas, Jacobs can approximate the net change to compensatory storage.

The length of D1 ditch impacted by the diversion is approximately 2,000 feet. Using the average cross-sectional area of the ditch (10.36 square feet), the approximate amount of compensatory storage lost is 770 cubic yards. The length of D12 ditch is about 1,000 linear feet; cross sectional area of the 100-year flow is about 10 square feet to the east and tapers down to 5 square feet to the west (near the intersection with D1). Therefore, the average volume of the 100-year floodplain in D12 is approximately 295 cubic yards. The combined amount of compensatory storage lost for both ditches D1 and D12 is approximately 1,065 cubic yards.

Comparatively, the length of the diversion ditch is approximately 2,364 linear feet and with a cross-sectional area of 12.50 square feet, the compensatory storage volume added is approximately 1,060 cubic yards. Modifications to dimensions of the diversion ditch during project design will ensure that the compensatory storage mitigation meets or exceeds the volume lost. The proposed diversion ditch will maintain hydraulic connectivity of the floodplain up- and downstream of the site. Because the proposed design is expected to provide the same or greater conveyance and compensatory storage, no up- or downstream impacts to base flood elevations are expected as a result of this project.

5. Proposed Mitigation

5.1 Environmental Goals and Objectives

The goal of the proposed mitigation is for the project to be self-mitigating by replacing lost functions of waters of the state/U.S., the 100-year floodplain, and wetland buffers that will be permanently impacted as a result of Project activities. Objectives of the mitigation area as follows:

- Mitigate for impacts to presumed jurisdictional ditches D1, D2, D4, and D12 by diverting flow from the existing ditch D1 into a newly excavated ditch that will follow the northern and eastern perimeter of the site, reconnecting with the existing drainage at the southeast corner of the site, and provide upgraded function with enhancement plantings along the length of the ditch.
- Mitigate for impacts to the 100-year floodplain (ditches D1 and D12) by diverting flow into the newly excavated ditch that will follow the northern and eastern perimeter of the site, reconnecting with the existing drainage at the southeast corner of the site.
- Mitigate for impacts to 12,836 square feet of the buffer to wetland W1 through buffer averaging and enhancement with an area equal to the impact area immediately adjacent to the existing buffer.

5.2 Performance Standards

The proposed mitigation for impacts to the ditches and wetland buffer are is designed to provide replacement of lost functions and values of these features associated with project activities. Performance standards are as follows:

- 1:0.6 replacement of 3,767 linear feet of ditches D1, D2, D4, and D12, through construction of 2,364 linear feet of a new ditch along the northern and eastern perimeter of the site and establishment of riparian enhancement plantings along the length of the new ditch.
- 1:1 replacement or better of 1,105 cubic yards of flow volume in ditches D1, and D12 through construction of the new ditch along the northern and eastern perimeter of the site with a flow volume capacity to meet or exceed the total impacted flow volume.
- 1:1 replacement of 12,836 square feet (0.29 acre) of impacted wetland W1 buffer through buffer averaging.

5.3 Detailed Construction Plans

5.3.1 Construction Methods

5.3.1.1 Construction Sequence, Timing, and Duration

Construction of the Kittitas County Transfer Station at US 97 is planned to commence in 2021 and be completed with facilities operational in 2022. The existing Kittitas County Transfer Station at 1001 Industrial Way would maintain operations during construction of the new transfer station until the relocated transfer station is operational.

The general construction activities consist of:

- Begin grading activities and prepare the site for construction. April 2021
- Prepare the stormwater and draining facilities. June – August 2021
- Pave the impervious surfaces. October - November 2021
- Construct the buildings. July - December 2021
- Obtain an Operating Permit. January 2022

The Public Works Maintenance Facility will continue to operate at 505 W 14th Street, Ellensburg until generation construction activities are planned as follows:

- Begin grading activities and prepare the site for construction — March 2023
- Prepare the stormwater and drainage facilities — May - July 2023
- Pave the impervious surfaces — August - October 2023
- Construct the buildings — November - April 2023
- Begin operations — May 2024

5.3.1.2 Grading and Excavation Specifications

Of the 50-acre parcel, the conceptual design covers approximately 23-acre area of impervious surface with 5,000 feet of roadway, 851,000 square feet of stormwater ponds, and 12 stand-alone buildings. The Transfer Building will require structural fill 15 feet above surface ground level. The Maintenance Facility will require approximately 450 cubic yards of excavation for building footings and foundations and 130,000 ft^2 of site fine grading to achieve paving for building, parking lots, ancillary structures, and site drainage. The stormwater infrastructure includes excavated stormwater catchment ponds, drainage channels, and a relocated floodplain ditch.

5.3.1.3 Erosion and Sediment Control Specifications

Best Management Practices would be implemented to minimize erosion. Construction would comply with applicable temporary erosion and sedimentation control provisions of the Ellensburg City Code, an NPDES Construction Stormwater General Permit Surface Water Pollution Prevention Plan, and the Stormwater Management Manual for Eastern Washington.

5.3.2 Planting Plan

Areas of temporary disturbance associated with construction of the perimeter ditch will be seeded immediately following construction with an appropriate seed mix.

5.4 Mitigation Monitoring Plan

5.4.1 Monitoring Plan

No long term monitoring is proposed. Project actions are self-mitigating.

5.4.2 Cost Estimate

Ditch excavation, which includes all work associated with excavation (such as compaction, stockpiling, and disposal) is $36/cubic yards for quantities over 200 cubic yards. The proposed diversion ditch will be approximately 1,100 cubic yards, so cost for excavation would be approximately $40,000. In addition, potential soil amendments may include tilling 3 inches of compost into existing soils to promote plant growth. The perimeter of the ditch is about 11.2 feet and the length is 2,300 linear feet, so a 3-inch-thick layer is about 240 cubic yards of compost. At $66/cubic yards, that would be an additional $16,000, including seeding. Total estimate cost is approximately $56,000 for labor and materials, as shown in Table 8.

Table 8. Summary of Mitigation Cost Estimate

Task	Length (ft)	Width (ft)	Depth (ft)	Volume (cy)	Approximate Cost ($ per cy)[c]	Total Cost ($ per cy)
Ditch Excavation[a]				1,100	36	39,600
Soil Amendment[b]	2,300	11.2	0.25	239	66	15,742
Total						$55,342

[a] Includes excavation, compaction, stockpiling, disposal, and other associated work.

[b] Includes tilling, soil amendments, seeding, etc.

[c] Includes cost of labor.

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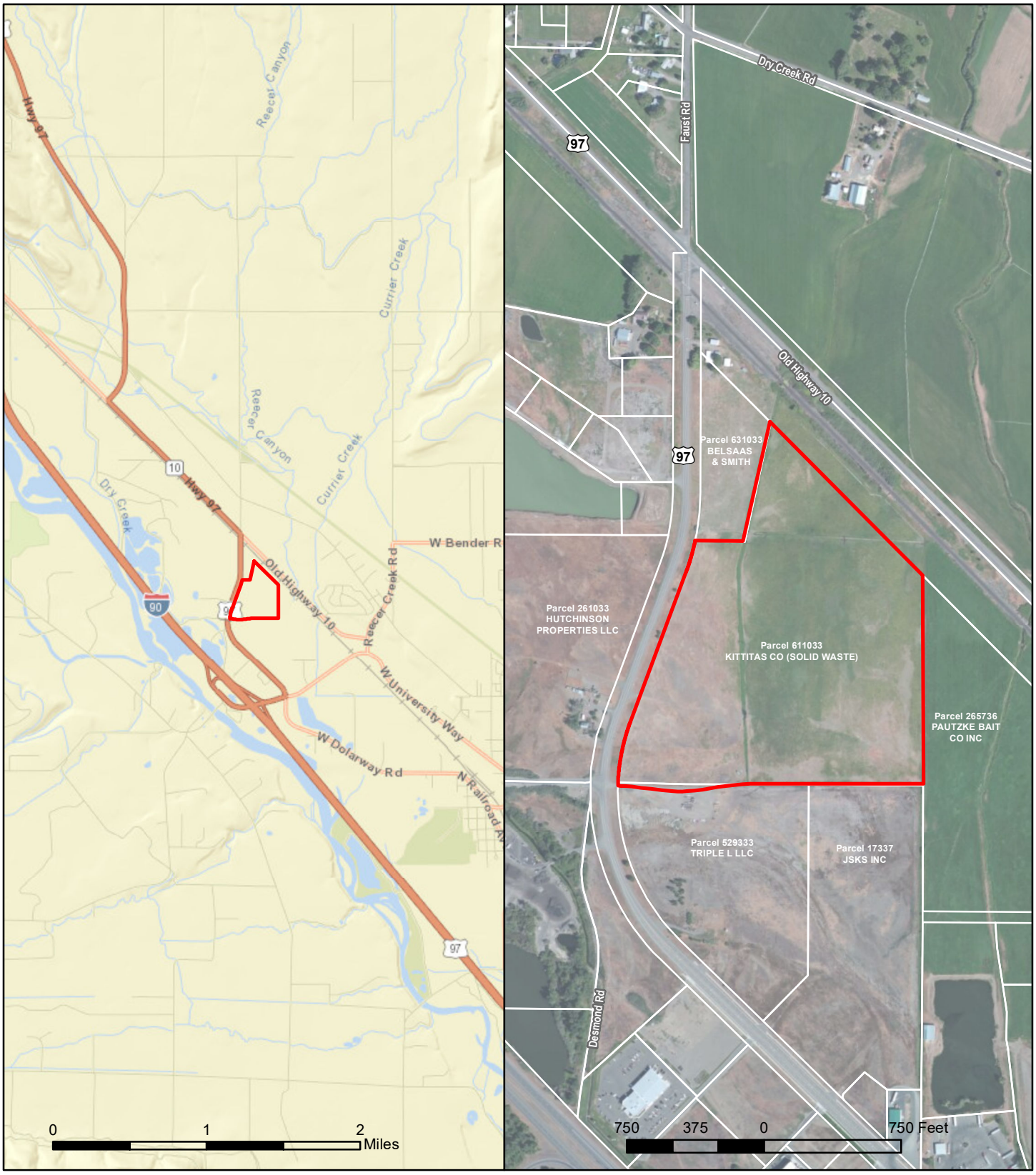
Appendix A
Figures



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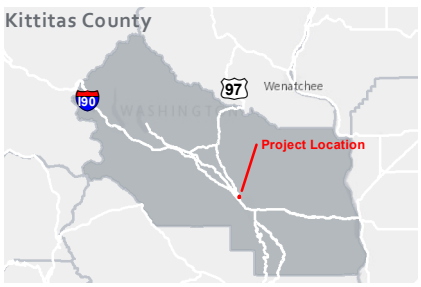

Legend

Site Boundary

Figure 1
Kittitas County Transfer Station and Maintenance Facility Relocation Project
SITE LOCATION

JACOBS

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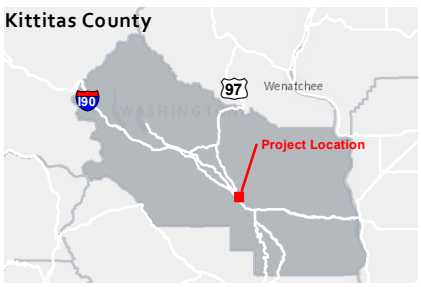
Locator Map



Legend

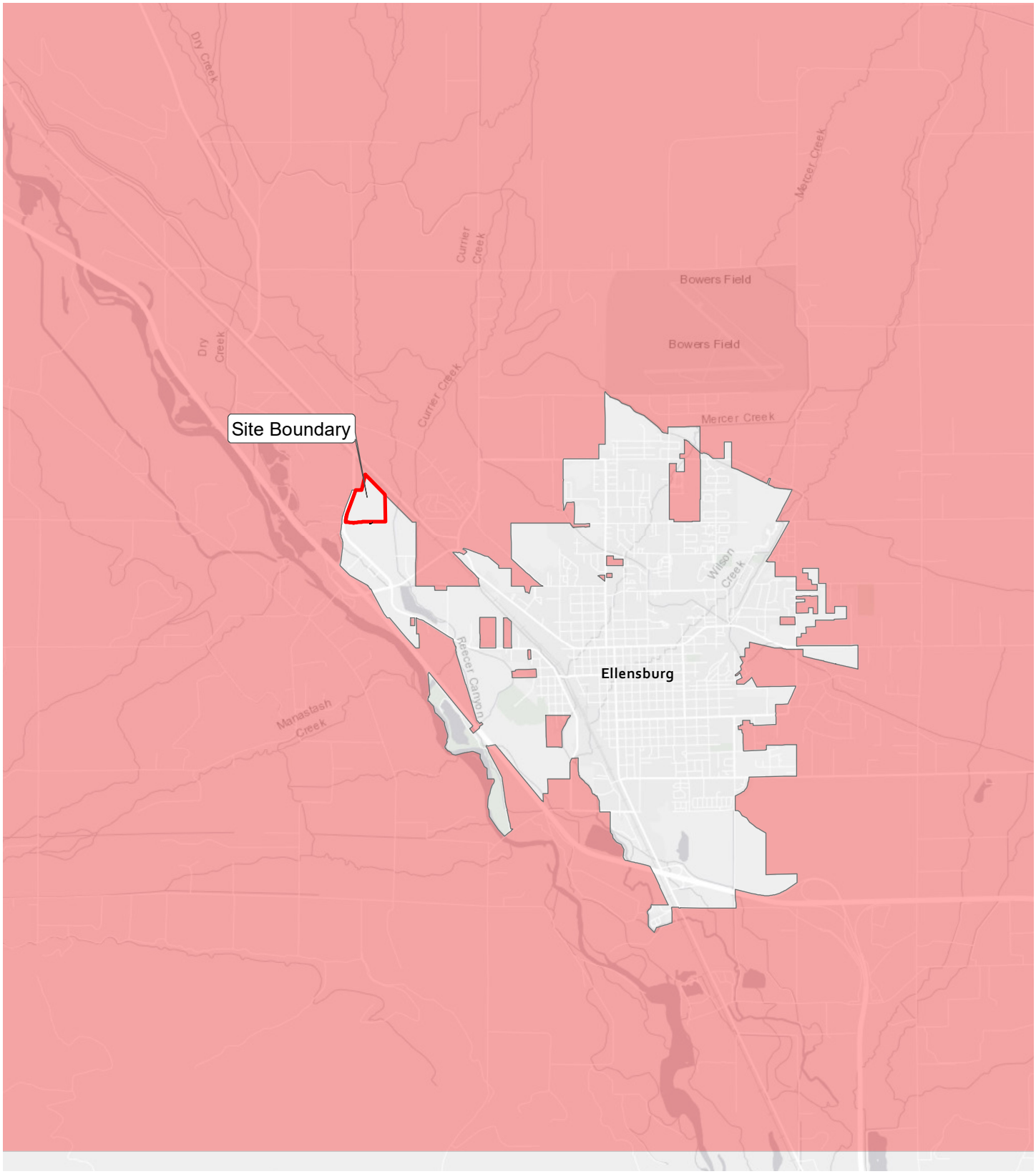
- Culvert
- Water Control Structure
- Ditch
- 50 ft buffer
- Wetland
- Site Boundary
- Study Area Boundary
- FEMA 100 yr Floodplain

0 250 500 Feet

Figure 2
Kittitas County Transfer Station and Maintenance Facility Relocation Project
WETLAND OVERVIEW

JACOBS

Document Path: \\brooksidefiles\GIS_SHARE\ENBG\oo_Proj\K\Kittitas_County_WA\Maps\Report\14_Wetland_Overview_SEPA.mxd



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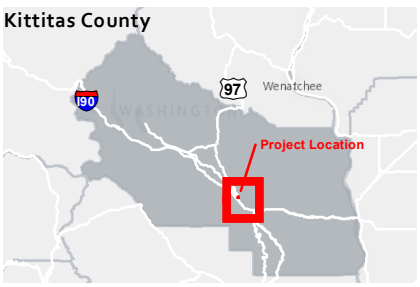

Legend

- Aquifer Susceptibility - High
- Site Boundary
- City Boundaries

0 0.25 0.5 1 1.5 2 Miles

Figure 3
Kittitas County Transfer Station and Maintenance Facility Relocation Project
CRITICAL AQUIFER RECHARGE AREAS

JACOBS

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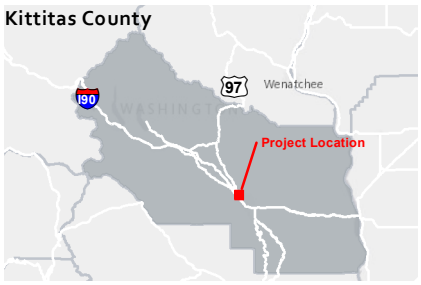

Legend

- Priority Habitats and Species
- Study Area Boundary
- Site Boundary

0 250 500 Feet

Figure 4
Kittitas County Transfer Station and Maintenance Facility Relocation Project
PRIORITY HABITATS

JACOBS

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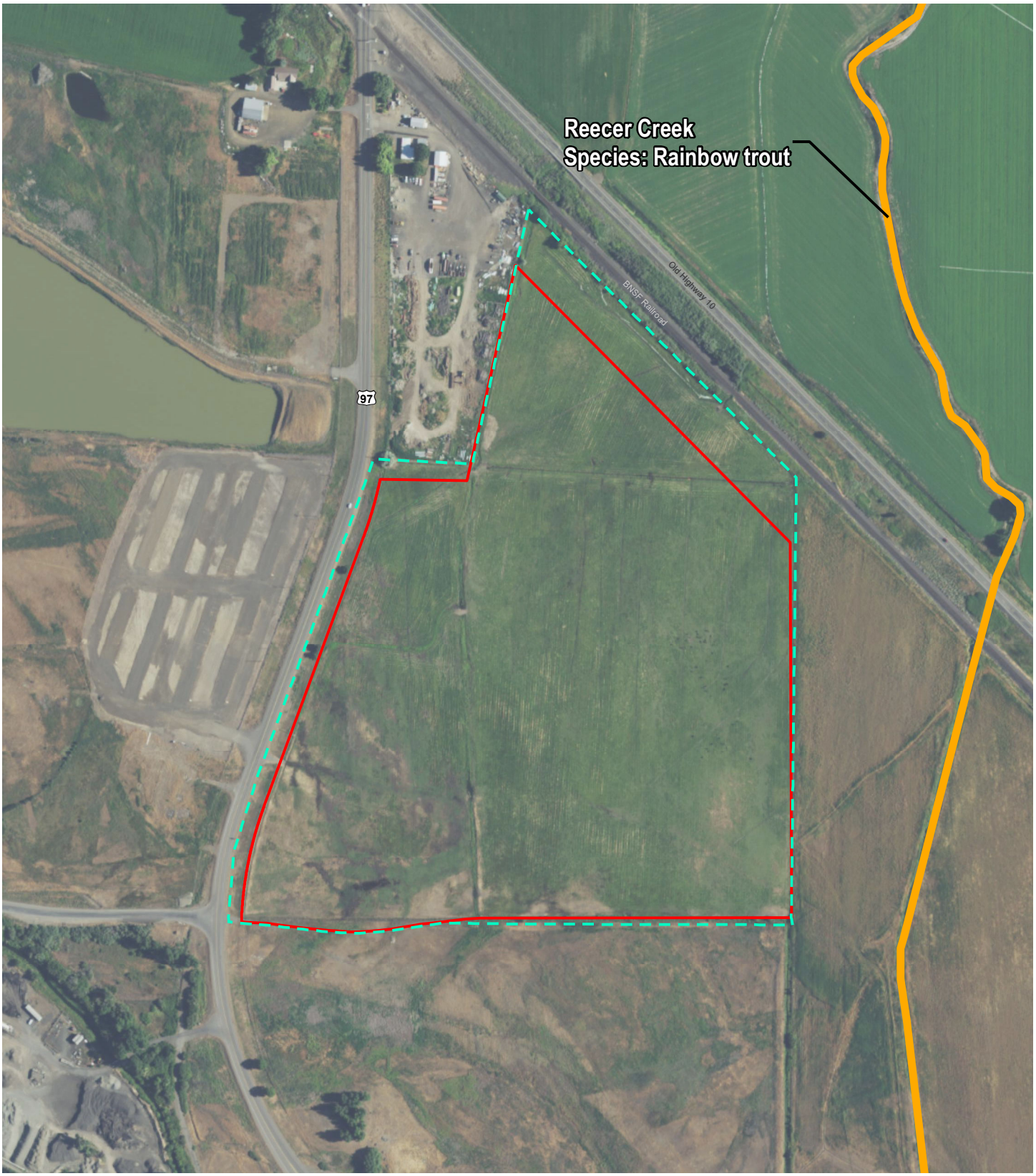

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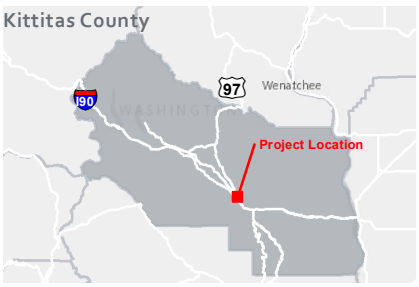

Legend

- Fish Distribution (StreamNet)
- Site Boundary
- Study Area Boundary

0 250 500 Feet

Figure 5
Kittitas County Transfer Station and Maintenance Facility Relocation Project
FISH DISTRIBUTION

JACOBS

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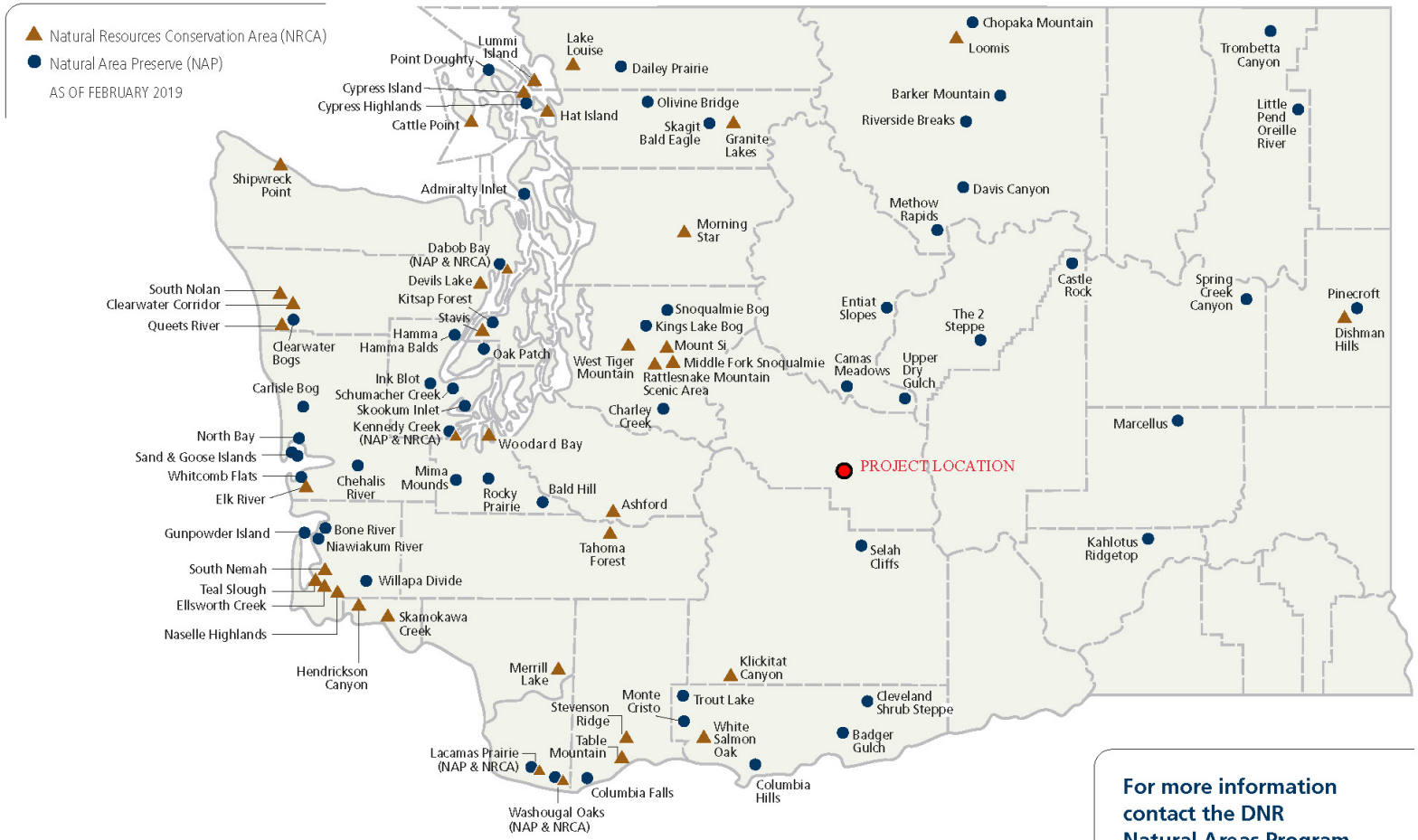
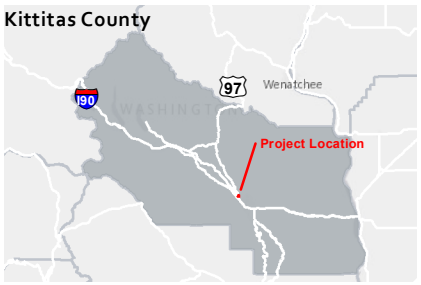


Exceptional Places

Quality examples of Washington's native grasslands, woodlands, marshes and more are protected in natural areas managed by the Department of Natural Resources (DNR). These special sites offer opportunities for research and education. Some have interpretive or recreation trails. Others require DNR permission to visit because features are sensitive to human disturbance.

For more information contact the DNR Natural Areas Program
PO Box 47014
Olympia, WA 98504-7014
360-902-1600
TRS: 711
dnr.wa.gov

Locator Map



Legend

- Natural Resources Conservation Areas (NRCA)
- Natural Area Preserve (NAP)

Figure 6

Kittitas County Transfer Station and Maintenance Facility Relocation Project

WASHINGTON NATURAL AREAS

JACOBS

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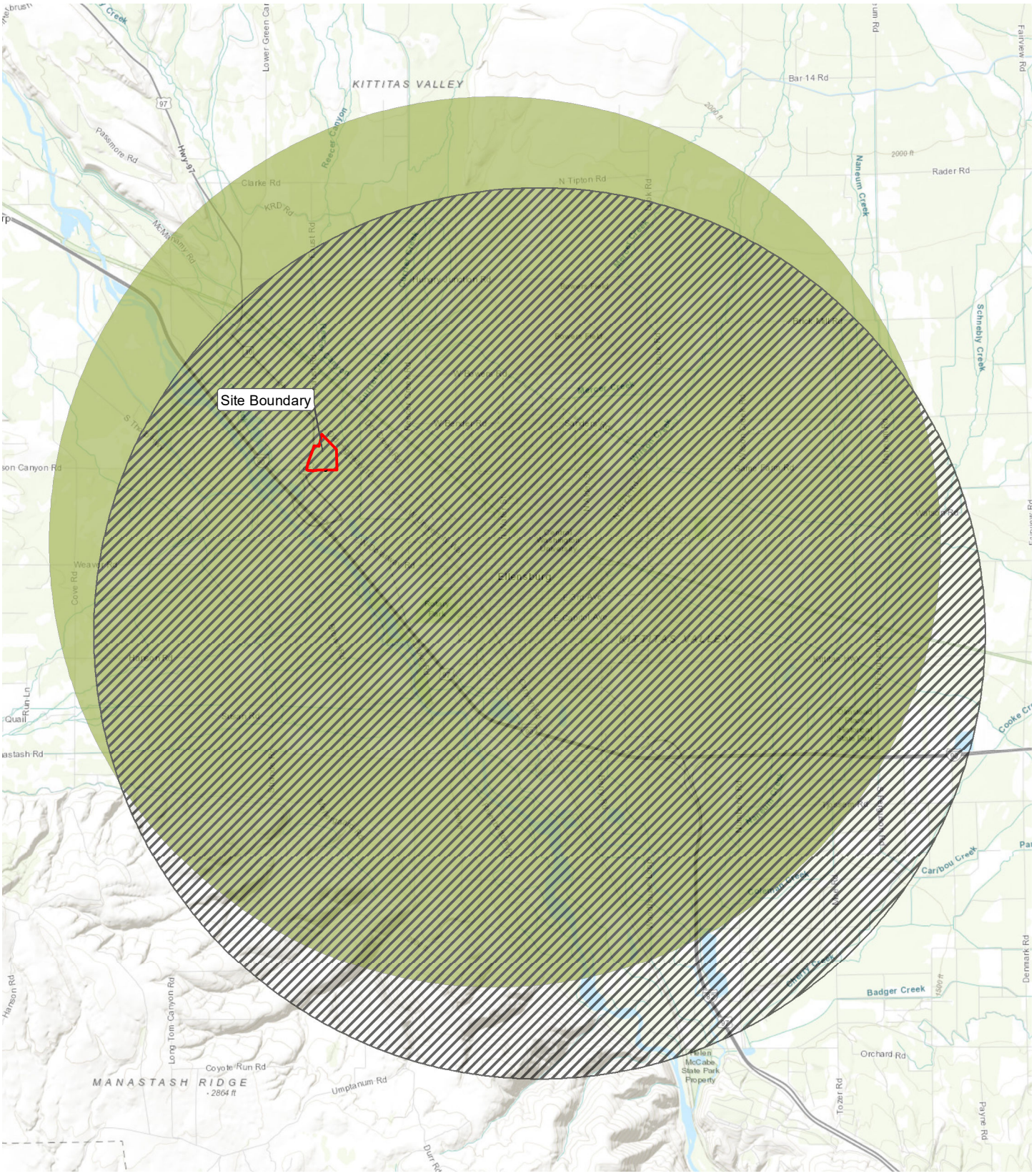

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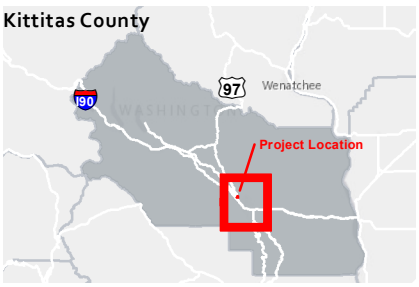

Legend

- Site Boundary
- *Hackelia hispida var. disjuncta* sagebrush stickweed
- *Heterotheca oreona* Oregon goldenaster

0 0.5 1 2 3 4 Miles

Figure 7

Kittitas County Transfer Station and Maintenance Facility Relocation Project

WNHP HISTORIC RARE PLANT ELEMENT OCCURENCES

JACOBS

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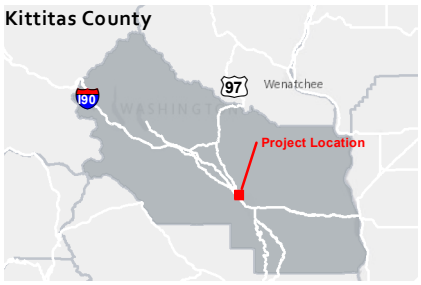

Legend

- Site Boundary
- Study Area Boundary
- FEMA 100 yr Floodplain

0 250 500 Feet

Figure 8
Kittitas County Transfer Station and Maintenance Facility Relocation Project
FEMA OVERVIEW

JACOBS

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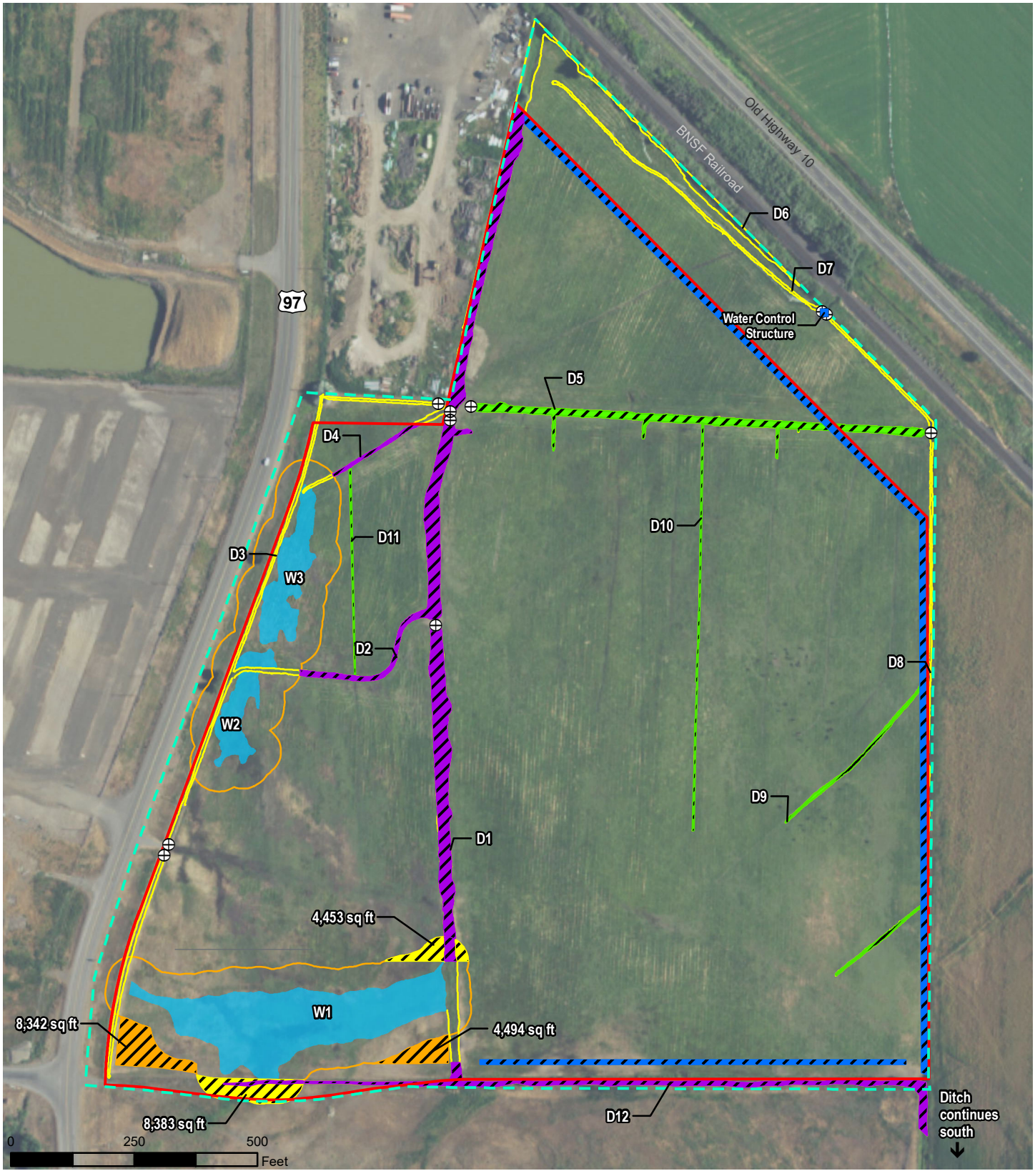

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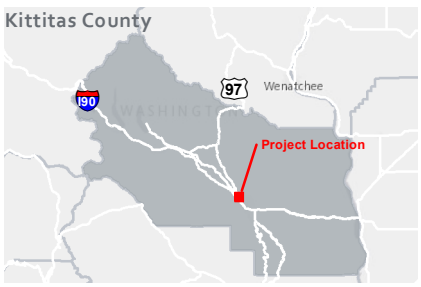

Legend

- Culvert
- Water Control Structure
- Ditch
- 50 ft buffer
- Wetland
- Site Boundary
- Study Area Boundary
- Permanent Impacts to Existing Irrigation Ditches
- Permanent Impacts to Presumed Juristictional Ditches
- Permanent Impacts to Wetland Buffer
- Proposed Mitigation for Impacts to Presumed Jurisdictional Ditches
- Proposed Mitigation for Impacts to Wetland Buffer

Figure 9a

Kittitas County Transfer Station and Maintenance Facility Relocation Project

PROJECT IMPACTS AND MITIGATION -Wetland Buffers and Water of the U.S.

JACOBS

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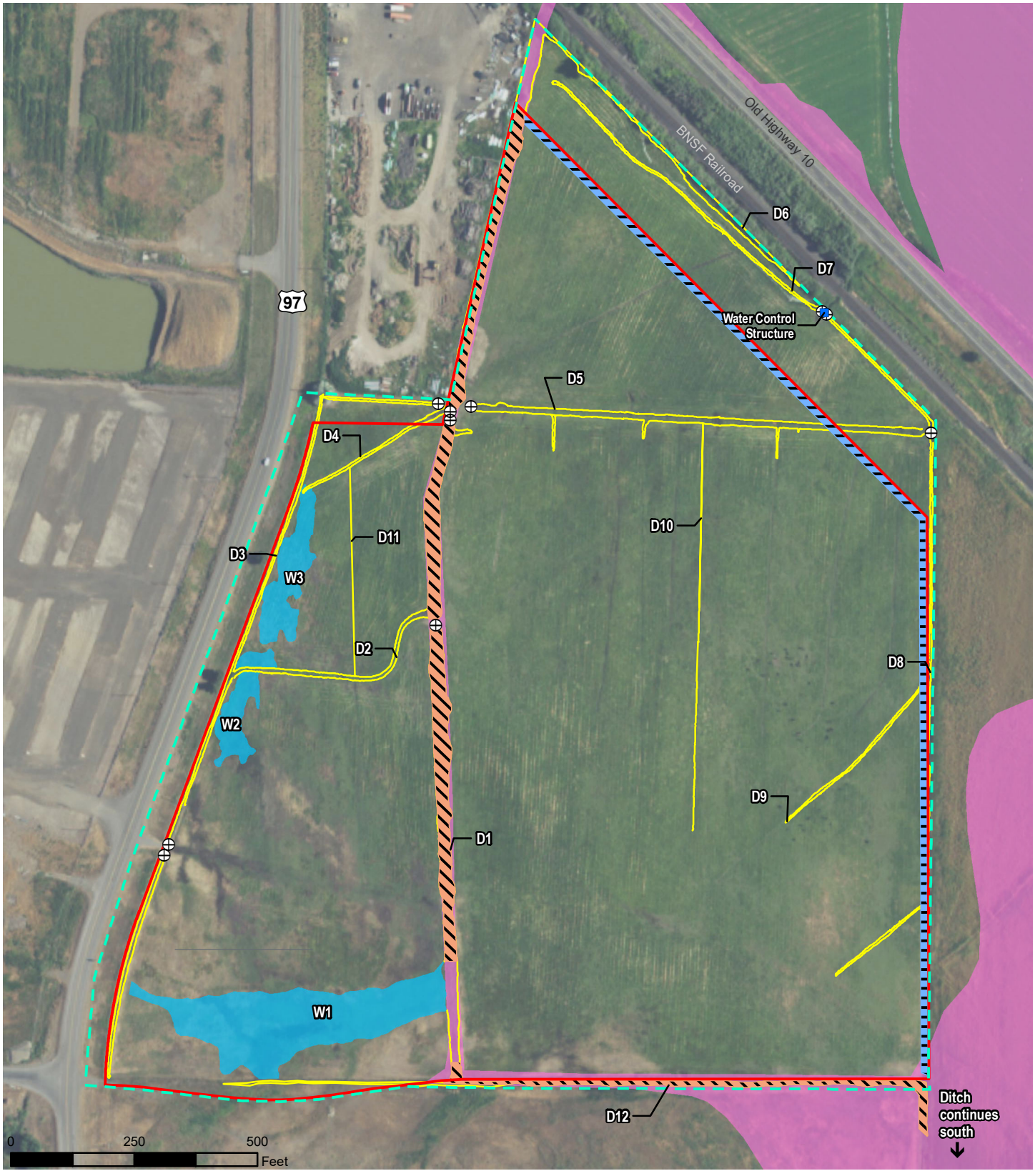

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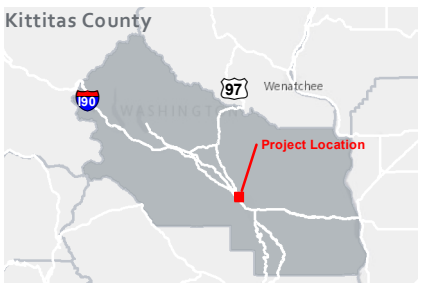

Legend

- Culvert
- Water Control Structure
- Ditch
- Wetland
- FEMA 100 yr Floodplain
- Site Boundary
- Study Area Boundary
- Mitigation for Impacts to 100 -Year Floodplain
- Permanent Impacts to 100-Year Floodplain

Figure 9b
Kittitas County Transfer Station and Maintenance Facility Relocation Project
PROJECT IMPACTS AND MITIGATION - 100-YEAR FLOODPLAIN

JACOBS

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Appendix B
Wetland Delineation Report

Kittitas County Transfer Station and Maintenance Facility Relocation Project, Ellensburg, Kittitas County, Washington

Wetland Delineation Report

Revised August 2019

Kittitas County Solid Waste

Kittitas County Transfer Station and Maintenance Facility Relocation Project, Ellensburg, Kittitas County, Washington

Project No:	684127CH.03.01
Document Title:	**Wetland Delineation Report**
Document No.:	GES0829191707PDX
Revision:	Draft
Date:	August 2019
Client Name:	Kittitas County Solid Waste
Project Manager:	Tom Parker
Author:	Peggy O'Neill, M.S.

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Acronyms and Abbreviations

Ecology	Washington Department of Ecology
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
HGM	hydrogeomorphic [method]
HUC	hydrologic unit [code]
Jacobs	Engineering Group Inc.
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWS	National Wetland Service
OBL	obligate
OHWM	ordinary high water mark
PEM	palustrine emergent
project	Kittitas County Transfer Station and Maintenance Facility Relocation Project
PWS	Professional Wetland Scientist
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOUS	water of the United States
WRIA	Water Resource Inventory Area

1. Introduction

1.1 Background

This report presents the findings of the wetland delineation conducted for Kittitas Solid Waste at the proposed Kittitas County Transfer Station and Maintenance Facility Relocation Project (hereafter referred to as the project) site in Ellensburg, Kittitas County, Washington. The proposed project site is located in the northwestern portion of the city of Ellensburg. Current use of the site is livestock grazing.

Kittitas County proposes to relocate its solid waste transfer station and Public Works maintenance facility to a new location. The projected population growth and solid waste management needs of Kittitas County, combined with frequent flooding events and limitations to its existing facilities, warrant construction of both new facilities. The new transfer station facility will include a transfer building, composting area, moderate-risk waste building, and recycling drop-off area as well as various administrative, parking, and other required elements. The new maintenance facility will include an administrative building, large equipment and vehicle storage, wash and maintenance bays, and salt, sand and de-icing chemical storage.

The wetland delineation survey area is composed of 56.49 acres including the 50-acre project area. The landscape surrounding the project is predominantly in agriculture.

This report identifies and describes aquatic resources in the survey area in support of Clean Water Act Sections 401 and 404 permitting. This report facilitates the following efforts:

1) Avoiding or minimizing impacts to aquatic resources during the design process
2) Documenting aquatic resource boundary determinations for review by regulatory authorities
3) Providing early indications of known sensitive species and historic/cultural properties within the survey area

The delineation results and conclusions presented in this report are considered preliminary, pending verification by the United States (U.S.) Army Corps of Engineers (USACE) Regulatory Branch.

1.2 Location

The project is located in the northwestern portion of the City of Ellensburg, in Kittitas County, Washington (Figure 1 in Appendix A). The project survey area is bounded to the west by State Highway 97 (US 97), to the north by the Burlington Northern railroad and Old Highway 10, and to the east and south by private, undeveloped properties. The Interstate 90 corridor is approximately 0.3 mile southwest of the survey area. The project survey area is within the U.S. Geological Survey (USGS) 7.5-minute Ellensburg North quadrangle in Section 28, Township 18 North, Range 18 East; Willamette Meridian (latitude 47.016181°, longitude -120.590401°) within the Upper Yakima watershed unit (Hydrologic Unit Code 17030001).

The survey area is in northwest Ellensburg and can be accessed from northbound Interstate 90 as follows:

- From Yakima, drive north on Interstate 90 for approximately 36 miles.
- Take exit 106 to West University Way (US 97).
- Turn right on West University Way (US 97).
- Continue about 0.1 mile on West University Way.
- At the roundabout, take the third right, continuing on US 97.
- Continue 0.7 mile north to a farm access road and gate at the southwestern end of the project site.

1.3 Delineators

The wetland delineation was conducted by Jacobs Engineering Group Inc. (Jacobs) wetland scientist Peggy O'Neill, PWS, on October 25 and 26, 2018. At the request of Lori White/Washington Department of Ecology (Ecology), additional field data were collected by Jacobs wetland scientist Jennifer Bader on May 7, 2019.

2. Methods

The delineation was limited to the survey area (56.49 acres) that corresponds with Tax Map No. 18-18-28030008, parcel ID 611033. The following subsections describe the field sampling procedures and methods used to determine and map aquatic resources within the survey area. Site-specific information reviewed during the prefield investigation and collected during, or produced from, the field survey is provided in the appendixes. The following appendixes are provided:

- Appendix A, Figures
- Appendix B, Site Photographs
- Appendix C, Field Data Sheets
- Appendix D, Wetland Rating Forms
- Appendix E, Sensitive Species Data Search Results
- Appendix F, Plant Species Observed List

2.1 Prefield Investigation

General information on climate, vegetation, soils, hydrology, and existing wetlands was reviewed before the field survey. Data sources included USGS topographic maps; National Wetlands Inventory (NWI) (USFWS, 2018b) and National Hydrography Dataset maps (USGS, 2018); regional and local precipitation records; Web Soil Survey (USDA-NRCS, 2018); and Google Earth satellite imagery from 1990 to 2018 (Google Earth Pro, 2018).

2.2 Field Survey

2.2.1 Method for Delineating Wetlands

The survey method for identifying wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (USACE, 2008a). These methods use three criteria (vegetation, soils, and hydrology) to determine the presence of wetlands.

At each delineation sample point, the three required criteria were evaluated. Data collection included the following steps:

1) Plant species were identified, and percent cover was visually estimated and recorded. Dominant species included the most abundant species whose cumulative cover accounted for at least 50 percent of the total cover, as well as any species that accounted for at least 20 percent of the total vegetative cover. The wetland indicator status for plant species was determined using the National Wetland Plant List (Lichvar et al., 2016).
2) Soil characterization was determined from direct observation of soils between 0 and 18 inches below ground surface.
3) Wetland hydrology was determined from direct observation of soil saturation and inundation or other indicators. Onsite photographs are provided in Appendix B.

Additional soil pits were dug throughout the site to document hydric/nonhydric soil conditions and provide additional detail for wetland boundary mapping. Aquatic resources within the survey area were mapped using a Trimble GeoXH global positioning system with submeter accuracy.

2.2.2 Method for Delineating Nontidal Stream Boundaries

Within nontidal waters, in the absence of adjacent wetlands, the extent of USACE jurisdiction is defined by the ordinary high water mark (OHWM). In 33 *Code of Federal Regulations* 328.3, the OHWM is defined as the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of

soil, destruction of terrestrial vegetation, or the presence of litter and debris" (Environmental Laboratory, 1987). Generally, USACE considers the OHWM to be the elevation to which water flows at a 2-year frequency (for example, 50 years out of 100 years). Typically, OHWM is indicated by the presence of a defined streambed with bank shelving but may also include flow lines; sediment deposition or scour; and mineral staining, salt deposits, or deep or surficial cracking.

Any delineation of nontidal stream boundaries identified is consistent with OHWM Regulatory Guidance Letter No. 05-05 (USACE, 2005). Additionally, *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Arid West Region of the United States* (USACE, 2008b) was used.

Within the survey area, OHWM indicators were identified and mapped in the field. OHWM indicators were recorded, and the average width and depth of OHWM channels were documented. Measured field data were compared with aerial photographs to refine and adjust OHWM boundaries. Photographs of the channel are provided in Appendix B.

2.2.3 Method for Conducting Wetland Functional Assessments

Wetland Functional Assessments were conducted according to the *Washington State Wetland Rating System for Eastern Washington. 2014 Update* (Ecology, 2014). All onsite wetlands were rated as "Slope" wetlands according to this methodology.

2.2.4 Information Sources

Before conducting the field investigation, the following documents were reviewed:

- Wetlands Mapper (USFWS, 2018b) (Figure 2)
- National Hydrography Dataset (USGS, 2018) (Figure 3)
- Web Soil Survey (USDA-NRCS, 2018b) (Figure 4)
- U.S. Geological Survey Topographic Map, North Ellensburg, Washington Quadrangle (USGS, 1983) (Figure 5)
- Color Aerial Photography (GoogleEarth Pro, 2018)
- National Weather Service Preliminary Monthly Climate Data (NOAA-NWS, 2018)
- Monthly Precipitation Data (Office of Washington Climatologist, 2018)
- WETS Table: Cle Elum, Washington Station (USDA-NRCS, 2018a)

3. Existing Conditions and Results

3.1 Existing Conditions

3.1.1 Landscape Setting

Kittitas County is situated in central Washington on the eastern slopes of the Cascade Mountains between the Cascade Crest and the Columbia River in the Columbia River basin. The County encompasses 2,300 square miles within three major basins or Water Resource Inventory Areas (WRIAs):

- Upper Yakima (WRIA 39)
- Alkali – Squilchuck (WRIA 40)
- Naches (WRIA 38)

The greater Ellensburg area is location in the Upper Yakima WRIA 39.

The project survey area is within the Pleistocene Lake Basins Ecoregion (Level IV) within the Columbia Plateau (Level III) Ecoregion. The Pleistocene Lake Basins ecoregion is a nearly level to undulating lake plain that once contained vast Pleistocene lakes that were created by flood waters from glacial lakes Missoula and Columbia. Lake Lewis formed from the damming of the Columbia River at Wallula Gap on the southern Washington border, and covered 4,825 square kilometers (3,000 square miles) of the Quincy and Pasco basins and Walla Walla and Yakima River valleys. The Kittitas Valley, where Ellensburg is located, has been included in this subregion even though it was not part of glacial Lake Lewis because of its position within the Yakima Folds subregion and because it has a similar lacustrine history, climate, soil, and land use capability.

The lake basins are in the driest areas of the rain shadow of the Cascade Range, receiving 15.2 to 30.5 centimeters (6 to 12 inches) of precipitation per year. Where present, native vegetation consists of needle-and-thread (*Hesperostipa comata*), Indian ricegrass (*Achnatherum hymenoides*), bluebunch wheatgrass (*Pseudoroegneria spicate*), Sandberg bluegrass (*Poa secunda*), and basin big sagebrush (*Artemisia tridentata*). Non-native cheatgrass (*Bromus tectorum*) covers broad areas. The native sagebrush hydrology and plant assemblages have been degraded by disturbance from large irrigation projects that provide Columbia and Yakima River water via a system of pumps and canals.

3.1.2 Topography

The site is flat, sloping down gradually toward the southeastern corner. Elevation ranges from 1,554 feet above mean sea level in the northernmost corner of the site to approximately 1,540 feet in the southeastern corner of the site. The site is bisected by multiple interconnecting excavated ditches or ditch segments. Precipitation collects in microtopography along the northern plowed boundary of the site. At the time of the site visit, shallow flow was present in one ditch, the large north-south flowing ditch, D1. Stormwater appears to flow offsite from this ditch to an excavated ditch just south of and perpendicular to the southern site boundary.

3.1.3 Plant Communities

Vegetation on the site is characterized as heavily grazed pasture grasses in upland areas with natural vegetation confined to wetter areas and ditches (native sedges (*Carex* sp.), rushes (*Juncus* sp.), and forbs). The large central ditch (D1) is densely vegetated throughout much of its length with a mix of native and non-native wetland plant species including grasses, sedges, rushes, willow dock (*Rumex salicifolius*), and watercress (*Nasturtium officinale*).

3.1.4 Soils

Seven soil series are mapped within the survey area:

- Cleman very fine sandy loam, 0 to 2 percent slopes
- Nanum ashy loam, 0 to 2 percent slopes
- Woldale clay loam, 0 to 2 percent slopes
- Zillah silt loam, 0 to 2 percent slopes
- Brickmill gravelly ashy loam, 0 to 2 percent slopes
- Mitta ashy silt loam, 0 to 2 percent slopes
- Nack-Opnish complex, 0 to 2 percent slopes

Mapped soil series are presented on Figure 4 and summarized in Table 1.

Table 1. Soil Map Units Identified in the Survey Area

Soil Map Unit	Map Unit Name	Hydric Soil Designation	Description
424	Cleman very fine sandy loam, 0 to 2 percent slopes	Nonhydric	The Cleman series consists of very deep, well drained soils formed in alluvium. Cleman soils are on alluvial fans and flood plains. Slopes are 0 to 15 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 50 degrees F. Typical soil profile: • 0 to 10 inches; grayish brown (10YR 5/2) very fine sandy loam, dark brown (10YR 3/3) • 10 to 25 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) Cleman soils are well drained; very slow to medium runoff; moderately rapid permeability. These soils range from no flooding to rare flooding. These soils are used mainly for irrigated orchard, hay and pasture production, and some livestock grazing and dryland cropland. Native vegetation is bluebunch, wheatgrass and Wyoming big sagebrush...
480	Nanum ashy loam, 0 to 2 percent slopes	Nonhydric	The Nanum series consists of very deep, somewhat poorly drained soils that formed in alluvium with an influence of volcanic ash in the surface. Nanum soils are on alluvial fans and terraces. Slopes are 0 to 5 percent. The mean annual precipitation is about 10 inches and the mean annual air temperature is about 49 degrees F. Typical soil profile: • 0 to 8 inches; dark gray (10YR 4/1) ashy loam, black (10YR 2/1) • 8 to 15 inches; dark grayish brown (10YR 4/2) ashy loam, black (10YR 2/1) • 15 to 21 inches; grayish brown (10YR 5/2) ashy clay loam, very dark grayish brown (10YR 3/2). Nanum soils are somewhat poorly drained; slow runoff; moderately slow permeability. This soil is irrigated and drained. This soil has an irrigation-induced water table with its uppermost limit occurring sometime between the mid-May to mid-October growing season. This soil typically is not subject to flooding although some areas may have occasional flooding for brief periods from January to April. These soils are used for irrigated cropland production and livestock grazing. When irrigated, hay, oats, wheat, corn, potatoes, and peas are among the crops grown.
580	Woldale clay loam, 0 to 2 percent slopes	Nonhydric	The Woldale series consists of very deep, somewhat poorly drained soils formed in alluvium. Woldale soils are in depressional and low lying areas on piedmont slopes grading from mountain foot slopes to basin floors. Slopes are 0 to 5 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees F.

Table 1. Soil Map Units Identified in the Survey Area

Soil Map Unit	Map Unit Name	Hydric Soil Designation	Description
			Typical soil profile: • 0 to 5 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) • 5 to 16 inches; very dark gray (10YR 3/1) clay, black (10YR 2/1) • 16 to 31 inches; variegated grayish brown (2.5Y 5/2) and grayish brown (10YR 5/2) clay, dark grayish brown (2.5Y 4/2). Woldale soils are somewhat poorly drained; slow runoff or ponded; slow permeability. This soil has an irrigation induced water table with its uppermost limit occurring sometime between the mid-May to mid-October growing season. This soil is used for cropland when drained and irrigated. Crops commonly grown are corn, wheat, hay, and pasture. In natural conditions the soil is used for the production of native pasture. Native vegetation consists of water-tolerant grasses.
598	Zillah silt loam, 0 to 2 percent slopes	Hydric	The Zillah series consists of very deep, poorly drained soils that formed in alluvium. These soils are on flood plains. Slopes are 0 to 5 percent. The mean annual precipitation is about 7 inches and the mean annual temperature is about 49 degrees F. Typical soil profile: • 0 to 2 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) • 2 to 19 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) Zillah soils are poorly drained; very slow runoff or ponded; moderate permeability. Zillah soils are subject to frequent or occasional flooding for long periods from January to March unless protected. This soil has an irrigation induced water table with its uppermost limit occurring at some time between April and November. These soils are used for pasture, hay, and wildlife habitat. Some areas have been drained and are used for irrigated crops. Native vegetation is willows, cottonwood, sedges, and annuals.
601	Brickmill gravelly ashy loam, 0 to 2 percent slopes	Nonhydric	The Brickmill series consists of very deep, moderately well drained soils formed in old alluvium with an influence of volcanic ash in the upper part. Brickmill soils are on piedmont slopes grading from mountain footslopes to basin floors. Slopes are 0 to 5 percent. The mean annual precipitation is about 11 inches and the mean annual temperature is about 49 degrees F. Typical soil profile: • 0 to 5 inches; very dark grayish brown (10YR 3/2) gravelly ashy loam, very dark brown (10YR 2/2) • 5 to 12 inches; very dark grayish brown (10YR 3/2) gravelly ashy loam, very dark brown (10YR 2/2) • 12 to 28 inches; brown (10YR 5/3) very gravelly ashy sandy loam, brown (10YR 4/3) Brickmill soils are moderately well drained; slow runoff; permeability is moderate above the lithologic discontinuity, and rapid to very rapid below. This soil has an irrigation induced water table at 30 to 40 inches with its uppermost limit occurring at some time between during the mid-May to mid-October growing season. These soils are used for pasture, limited cropland, and wildlife habitat. Native vegetation is bluebunch wheatgrass, Sandberg bluegrass, and big sagebrush.
621	Mitta ashy silt loam, flooded, 0 to 2 percent slopes	Nonhydric	The Mitta series consists of very deep, moderately well drained soils that formed in alluvium mixed with volcanic ash in the upper part. Mitta soils are on flood plains, fan aprons, fan skirts and inset fans. Slopes are 0 to 2

Table 1. Soil Map Units Identified in the Survey Area

Soil Map Unit	Map Unit Name	Hydric Soil Designation	Description
			percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees F. Typical soil profile: • 0 to 6 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) • 6 to 15 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) • 15 to 24 inches; dark gray (10YR 4/1) ashy silt loam, black (10YR 2/1) Mitta soils are moderately well drained; slow runoff; moderately slow permeability. This soil is irrigated and drained. This soil has an irrigation-induced water table at 30 to 60 inches during the mid-May to mid-October growing season. These soils are used for irrigated crop production and livestock grazing. When irrigated, hay, oats, wheat, corn, potatoes, and peas are among the crops grown.
795	Nack-Opnish complex, 0 to 2 percent slopes	Nonhydric	The Nack series consists of very deep, somewhat poorly drained soils formed in alluvium over flood deposits with an influence of volcanic ash in the surface. These soils are on alluvial fans. Slopes are 0 to 5 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees F. Typical soil profile: • 0 to 6 inches; brown (10YR 4/3) ashy loam, very dark grayish brown (10YR 3/2) • 6 to 12 inches; brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) • 12 to 15 inches; brown (10YR 5/3) clay loam, very dark grayish brown (10YR 3/2) • 15 to 39 inches; dark yellowish brown (10YR 4/4) extremely gravelly sandy clay; dark brown (10YR 3/3) Nack soils are somewhat poorly drained; slow runoff; moderately slow permeability. This soil has an irrigation-induced water table with its uppermost limit occurring sometime between the mid-May to mid-October growing season. These soils are used for irrigated crop production and livestock grazing. Native vegetation is greasewood and saltgrass. When irrigated, hay, oats, wheat, corn, potatoes, and peas are among the crops grown. The Opnish series consists of very deep, moderately well drained soils formed in alluvium with an influence of volcanic ash in the surface. These soils are on alluvial fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 10 inches and the mean annual temperature is about 49 degrees F. Typical soil profile: • 0 to 8 inches; dark gray (10YR 4/1) ashy loam, very dark brown (10YR 2/2) • 8 to 13 inches; dark gray (10YR 4/1) ashy clay loam; very dark brown (10YR 2/2) • 13 to 19 inches; dark grayish brown (10YR 4/2) clay loam, very dark gray (10YR 3/1 Opnish soils are moderately well drained; slow runoff; moderately slow permeability. This soil has an irrigation-induced water table with its uppermost limit occurring at some time between the mid-May to mid-October growing season.

Table 1. Soil Map Units Identified in the Survey Area

Soil Map Unit	Map Unit Name	Hydric Soil Designation	Description
			This soil is used for irrigated crop production and livestock grazing. Native vegetation is greasewood and saltgrass. When irrigated, hay, oats, wheat, corn, potatoes, and peas are among the crops grown.

3.1.5 Hydrology

Annual precipitation in the region averages approximately 22.47 inches (Office of Washington State Climatologist, 2018). Precipitation data were reviewed for the nearest weather station, located at Station 452505, Ellensburg, Washington. Precipitation for the water year beginning October 2017 through September 2018 was 7.63 inches (Table 2a) and precipitation for the water year May 2018 through April 2019 was 8.41 inches (Table 2b). These levels are considerably below the normal range (19.71 to 25.23 inches) for these time periods in this area.

Table 2a. Monthly Precipitation Data Prior to October 2018 Field Survey

Station 452505 Ellensburg, WA

Date	Actual Precipitation[a] (inches)	Normal Range[b,c] (inches)	Outside Normal Range (inches)
October 2017	1.14	0.72 – 2.14	---
November 2017	1.83	2.61 – 4.67	- 0.78
December 2017	0.73	3.07 – 5.02	- 2.34
January 2018	0.95	2.25 – 4.51	- 1.3
February 2018	0.35	1.56 – 3.18	-1.21
March 2018	0.65	1.14 – 2.02	- 0.49
April 2018	0.77	0.78 – 1.36	- 0.01
May 2018	0.59	0.57 – 1.12	---
June 2018	0.61	0.57 – 1.17	---
July 2018	0.00	0.2 – 0.55	- 0.2
August 2018	0.00	0.2 – 0.68	- 0.2
September 2018	0.01	0.31 – 1.08	-0.3
Total	**7.63**	**19.71 – 25.23**	**-12.08**

[a] Source: Office of Washington State Climatologist, 2017.

[b] Source: USDA-NRCS, 2018a.

[c] "Normal Range" is the range within which precipitation for the given period has a 70 percent chance of occurring.

Table 2b. Monthly Precipitation Data Prior to May 2019 Field Survey

Station 452505 Ellensburg, WA

Date	Actual Precipitation[a] (inches)	Normal Range[b, c] (inches)	Outside Normal Range (inches)
May 2018	0.59	0.57 – 1.12	---
June 2018	0.61	0.57 – 1.17	---
July 2018	0.00	0.2 – 0.55	- 0.2
August 2018	0.00	0.2 – 0.68	- 0.2
September 2018	0.01	0.31 – 1.08	-0.3
October 2018	1.44	0.72 – 2.14	---
November 2018	0.37	2.61 – 4.67	-2.24
December 2018	1.17	3.07 – 5.32	-1.90
January 2019	1.03	2.25 – 4.51	-1.22
February 2019	1.90	1.56 – 3.18	---
March 2019	0.41	1.14 – 2.02	-0.73
April 2019	0.88	0.78 – 1.36	---
Total	**8.41**	**19.71 – 25.23**	**-11.30**

[a] Source: Office of Washington State Climatologist, 2017.

[b] Source: USDA-NRCS, 2018a.

[c] "Normal Range" is the range within which precipitation for the given period has a 70 percent chance of occurring.

Daily precipitation data for the 4-week period preceding the October 2018 field investigation were also reviewed. Table 3a presents the daily precipitation recorded at the *ELLENSBURG, WA, US USC00452505* recording station. No measurable precipitation was recorded for that period.

Table 3a. Daily Precipitation Data Four Weeks Prior to October 2018 Field Survey[a]

Ellensburg, WA, US USC00452505

Date	Precipitation (inch)
9/27/2018	0.0
9/28/2018	0.0
9/29/2018	0.0
9/30/2018	0.0
10/1/2018	0.0
10/2/2018	0.0
10/3/2018	0.0

Table 3a. Daily Precipitation Data Four Weeks Prior to October 2018 Field Survey[a]

Ellensburg, WA, US USC00452505

Date	Precipitation (inch)
10/4/2018	0.0
10/5/2018	0.0
10/6/2018	0.0
10/7/2018	0.0
10/8/2018	0.0
10/9/2018	0.0
10/10/2018	0.0
10/11/2018	0.0
10/12/2018	0.0
10/13/2018	0.0
10/14/2018	0.0
10/15/2018	0.0
10/16/2018	0.0
10/17/2018	0.0
10/18/2018	0.0
10/19/2018	0.0
10/20/2018	0.0
10/21/2018	0.0
10/22/2018	0.0
10/23/2018	0.0
10/24/2018	0.0
Total:	**0.0**

[a] Source: National Climate Data Center (NOAA, 2018).

Daily precipitation data for the 4-week period preceding the May 2019 field investigation were also reviewed. Table 3b presents the daily precipitation recorded at the *ELLENSBURG, WA, US USC00452505* recording station. No measurable precipitation was recorded for that period.

Table 3b. Daily Precipitation Data Four Weeks Prior to May 2019 Field Survey[a]

Ellensburg, WA, US USC00452505

Date	Precipitation (inch)
4/9/2019	0.18
4/10/2019	T
4/11/2019	0.0
4/12/2019	0.02
4/13/2019	0.0

Table 3b. Daily Precipitation Data Four Weeks Prior to May 2019 Field Survey[a]

Ellensburg, WA, US USC00452505

Date	Precipitation (inch)
4/14/2019	0.01
4/15/2019	0.0
4/16/2019	0.0
4/17/2019	0.0
4/18/2019	0.0
4/19/2019	0.0
4/20/2019	0.0
4/21/2019	0.02
4/22/2019	0.0
4/23/2019	0.0
4/24/2019	0.0
4/25/2019	0.0
4/26/2019	0.0
4/27/2019	0.0
4/28/2019	0.0
4/29/2019	0.0
4/30/2019	0.0
5/1/2019	0.0
5/2/2019	0.0
5/3/2019	0.0
5/4/2019	0.0
5/5/2019	0.0
5/6/2019	0.0
Total:	**0.23**

[a] Source: National Climate Data Center (NOAA, 2018)

Hydrologic conditions on the site consisted of soils saturated to the surface throughout most of the wetland areas, and in and adjacent to most of the ditches. The wetlands areas appear to derive water primarily from groundwater, along with upland runoff and direct precipitation.

3.1.6 Existing Wetland Mapping

The survey area is in the Upper Yakima watershed (Hydrologic Unit Code 17030001), Currier Creek sub-watershed (hydrologic unit [HUC] 170300010510). The National Hydrography Dataset indicates no water features on or immediately adjacent to the site (USGS, 2018) (Figure 3). The NWI identifies one wetland feature within the survey area in the southwestern portion of the site (USFWS, 2018b). This mapped wetland is part of a larger wetland complex, extending offsite to the west. The NWI mapped feature is identified PEM1C (palustrine emergent, persistent, seasonal).

3.1.7 Sensitive Plant, Fish, and Wildlife

According to USACE 2016 guidance, delineation reports should include preliminary information on known sensitive species or cultural resources that occur within the survey area (USACE, 2016). A database review was conducted of the USFWS Information for Planning and Consultation website (USFWS, 2018a) to identify federal special-status wildlife and plant species that are known or have the potential to occur in or near the survey area.

3.2 Findings

A field delineation of the entire survey area identified 2.07 acres of palustrine emergent (PEM) wetlands, and 10,433 linear feet of excavated ditches (nonwetland waters). The delineated aquatic resources are described in Section 4.2, summarized in Table 4, and mapped on Figures 6a to 6c.

Table 4. Delineated Aquatic Resources

Feature ID	Classification (Cowardin et al., 1979)	Latitude/ Longitude	Size (acres)	Size (linear feet)
Wetlands (3)				
Wetland-1	PEM	47.01443°/ -120.5926°	1.44	
Wetland-2	PEM	47.0160°/ -120.5929°	0.26	
Wetland-3	PEM	47.0169°/ -120.5924°	0.37	
	TOTAL Wetlands		**2.07**	
Nonwetland Waters (12)				
Ditch D1	Perennial	47.0164°/ -120.5913°	0.75	2,170
Ditch D2	Intermittent	47.0163°/ -120.5922°	0.07	473
Ditch D3	Intermittent	47.0161°/ -120.5931°	0.12	1,705
Ditch D4	Intermittent	47.0175°/ -120.5918°	0.03	340
Ditch D5	Intermittent	47.0177°/ -120.5894°	0.25	1,096
Ditch D6	Intermittent	47.0191°/ -120.5894°	0.04	760
Ditch D7	Intermittent	47.0189°/ -120.5892°	0.07	1,044
Ditch D8	Intermittent	47.0164°/ -120.5873°	0.07	1,185
Ditch D9	Intermittent	47.0158°/ -120.5878°	0.02	415
Ditch D10	Intermittent	47.01666°/ -120.5896°	0.03	825
Ditch D11	Intermittent	47.0168°/ -120.5920°	0.02	420
Ditch D12 (partially offsite)	Intermittent	47.0140°/ -120.5908°	0.20	1,427
	TOTAL Nonwetland Waters	**Perennial**	**0.75**	**2,170 feet**
		Intermittent	**0.92**	**9,690 feet**

3.2.1 Wetlands

Three wetlands (2.074 acres) were delineated within the survey area. Each wetland resource summarized in Table 4 is described in the following subsections. An aquatic resource delineation map

(Figures 6a to 6c) is provided in Appendix A and site photographs are provided in Appendix B. A list of plant species observed during the survey is provided in Appendix F. Field data sheets collected within and adjacent to the wetland areas are provided in Appendix C. A preliminary jurisdictional determination is provided in Table 5. In addition to the three delineated wetlands, ten additional areas were investigated as potential wetlands and were determined to not meet wetland criteria. These were documented with photos and field data sheets (also provided in Appendix B and Appendix C, respectively). Wetland Rating Forms are provided in Appendix D.

Wetland-W1, Palustrine Emergent Wetland (1.44 acres)

Wetland W1 (1.44 acres) is a PEM (Cowardin)/Slope (hydrogeomorphic [HGM]) wetland located in the southwestern portion of the survey area. Vegetation is comprised of heavily grazed planted grasses including creeping bentgrass (*Agrostis stolonifera*) (FACW) and Kentucky bluegrass (*Poa pratensis*) (FAC), willow dock (*Rumex salicifolius*) (FACW), celery leaved buttercup (*Ranunculus sceleratus*) (OBL), and common rush (*Juncus effusus*) (FACW). Soils sampled are a very dark gray (10YR 3/1) silty clay from 0 to 8 inches with 5 percent redoximorphic features (5.5YR 4/6). From 8 to 18 inches, soils continue as a very dark grayish-brown (10YR 3/2) clayey silt loam with up to 10 percent redoximorphic features (7.5YR 4/6). Soils within Wetland W1 meets hydric soil indicator F6: Redox Dark Surface. Soil saturation was observed between eight and ten inches.

Adjacent upland areas are dominated by pasture grasses, predominantly Idaho fescue (*Festuca idahoensis*) (FACU) and Kentucky bluegrass (FAC). Soils do not meet the hydric soil indicator for F6 Redox Dark Surface because they do not contain at least 4 inches of redox within the top 12 inches of soil profile. Upland soils were very dark grayish-brown (10YR 3/2) with no redoximorphic features typically observed. Wetland hydrology was not observed at the adjacent upland data points. Soils were not saturated in the upper 18 inches.

Wetland 1 is a Category IV wetland, requiring a 50-foot buffer (Appendix D).

Wetland-W2, Palustrine Emergent Wetland (0.26 acres)

Wetland W2 is a PEM (Cowardin)/Slope (HGM) wetland (0.26 acre) located in the north-central portion of the survey area. Vegetation is dominated and comprised of heavily grazed planted facultative species including creeping bentgrass (FACW), Kentucky bluegrass (FAC), willow dock (FACW), watercress (*Nasturtium officinale*) (OBL), and common rush (FACW). Soils sampled are a very dark gray (10YR 3/1) cobbly silt loam from 0 to 8 inches with no redoximorphic features. From 8 to 18 inches, soils continue as a very dark gray (10YR 3/1) gravelly silty clay with 5 percent redoximorphic features (7.5YR 4/6). Soils within Wetland W2 meets hydric soil indicator F6: Redox Dark Surface. Soils were saturated below six inches.

Adjacent upland areas are dominated by pasture grasses, predominantly Idaho fescue (FACU) and Kentucky bluegrass (FAC). Soils do not meet the hydric soil indicator for F6 Redox Dark Surface because they do not contain at least 4 inches of redox within the top 12 inches of soil profile. Upland soils were very dark grayish-brown (10YR 3/2) with no redoximorphic features typically observed. Wetland hydrology was not observed at the adjacent upland data points. No soil saturation was observed in the upper 18 inches.

Wetland 2 is a Category IV wetland, requiring a 50-foot buffer (Appendix D).

Wetland-W3, Palustrine Emergent Wetland (0.37 acres)

Wetland-W3 is a PEM (Cowardin)/Slope (HGM) wetland (0.37 acre) located in the north-central portion of the survey area. Vegetation is dominated by comprised of heavily grazed planted grasses including creeping bentgrass (FACW) and Kentucky bluegrass (FAC), willow dock (FACW), watercress (OBL), and celery-leaved buttercup (OBL). Soils sampled are a very dark gray (10YR 3/1) cobbly silt loam from 0 to 6 inches with no redoximorphic features. From 6 to 18 inches, soils continue as a very dark gray (10YR 3/1) gravelly silty clay with 5 percent redoximorphic features (7.5YR 4/6). Soils within Wetland W3 meets hydric soil indicator F6: Redox Dark Surface. Soils were saturated at 8 inches.

Adjacent upland areas are dominated by pasture grasses, predominantly Idaho fescue (FACU) and Kentucky bluegrass (FAC). Soils do not meet the hydric soil indicator for F6 Redox Dark Surface because they do not contain at least 4 inches of redox within the top 12 inches of soil profile. Upland soils were very dark grayish-brown (10YR 3/2) with no redoximorphic features typically observed. Wetland hydrology was not observed at the adjacent upland data points. No soil saturation was observed in the upper 18 inches.

Wetland 3 is a Category IV wetland, requiring a 50-foot buffer (Appendix D).

Table 5. Wetlands: Preliminary Jurisdictional Determination

Wetland ID	Bordering, Contiguous with, or Neighboring a WOUS	Within 100 feet of the OHWM of a WOUS	Within the 100-Year Floodplain and Within 1,500 Feet of a WOUS	Potential Jurisdiction Notes
Wetland-W1	Yes	Yes	No	Presumed jurisdictional as it is contiguous with ditch D1, which is presumed jurisdictional
Wetland-W2	Yes	Yes	No	Potentially jurisdictional as it is contiguous with ditch D2, which is potentially jurisdictional.
Wetland-W3	Yes	Yes	No	Potentially jurisdictional as it is contiguous with ditch D4, which is potentially jurisdictional.

3.2.2 Nonwetland Waters

A system of interconnected excavated ditches (nonwetland waters) is present on the project site. The field investigation identified and delineated eleven ditches (10,433 lineal feet) within the survey area. A water control structure at the northern end of the site appears to regulate flow to the ditches from offsite, presumable for irrigation purposes. The ditches are also presumed to carry flow in response to precipitation events. All ditches show evidence of trampling by livestock.

Each ditch is described in the following subsections and summarized in Table 4. Aquatic resource delineation maps (Figures 6a to 6c) are provided in Appendix A; photographs are provided in Appendix B; watercourse or ditch characterization field data forms are provided in Appendix C. Preliminary jurisdictional determinations are provided in Table 6.

Ditch D1

Ditch D1 is an excavated ditch that traverses the site from north to south (Appendix B2, Photos 1-4 and 17-20; Appendix C2, Data Form D1). The ditch is approximately 80 percent vegetated with vegetation dominated by watercress (*Nasturtium officinale*) and willow dock (*Rumex salicifolius*). Flow was present to a depth of 6 to 8 inches with areas of ponding 1 to 1.5 feet deep. Ponding occurs up and downstream at the locations of two culvert crossings, a ford crossing, and areas of dense vegetation. Flow is assumed to be perennial due to the amount of flow present during the field visit in late October following a drier-than-normal summer and no measurable precipitation in the month prior to the field visit.

Clear bed and banks are present. Ditch D1 averages 15 feet across at top of bank. Depth from top of bank to substrate averages 3 to 4 feet. Ditch substrate consists of silty clay with some gravels. The ditch drains to another ditch offsite, appearing to eventually reach the Yakima River. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D2

Ditch D2 is an excavated ditch that traverses the site east to west. D2 connects ditches D1 and D3 (Appendix B2, Photo 7; Appendix C2, Data Form D2). No flow was present in the ditch at the time of the

field visit. Direction of flow is not clear, though based on elevation (GoogleEarth Pro, 2018), it appears to convey water east to west, from ditch D1 to ditch D3. Evidence of flow included scour marks and a predominantly unvegetated bottom. Flow is assumed to be intermittent in response to precipitation events or irrigation. Substrate is silty clay. Clear bed and shallow banks were observed. Ditch D2 averages 6 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Ditch D2 bisects wetland W2. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D3

Ditch D3 generally follows the western boundary of the site, with a short east-west segment at the northern end (Appendix B2, Photos 8-13; Appendix C2, Data Form D3). The east-west portion of the ditch is lined with concrete which continues a short way into the north-south segment. Ditch D3 is connected to ditch D5 via a culvert the crosses over ditch D1. No flow was present at the time of the field visit; however direction of flow appears to be to the west from the culvert at ditch D1 and then south along the western site boundary. Substrate is silty clay. Evidence of flow includes scour marks, lack of vegetation, and presence of clear bed and banks. Ditch D3 averages 3 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D4

Ditch D4 traverses the site diagonally from the intersection of ditches D1 and D3 southwest to the northern end of wetland W3 (Appendix B2, Photo 15; Appendix C2, Data Form D4). No flow was present at the time of the field visit. Direction of flow appears to be northeast to southwest. Flow from this ditch may provide some hydrological support for wetland W3. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses and watercress. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D4 averages 4 feet across at top of bank and an average 0.75 foot from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D5

Ditch D5 traverses the site east to west, beginning at the eastern site boundary and flowing due west to its connection with ditch D3 via a culvert over ditch D1 (Appendix B2, Photo 16; Appendix C2, Data Form D5). At the eastern end ditch D5 is connected with ditch D7 from the north and ditch D8 to the south. Ditch D5 consists of two parallel channels separated by a low vegetated berm. No flow was observed at the time of the field visit, however shallow standing water was present in places. Direction of flow appears to be east to west. Evidence of flow includes scour mark, lack of vegetation, and presence of clear bed and banks in both channels. The substrate consists of silty clay. Including both channels ditch D5 averages 10 feet across at top of bank with the center berm 2 to 3 feet wide. Channel depth averages 1.5 feet from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D6

Ditch D6 traverses the site from southeast to northwest along the northern site boundary (Appendix B2, Photo 21; Appendix C2, Data Form D6). No flow was present at the time of the field visit. Evidence of flow includes scour marks, lack of vegetation, and presence of clear bed and shallow banks. Direction of flow appears to be southwest to northeast with ditch D6 draining into the northernmost segment of ditch D1. No surface connection was observed between ditch D6 and ditch D7 immediately southeast of D6. Ditch D6 averages 2.5 feet across at top of bank. Channel depth averages 0.5 feet. Substrate is silty clay. Adjacent vegetation consists of pasture grasses to the southwest and a thicket of shrubs with some trees offsite to the northeast.

Ditch D7

Ditch D7 traverses the site from northwest to southeast (Appendix B2, Photos 22-24; Appendix C2, Data Form D7). No flow was present at the time of the field investigation. The western portion of ditch D7 runs parallel to and a short distance away from ditch D6. Evidence of flow includes scour marks and presence of bed and shallow banks. The channel is mostly devoid of vegetation. This segment of ditch D7 averages

3 feet across at top of bank and 0.5 feet from top of bank to substrate. Substrate is silty clay. Flow in this segment appears to be southeast to northwest, originating at a water control structure that connects the western and eastern segments of ditch D7. Adjacent upland vegetation is planted pasture grasses.

The eastern segment of ditch D7 originates at the water control structure and appears to flow northwest to southeast. This segment of the channel is lined in concrete and averages 3 feet across at top of bank and 1.25 feet from top of bank to substrate. Adjacent upland vegetation consists of pasture grasses to the southwest and unmaintained grasses and forbs offsite to the northeast.

Ditch D8

Ditch D8 traverses the site from north to south along the eastern boundary of the site (Appendix B2, Photo 25; Appendix C2, Data Form D8). Ditch D8 is a continuation of ditch D7 south of its intersection with ditch D5. No flow was present at the time of the field investigation, however shallow standing water was observed in some places. Direction of flow appears to be north to south. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses and watercress. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D8 averages 2.5 feet across at top of bank and an average 0.75 foot from top of bank to substrate. Adjacent upland vegetation consists of planted pasture grasses.

Ditch D9

Ditch D9 extends diagonally from ditch D8 to the southwest site (Appendix B2, Photo 26; Appendix C2, Data Form D9). No flow was present at the time of the field investigation. Direction of flow appears to be northeast to southwest. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D9 averages 2 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Adjacent upland vegetation is planted pasture grasses.

Ditch D10

Ditch D10 extends due south from ditch D5 (No photo; Appendix C2, Data Form D10). No flow was present at the time of the field investigation. Direction of flow appears to be north to south. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D10 averages 1.5 feet across at top of bank and an average 0.3 feet from top of bank to substrate. Adjacent upland vegetation is planted pasture grasses.

Ditch D11

Ditch D11 extends slightly northwest to southeast from ditch D4 to ditch D2 (No photo; Appendix C2, Data Form D11). No flow was present at the time of the field investigation. Direction of flow appears to be north to south. Substrate is silty clay. Scattered vegetation in the ditch include small clumps of grasses and occasional rushes. Evidence of flow includes scour marks and presence of clear bed and shallow banks. Ditch D11 averages 2 feet across at top of bank and an average 0.5 feet from top of bank to substrate. Adjacent upland vegetation is planted pasture grasses.

Ditch D12 (partially offsite)

Ditch D12 is located just south of and parallel to the southern boundary of the site. Description of this ditch is based on offsite observation. Ditch D12 averages 6 feet across at top of bank and is an average 2 feet from top of bank to substrate. The ditch begins approximately 300 feet east of Old Highway 10 and flows east to the eastern end of the project site boundary, then turns south where it continues for an indeterminant distance. Flow was present in the ditch at the time of the field visit.

Table 6. Nonwetland Waters: Preliminary Jurisdictional Determinations

Nonwetland Waters ID #	Length (feet)	Average Width (feet)	Flow Regime	OHWM?	Relocates or Excavated in a Tributary?	Drains Wetlands?	Intersects a Regulated Feature?	Flows to WOUS?	Potential Jurisdiction Notes
D1	2170.0	15	perennial	Yes	No	**Yes**	**Yes**	**Yes**	Presumed jurisdictional due to perennial flow
D2	473.0	6	intermittent	Yes	No	**Yes**	**Yes**	No	Potentially jurisdictional as it intersects and potentially drains Wetland W2
D3	1705.0	3	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D4	340.0	4	intermittent	Yes	No	No	**Yes**	No	Potentially jurisdictional as it intersects and potentially drains Wetland W3
D5	1096.0	10	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D6	760.0	2.5	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D7	1044.0	3	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D8	1185.0	2.5	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D9	415.0	2	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D10	825.0	1.5	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D11	420.0	2	intermittent	Yes	No	No	No	No	Presumed not jurisdictional as it does not flow to a WOUS
D12 (partially offsite)	1,427	6	intermittent	Yes	No	No	**Yes**	Unknown	Potentially jurisdictional as it intersects and drains Ditch D and appears to also intersect wetlands W1

3.2.3 Sensitive Plant, Fish, Wildlife, and Cultural/Historic Properties

Results of the database searches identified six special-status species as having the potential to occur on or adjacent to the site (USFWS, 2018a; Appendix E). No designated or proposed critical habitat (USFWS, 2018a) was identified within the survey area. No state or federally listed special-status species were observed during the field evaluation. No suitable habitat to support any listed species was observed onsite. Given species habitat and range requirements, and suitable habitat observed onsite, suitable nesting habitat for birds subject to the Migratory Bird Treaty Act is present within and adjacent to the work area.

A cultural resources assessment was conducted October 24 – 26, 2018 and will be documented and provided for agency review under separate cover as part of the permit application process for the project, as necessary.

4. Conclusions

Brief summary of total area and types of wetlands and other regulated waters:

The wetland delineation identifies three wetland features (2.07 acres), eleven nonwetland waters (constructed ditches) in the study area (10,433 linear feet; 1.47 acres), and one constructed ditch offsite immediately south of the study area (1,427 linear feet; 0.2 acre). The wetlands and nonwetland waters identified in this report are potentially subject to federal and/or state jurisdiction. Jurisdictional determinations, including the potential applicability of jurisdictional exemptions, are made on a case-by-case basis by the regulatory agencies. Wetland W1, W2, and W3 are presumed jurisdictional under local and federal regulations. Ditches D1, D2, D4, and the offsite ditch D12 are presumed jurisdictional under federal regulations (EPA, 2015). They are presumed not jurisdictional under local regulations as the city of Ellensburg does not take jurisdiction over ditches (Ellensburg City Code 15.130.230)(City of Ellensburg, 2019). The determinations in this report are preliminary and are advisory only. Final determinations are made by the regulatory agencies. Table 7 summarizes potential federal, state, and local jurisdiction.

Table 7. Summary of Potential Federal, State, and Local Jurisdiction

Feature ID	Federal	State	City of Ellensburg
Wetlands (3)			
Wetland-1	Yes	Yes	Yes
Wetland-2	Yes	Yes	Yes
Wetland-3	Yes	Yes	Yes
Nonwetland Waters (12)			
Ditch D1	Yes	No	No
Ditch D2	Yes	No	No
Ditch D3	No	No	No
Ditch D4	Yes	No	No
Ditch D5	No	No	No
Ditch D6	No	No	No
Ditch D7	No	No	No
Ditch D8	No	No	No
Ditch D9	No	No	No
Ditch D10	No	No	No
Ditch D11	No	No	No
Ditch D12 (partially offsite)	Yes	No	No

Statement regarding the need for permits

Wetlands are regulated by the USACE under Section 404 of the Clean Water Act. If any fill is to be placed in the wetland, the USACE must be notified and the appropriate permits obtained. If any proposed wetland alteration requires a federal permit, Washington Department of Ecology Individual 401 Water Quality Certification and Coastal Zone Management Consistency determination would also be required. In 2015, the Environmental Protection Agency (EPA) and the USACE published a final rule (2015 Clean Water Rule) defining the scope of waters protected under the Clean Water Act (USACE and EPA, 2015). The Rule currently applies in 22 states, including Washington. The Clean Water Rule clearly defines three jurisdictional categories of wetlands: 1) waters that are jurisdictional in all cases, 2) waters that are jurisdictional by definition, and 3) waters subject to specific analysis to determine whether they are jurisdictional.

Waters that are jurisdictional by rule include “adjacent” waters, including wetlands. Adjacent waters include 1) wetlands or waters bordering, contiguous with, or neighboring a water of the U.S., 2) waters for which any portion is within 100 feet of the OHWM of a water of the U.S. and 3) wetlands or waters within the 100-year floodplain, and within 1,500 feet of the OHWM of a water of the U.S. Most ditches are excluded from regulation under this rule. Excluded ditches include 1) ditches with ephemeral flow and not a relocated tributary or excavated in a relocated tributary, 2) ditches with intermittent flow and not a relocated tributary or excavated in a relocated tributary, and does not drain wetland, and 3) ditches that do not flow to traditionally navigable waters. Regulated ditches must meet the definition of a tributary (e.g., bed and bank, OHWM, and connection). Regulated ditches include 1) ditches with perennial flow, 2) ditches with intermittent flow that are in a relocated tributary or drain wetlands, 3) ditches, regardless of flow, that are excavated in or relocate a tributary, and 4) intermittently flowing ditches that intersect regulated features or drain wetlands.

Ecology regulates isolated wetlands under the State Clean Water Act (RCW 90.48). If any alteration of isolated wetlands is proposed, Ecology must be notified to coordinate their regulatory review. Federally permitted actions that could affect endangered species may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. These requirements are applicable to all wetlands on the project site.

Disclaimer

This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of the preparer’s knowledge. It should be considered a preliminary determination of potentially jurisdictional wetlands and other waters and used at one’s own risk unless it has been reviewed and approved in writing by the City of Ellensburg, Washington, and accepted by the USACE.

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Appendix A
Figures

Figures

1 Project Area Map

2 National Wetlands Inventory

3 National Hydrography Dataset Map

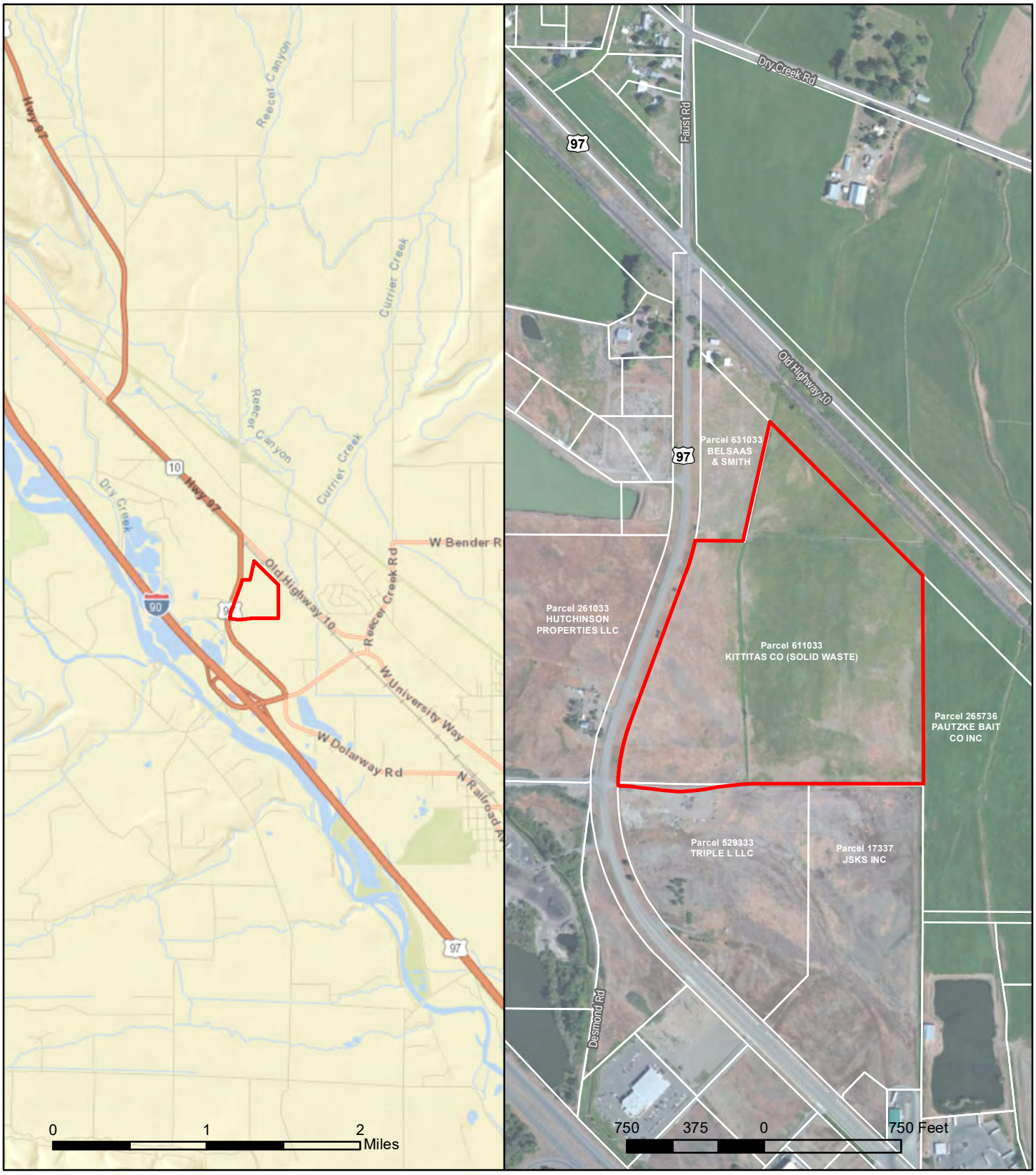
4 NRCS Soils Map

5 USGS Topography Map

6a Wetland Delineation Map: Overview

6b Wetland Delineation Map: Photo Point Locations

6c Wetland Delineation Map: Sample Point Locations



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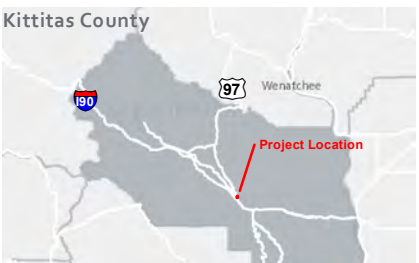

Legend

Site Boundary

Figure 1
Kittitas County Transfer Station and Maintenance Facility Relocation Project
SITE LOCATION

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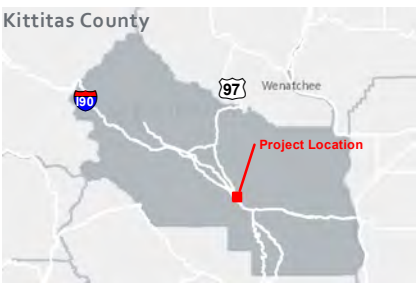

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NWI Wetlandd Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Site Boundary
- Study Area Boundary

0 250 500 Feet

Figure 2
Kittitas County Transfer Station and Maintenance Facility Relocation Project
NATIONAL WETLAND INVENTORY

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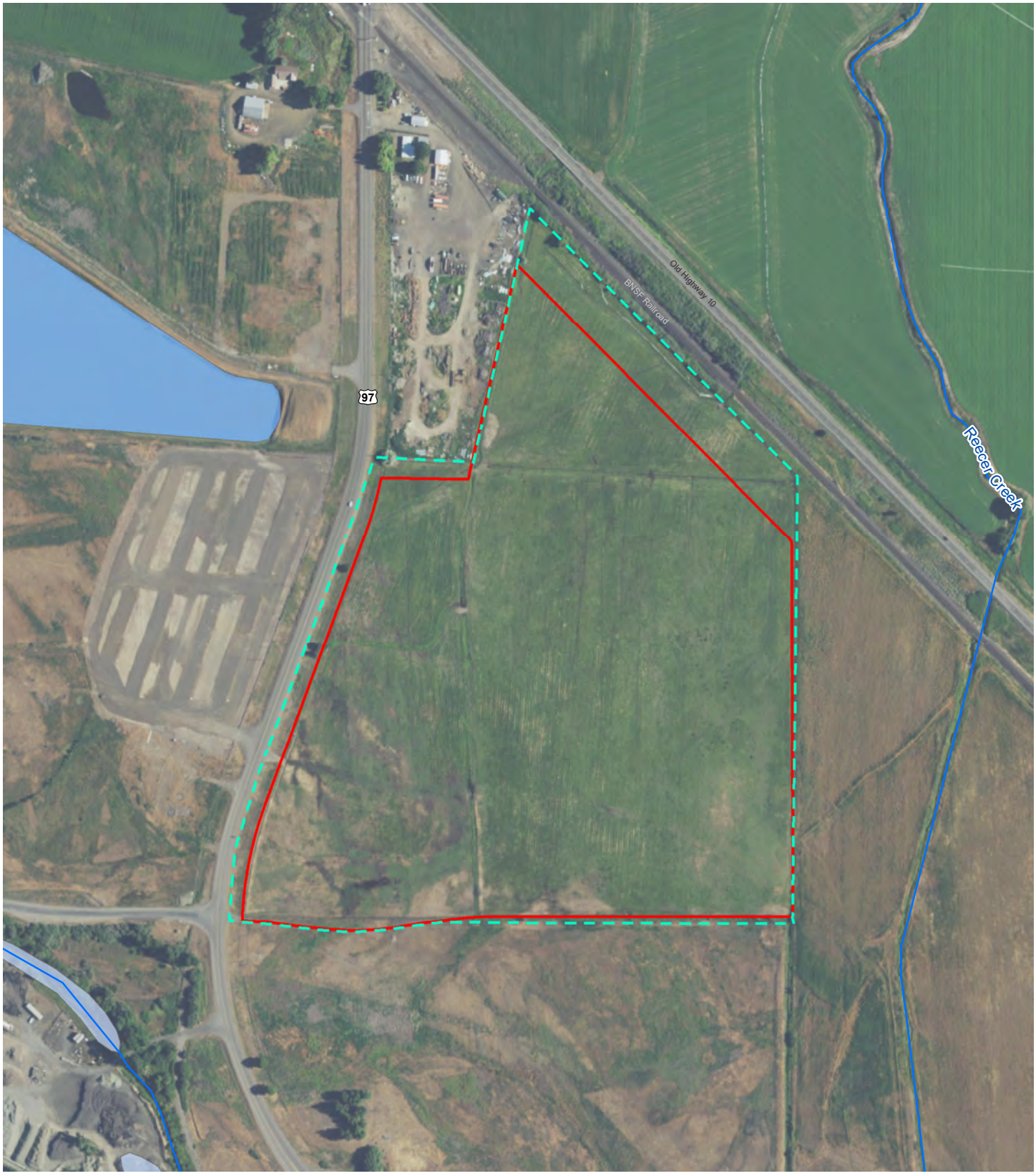

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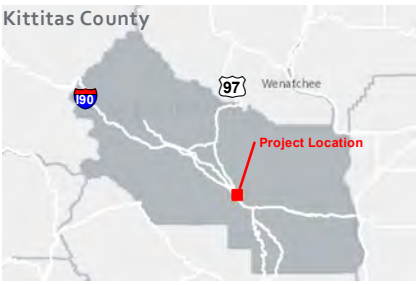

Legend

- NHDFlowline
- LakePond
- Reservoir
- Site Boundary
- Study Area Boundary

0 250 500 Feet

Figure 3
Kittitas County Transfer Station and Maintenance Facility Relocation Project
NATIONAL HYDROGRAPHY

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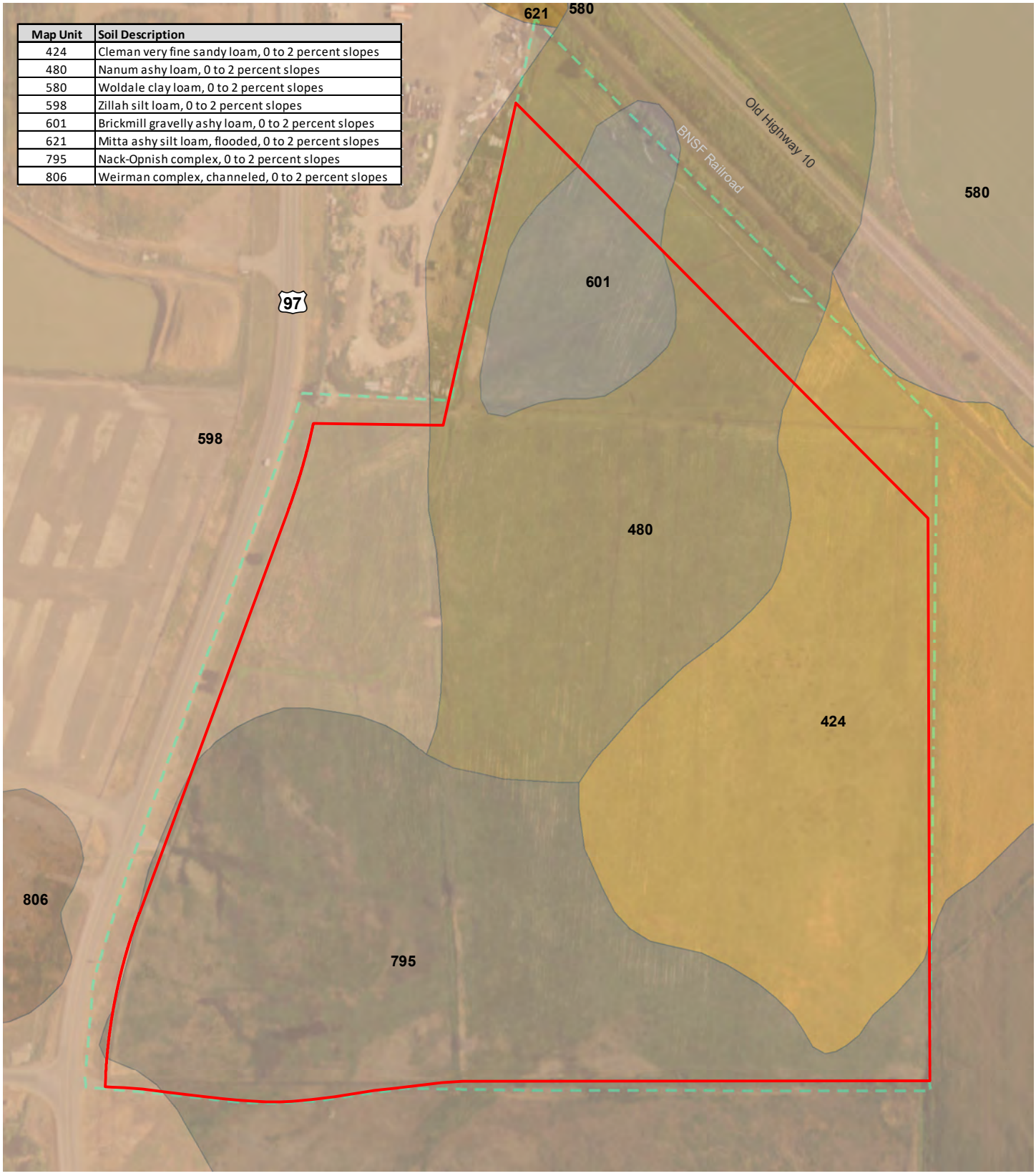
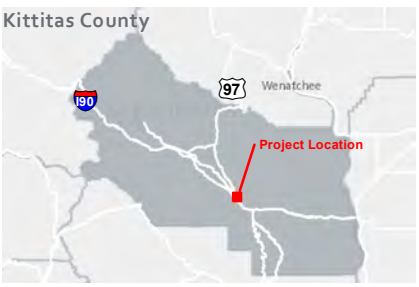


Map Unit	Soil Description
424	Cleman very fine sandy loam, 0 to 2 percent slopes
480	Nanum ashy loam, 0 to 2 percent slopes
580	Woldale clay loam, 0 to 2 percent slopes
598	Zillah silt loam, 0 to 2 percent slopes
601	Brickmill gravelly ashy loam, 0 to 2 percent slopes
621	Mitta ashy silt loam, flooded, 0 to 2 percent slopes
795	Nack-Opnish complex, 0 to 2 percent slopes
806	Weirman complex, channeled, 0 to 2 percent slopes

Locator Map



Legend

- Site Boundary
- Study Area Boundary

Map Unit

- 424
- 480
- 580
- 598
- 601
- 621
- 795
- 806

0 250 500 Feet

Figure 4
Kittitas County Transfer Station and Maintenance Facility Relocation Project
NRCS SOILS

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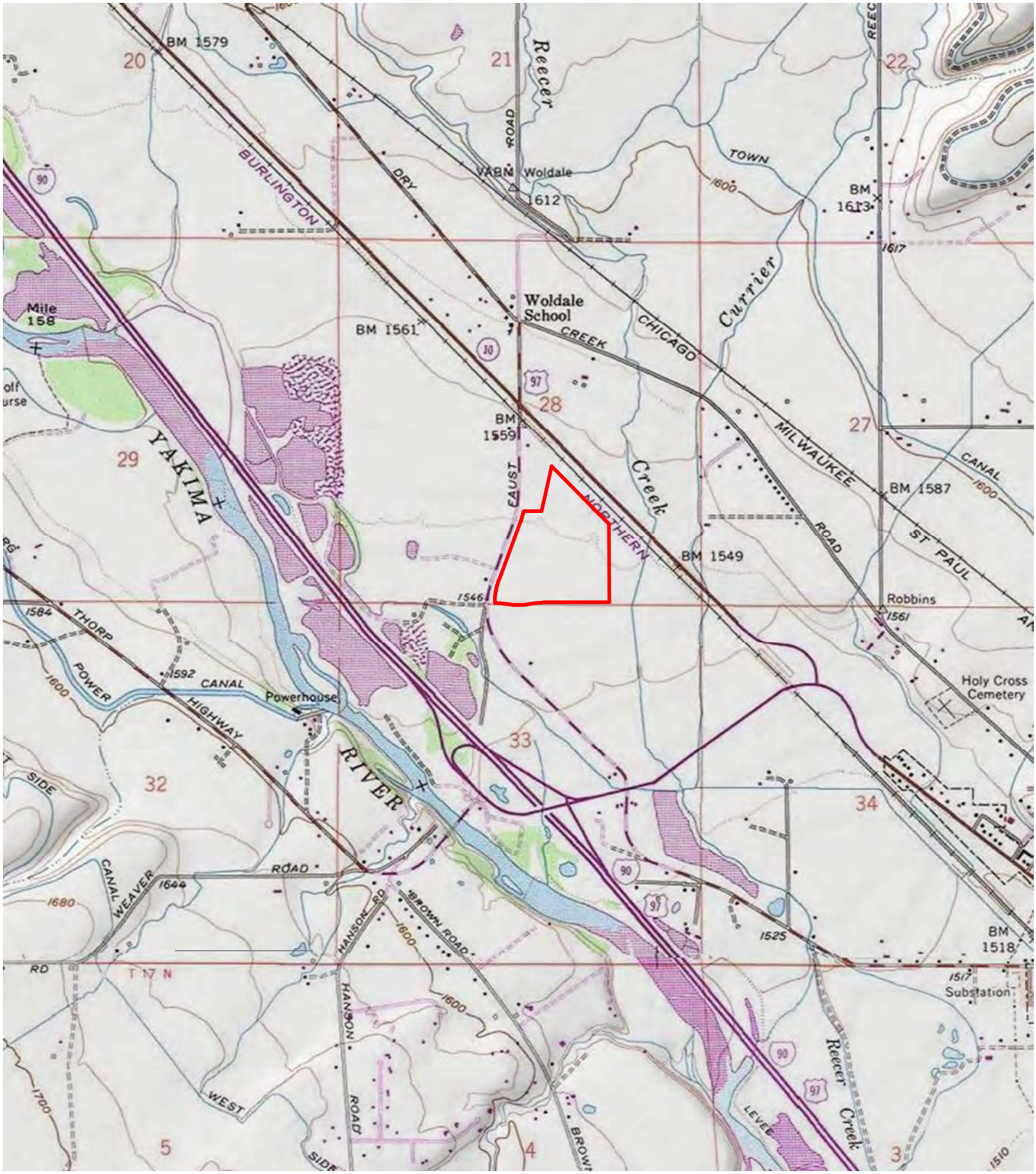

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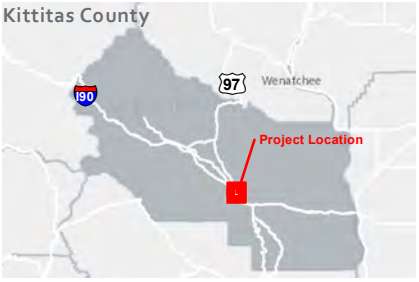

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Site Boundary

0 1,200 2,400 Feet

Figure 5

Kittitas County Transfer Station and Maintenance Facility Relocation Project

USGS Topographic Map

Ellensburg North Washington

JACOBS

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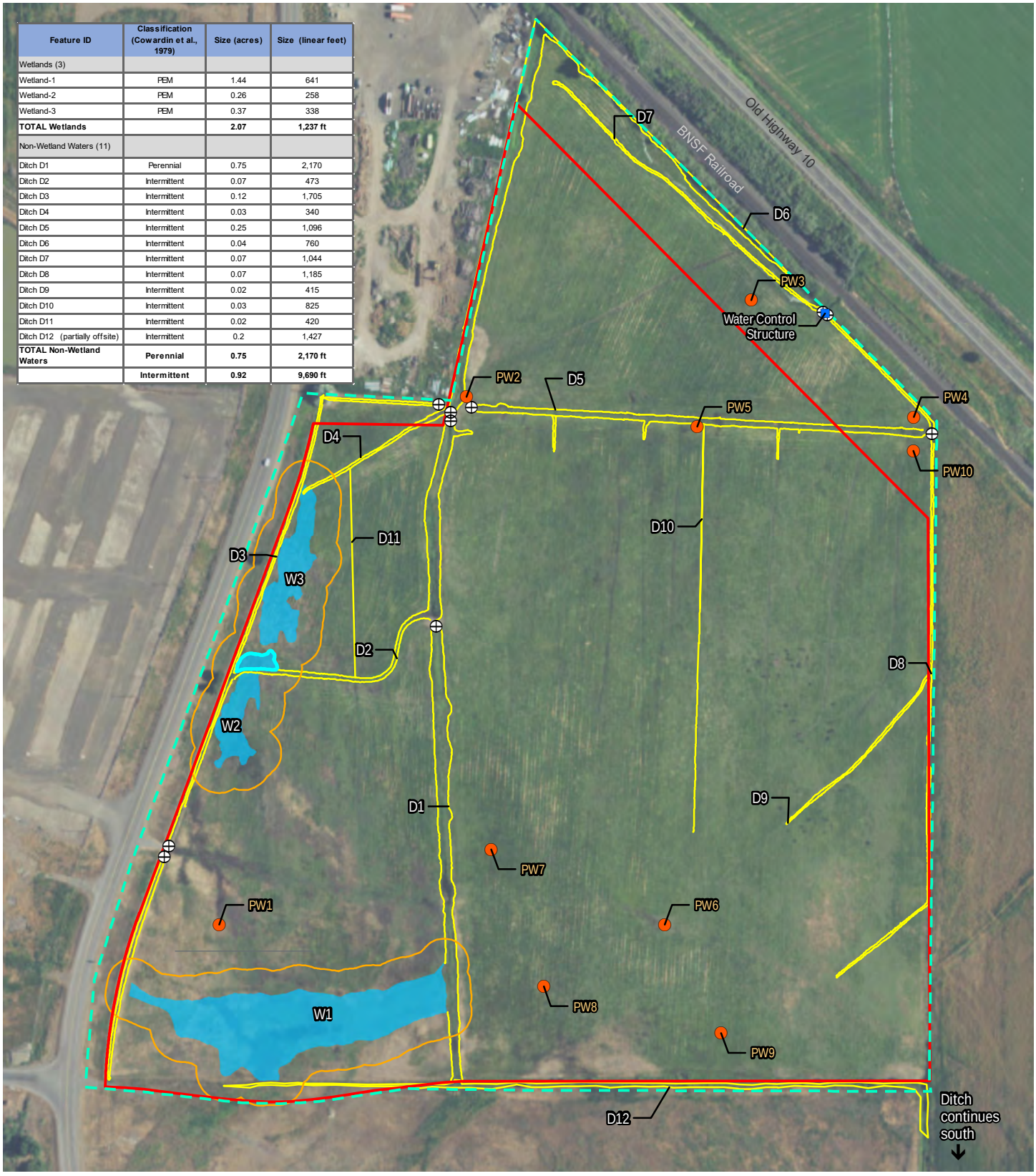
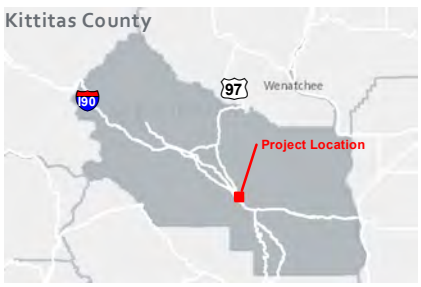
Feature ID	Classification (Cowardin et al., 1979)	Size (acres)	Size (linear feet)
Wetlands (3)			
Wetland-1	PEM	1.44	641
Wetland-2	PEM	0.26	258
Wetland-3	PEM	0.37	338
TOTAL Wetlands		**2.07**	**1,237 ft**
Non-Wetland Waters (11)			
Ditch D1	Perennial	0.75	2,170
Ditch D2	Intermittent	0.07	473
Ditch D3	Intermittent	0.12	1,705
Ditch D4	Intermittent	0.03	340
Ditch D5	Intermittent	0.25	1,096
Ditch D6	Intermittent	0.04	760
Ditch D7	Intermittent	0.07	1,044
Ditch D8	Intermittent	0.07	1,185
Ditch D9	Intermittent	0.02	415
Ditch D10	Intermittent	0.03	825
Ditch D11	Intermittent	0.02	420
Ditch D12 (partially offsite)	Intermittent	0.2	1,427
TOTAL Non-Wetland Waters	**Perennial**	**0.75**	**2,170 ft**
	Intermittent	**0.92**	**9,690 ft**



Locator Map



Legend

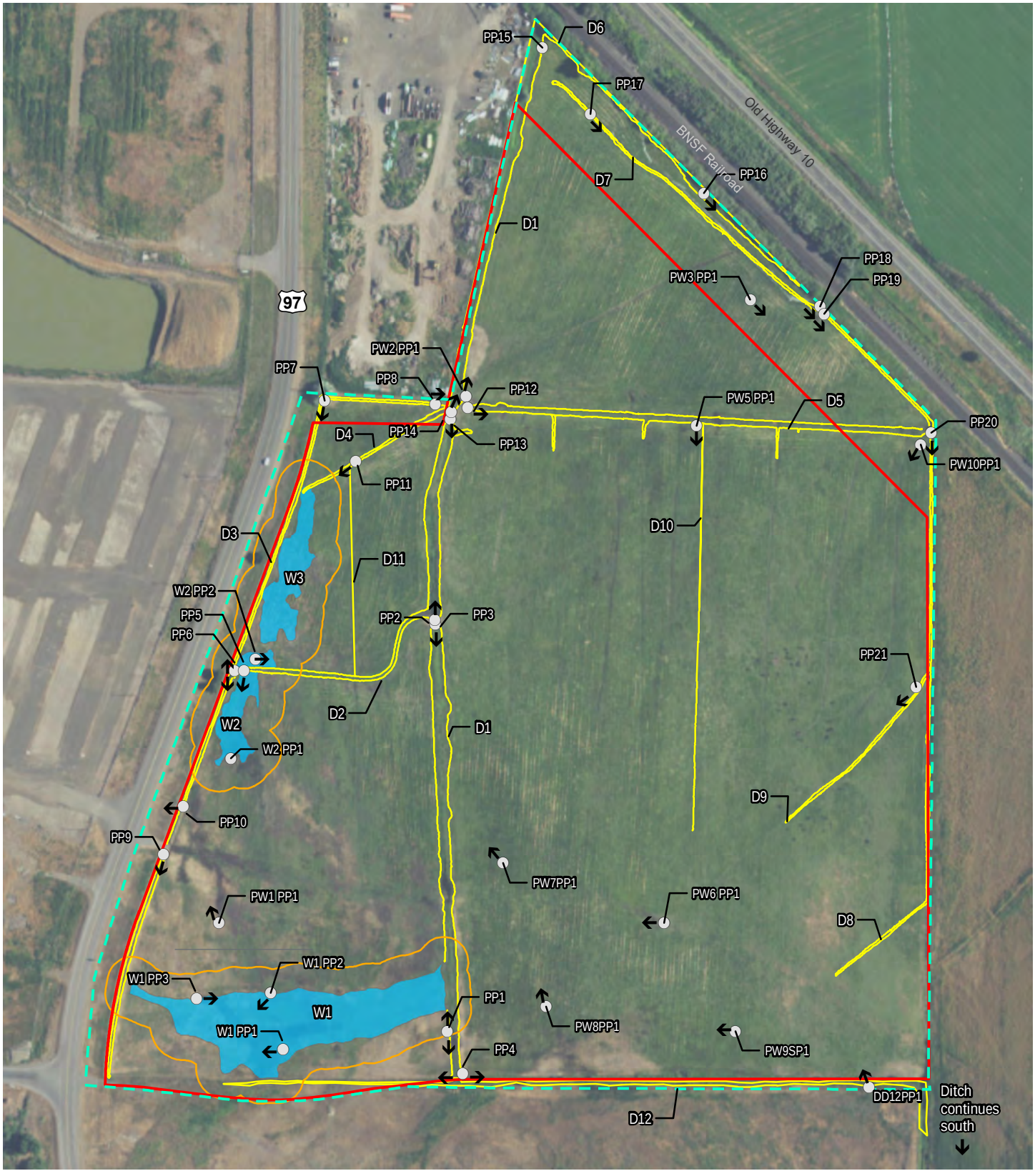
- Potential Wetlands
- Culvert
- Water Control Structure
- Ditch
- 50 ft buffer
- Wetland
- Site Boundary
- Study Area Boundary

0 250 500 Feet

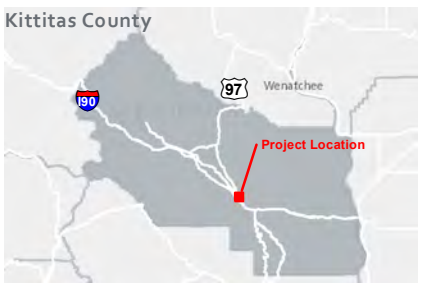
Figure 6a
Kittitas County Transfer Station and Maintenance Facility Relocation Project
WETLAND OVERVIEW

JACOBS

Document Path: \\brooksidefiles\GIS_SHARE\ENBG\oo_Proj\K\Kittitas_County_WA\Maps\Report\o2_Wetland_Overview_a.mxd



Locator Map



Legend

- Photo Direction
- Photo Point
- Ditch
- 50 ft buffer
- Wetland
- Site Boundary
- Study Area Boundary

0 250 500 Feet

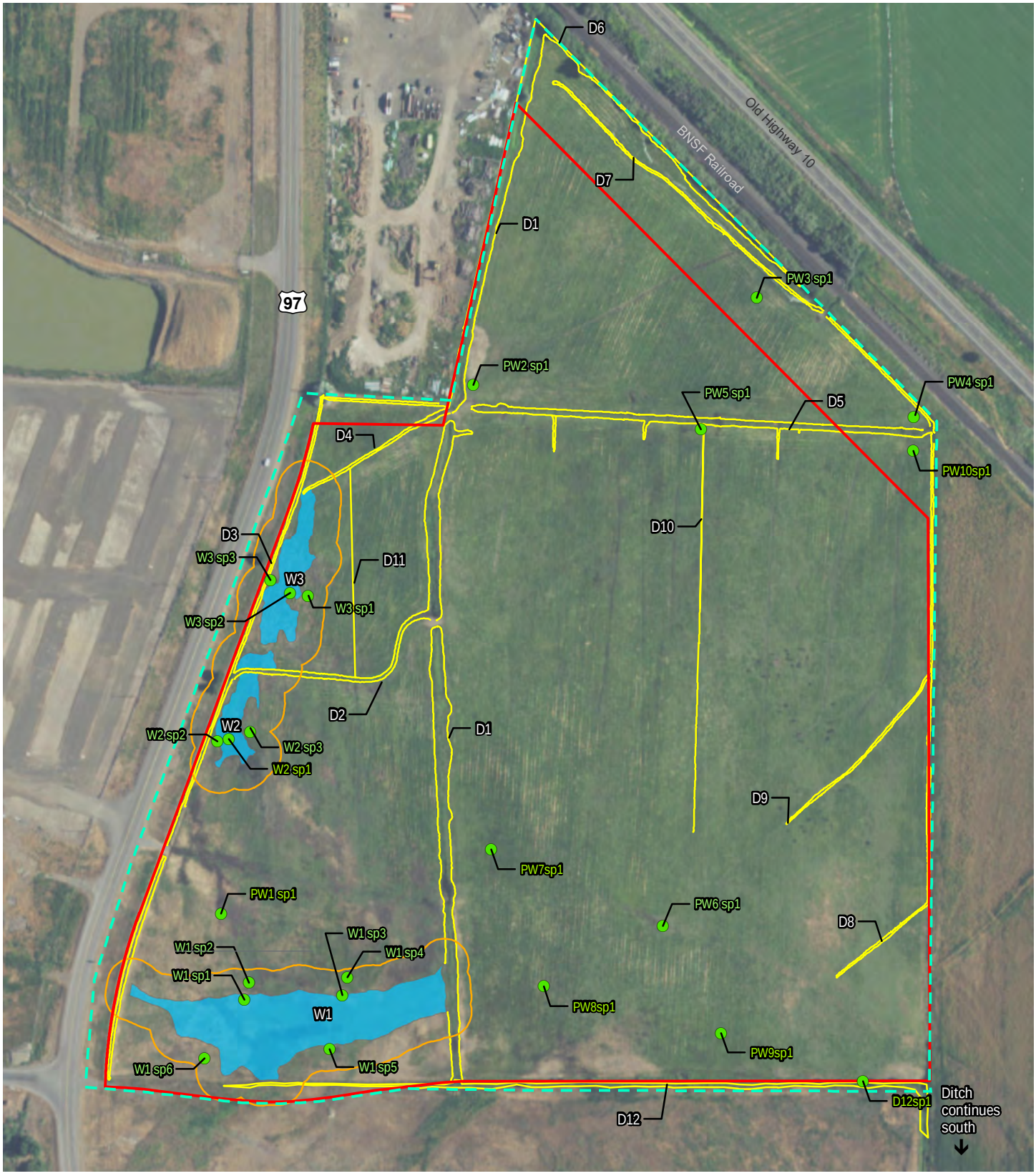
Figure 6b

Kittitas County Transfer Station and Maintenance Facility Relocation Project

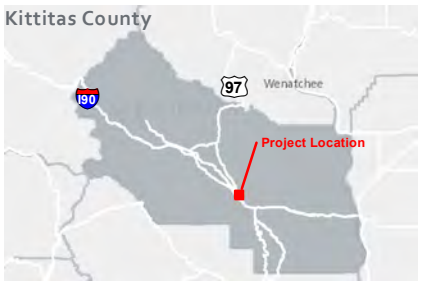
WETLAND PHOTO LOCATIONS

JACOBS

Document Path: \\brooksidefiles\GIS_SHARE\ENBG\oo_Proj\K\Kittitas_County_WA\Maps\Report\o3_Wetland_PhotoLocations.mxd



Locator Map



Legend

- Sample Point
- Ditch
- 50 ft buffer
- Wetland
- Site Boundary
- Study Area Boundary

0 250 500 Feet

Figure 6c
Kittitas County Transfer Station and Maintenance Facility Relocation Project
WETLAND SAMPLE LOCATIONS

JACOBS

Document Path: \\brooksidefiles\GIS_SHARE\ENBG\oo_Proj\K\Kittitas_County_WA\Maps\Report\04_Wetland_SampleLocations.mxd

Appendix B
Site Photographs

Site Photographs

B1 Wetlands and Potential Wetlands

B2 Nonwetland Waters (Ditches)

Photo 1 Wetland 1, view southwest from photo point WW1 PP1.

Photo 2 Wetland 1, view southwest from photo point WW1 PP2.

Photo 3 Wetland 1, view east from photo point WW1 PP3.

Photo 4 Wetland 2, view north from photo point WW2 PP1.

Photo 5 Wetland 2, view south from photo point WW2 PP2.

Photo 6 View northwest of potential wetland area PW1.

Photo 7 View north of potential wetland area PW2.

Photo 8 View northeast of potential wetland area PW3.

Photo 9 View south of potential wetland area PW 5.

Photo 10 View west of possible wetland area PW6.

Photo 11 View of potential wetland area PW7.

Photo 12 View of potential wetland area PW8.

Photo 13 View of potential wetland area PW9.

Photo 14 View of potential wetland area PW10

Photo 1 View north from Photo Point 1, ditch D1.

Photo 2 View south from Photo Point 1, ditch D1.

Photo 3 View south from Photo Point 2, ditch D1.

Photo 4 View north from Photo Point 3, ditch D1.

Photo 5 View west from Photo Point 4 of vegetated ditch south of site.

Photo 6 View east from Photo Point 4 of vegetated ditch south of site.

Photo 7 View northeast from Photo Point 5, ditch D2.

Photo 8 View south from Photo Point 2, ditch D3.

Photo 9 View north from Photo Point 6, ditch D3.

Photo 10 View south from Photo Point 7, ditch D3.

Photo 11 View east from Photo Point 7, ditch D3.

Photo 12 View east from Photo Point 8, ditch D3 crossing of ditch D1.

Photo 13 View south from Photo Point 9, ditch D3

Photo 14 View west from Photo Point 10, ditch entering site from culver under road.

Photo 15 View southwest from Photo Point 11, ditch D4.

Phot 16 View east from Photo Point 12, ditch(es) D5.

Photo 17 View south from Photo Point 13, ditch D1.

Photo 18 View north from Photo Point 14, ditch D1.

Photo 19 View south from Photo Point 15, ditch D1.

Photo 20 View north from Photo Point 15, ditch D1.

Photo 21 View southeast from Photo Point 16, ditch D6.

Photo 22 View southeast from Photo Polnt 17, ditch D7.

Photo 23 View east from Photo Point 18, water control structure in ditch D7.

Photo 24 View east from Photo Point 19, ditch D7.

Photo 25 View south from Photo Point 20, ditch D8.

Photo 26 View southwest from Photo Point 21, ditch D9.

Photo 27 View east of ditch D12 (offsite).

Appendix C
Field Datasheets

Field Datasheets

C1 Wetland Delineation Field Datasheets

C2 Watercourse or Ditch Characterization Field Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W1 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

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

Subregion (LRR): LRR B Lat: 47.0144774685 Long: -120.592876992 Datum:

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes 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 ____ 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: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Agrostis stolonifera	20	X	FACW
2. Poa pratensis	20	X	FAC
3. Rumex salicifolius	10		OBL
4. Juncus effusus	20	X	FACW
5. Ranunculus sceleratus	5		OBL
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W1 SP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					silty clay	
8-18	10YR 3/2	95	7.5YR 4/6	5	C	M	clayey 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 8

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W1 SP2

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

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

Subregion (LRR): LRR B Lat: 47.0145702113 Long: -120.592838665 Datum:

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Festuca idahoensis	30	X	FACU
2. Poa pratensis	20	X	FAC
3. Agrostis stolonifera	30	X	FACW
4. Juncus effusus	5		FACW
5. Trifolium repens	10		FACU
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

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: 67 (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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W1 SP2

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
0-10	10YR 3/2	100					clayey silt	clayey silt loam
10-18	10YR 3/2	100					gravelly s	gravelly 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W1 SP3

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

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

Subregion (LRR): LRR B Lat: 47.0145033373 Long: -120.59208055 Datum:

Soil Map Unit Name: Nack-Opnish complex, 0 to 2 percent slopes NWI classification: PEM1C

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 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Agrostis stolonifera	20	X	FACW
2. Juncus effusus	20	X	FACW
3. Poa pratensis	20	X	FAC
4. Festuca idahoensis	10		FACU
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W1 SP3

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
0-8	10YR 3/1	95	5YR 4/6	5	C	M	silty clay	
8-16	10YR 3/2	90	7.5YR 4/6	10	C	M	clayey 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 8

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W1 SP4

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

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

Subregion (LRR): LRR B Lat: 47.01460248 Long: -120.592040316 Datum:

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Festuca idahoensis	20	X	FACU
2. Poa pratensis	30	X	FAC
3. Agrostis stolonifera	20	X	FACW
4. Juncus effusus	10		FACW
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

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: 67 (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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W1 SP4

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
0-8	10YR 3/2	100					clayey silt	clayey silt loam
8-16	10YR 3/2	100					gravely s	gravelly 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W1 SP5

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

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

Subregion (LRR): LRR B Lat: 47.0142023025 Long: -120.592185554 Datum:

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Festuca idahoensis	30	X	FACU
2. Agrostis stolonifera	50	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

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 50	x 2 = 100
FAC species _____	x 3 = _____
FACU species 30	x 4 = 120
UPL species _____	x 5 = _____
Column Totals: 80 (A)	220 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ 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: W1 SP5

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
0-18	10YR 3/2	99	10YR 3/6	1	C	M	clayey silt	clayey silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W1 SP6

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

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

Subregion (LRR): LRR B Lat: 47.0141510224 Long: -120.593198912 Datum:

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Festuca idahoensis	40	X	FACU
2. Agrostis stolonifera	50	X	FACW
3. Hypochaeris radicata	10		DACU
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

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 50	x 2 =	100
FAC species	x 3 =	
FACU species 50	x 4 =	200
UPL species	x 5 =	
Column Totals: 100 (A)		300 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ 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: W1 SP6

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
0-18	10YR 3/2	99	10YR 3/6	1	C	M	clayey silt	clayey silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W2 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0159229426 Long: -120.593004308 Datum:

Soil Map Unit Name: Zillah silt loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Poa pratensis	20	X	FAC
2. Juncus effusus	40	X	FACW
3. Rumex salicifolius	20	X	FACW
4. Nasturtium occidentale	5		OBL
5.			
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W2 SP1

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
0-8	10YR 3/1	100					cobbly sil	cobbly silt loam
8-16	10YR 3/1	95	7.5YR 4/6	5	C	M	gravelly si	gravelly silty clay

[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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 6

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W2 SP2

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0159097548 Long: -120.593099325 Datum:

Soil Map Unit Name: Zillah silt loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Poa pratensis	40	X	FAC
2. Festuca idahoensis	20	X	FACU
3. Agrostis stolonifera	20	X	FACW
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

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: 67 (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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W2 SP2

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
0-18	10YR 3/2	100					silt loam	gravelly

[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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W2 SP3

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0159633775 Long: -120.592829769 Datum:

Soil Map Unit Name: Zillah silt loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Poa pratensis	60	X	FAC
2. Festuca idahoensis	30	X	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

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	x 2 =	
FAC species 60	x 3 =	180
FACU species 30	x 4 =	120
UPL species	x 5 =	
Column Totals: 90 (A)		300 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W2 SP3

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
0-18	10YR 3/2	100					silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W3 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0167192447 Long: -120.592362717 Datum:

Soil Map Unit Name: Zillah silt loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Poa pratensis	40	X	FAC
2. Festuca idahoensis	20	X	FACU
3. Agrostis stolonifera	20	X	FACW
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

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: 67 (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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W3 SP1

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
0-18	10YR 3/2	100					silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W3 SP2

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0167343972 Long: -120.592510681 Datum:

Soil Map Unit Name: Zillah silt loam, 0 to 2 percent slopes 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 _____ 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: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Poa pratensis	30	X	FAC
2. Juncus effusus	20	X	FACW
3. Rumex salicifolius	30	X	FACW
4. Agrostis stolonifera	5		FACW
5. Nasturtium occidentale	5		OBL
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W3 SP2

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
0-6	10YR 3/1	100					cobbly sil	cobbly silt loam
6-18	10YR 3/1	95	7.5YR 4/6	5	C	M	gravelly si	gravelly silty clay

[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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 8

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: W3 SP3

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0168033206 Long: -120.592670338 Datum:

Soil Map Unit Name: Zillah silt loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Poa pratensis	50	X	FAC
2. Festuca idahoensis	30	X	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

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	x 2 =	
FAC species 50	x 3 =	150
FACU species 30	x 4 =	120
UPL species	x 5 =	
Column Totals: 80 (A)		270 (B)

Prevalence Index = B/A = 3.375

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: W3 SP3

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
0-18	10YR 3/2	100					silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: PW1 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.01495385 Long: -120.593068933 Datum:

Soil Map Unit Name: Nack-Opnish, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Poa pratensis	5		FAC
2. Juncus effusus	10		FACW
3. Rumex salicifolius	5		FACW
4. Trifolium repens	20	X	FACU
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 15	x 2 = 30
FAC species 5	x 3 = 15
FACU species 20	x 4 = 80
UPL species _____	x 5 = _____
Column Totals: 40 (A)	125 (B)

Prevalence Index = B/A = 3.125

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ 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: PW1 SP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	98	10YR 3/6	2	C	M	clayey silt	clayey silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: PW2 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0178882611 Long: -120.591023754 Datum:

Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Festuca idahoensis	20	X	FACU
2. Juncus effusus	10		FACW
3. Veronica americana	10		OBL
4. Ranunculus sceleratus	5		OBL
5.			
6.			
7.			
8.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 15	x 1 = 15
FACW species 10	x 2 = 20
FAC species _____	x 3 = _____
FACU species 20	x 4 = 80
UPL species _____	x 5 = _____
Column Totals: 45 (A)	115 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ 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: PW2 SP1

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
0-16	10YR 3/2	100					clayey silt	clayey silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 10

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: PW3 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0183736127 Long: -120.588725173 Datum:

Soil Map Unit Name: Nanum ashy loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Festuca idahoensis	30	X	FACU
2. Poa pratensis	50	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

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	x 2 =	
FAC species 50	x 3 =	150
FACU species 30	x 4 =	120
UPL species	x 5 =	
Column Totals: 80 (A)		270 (B)

Prevalence Index = B/A = 3.375

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: PW3 SP1

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
0-8	10YR 3/2	100					clayey silt	clayey silt loam
8-16	10YR 3/2	100					sandy, gr	sandy, gravelly silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 8

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: PW4 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0177132276 Long: -120.587449409 Datum:

Soil Map Unit Name: Woldale clay loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Festuca idahoensis	20	X	FACU
2. Poa pratensis	50	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

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	x 2 =	
FAC species 50	x 3 =	150
FACU species 20	x 4 =	80
UPL species	x 5 =	
Column Totals: 70 (A)		230 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: PW4 SP1

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
0-10	10YR 3/2	100					clayey silt	clayey silt loam
10-16	10YR 3/2	100					sandy, gr	sandy, gravelly silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 6

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: PW5 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.0176430626 Long: -120.589179537 Datum:

Soil Map Unit Name: Nanum ashy loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Festuca idahoensis	40	X	FACU
2. Poa pratensis	50	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

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	x 2 =	
FAC species 50	x 3 =	150
FACU species 40	x 4 =	160
UPL species	x 5 =	
Column Totals: 90 (A)		310 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: PW5 SP1

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
0-18	10YR 3/2	100					clayey silt	clayey silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 10

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station City/County: Ellensburg/Kittitas Sampling Date: 10/26/2016

Applicant/Owner: Kittitas Solid Waste State: WA Sampling Point: PW6 SP1

Investigator(s): P. O'Neill Section, Township, Range: T18N R18E S28

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR B Lat: 47.014887745 Long: -120.589481151 Datum:

Soil Map Unit Name: Cleman very fine sandy loam, 0 to 2 percent slopes 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Festuca idahoensis	40	X	FACU
2. Agrostis stolonifera	20	X	FACW
3. Rumex sallicifolia	20	X	FACW
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

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: 67 (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:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ 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: PW6 SP1

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
0-16	10YR 3/2	100					sandy silt	sandy silt 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)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ 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)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ 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) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

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): 10

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station | City/County: Ellensburg/Kittitas | Sampling Date: 5/7/2019

Applicant/Owner: Kittitas Solid Waste | State: WA | Sampling Point: PW7sp1

Investigator(s): Jen Bader, Kevin Haydon | Section, Township, Range: S28 T18N R18E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): LRR B | Lat: 47.015311 | Long: -120.590875 | Datum: NAD83

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes | NWI Classification: Upland

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:
Data Plot is east of the access road in the center of a patch of rushes and sedges that is approximately 100 feet east of ditch D1. Water is less than 1 inch deep within ditch D1.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5 ft)				
1. *Juncus balticus*	50	Y	49.5	FACW
2. *Carex filifolia*	25	Y	24.8	UPL
3. *Phleum pratense*	25	Y	24.8	FACU
4. *Taraxacum officinale*	1	N	1.0	FACU
5.				
6.				
7.				
8.				
	101 = Total Cover			
Woody Vine Stratum (Plot size: 15 ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	26	x 4 =	104
UPL species	25	x 5 =	125
Column Totals:	101 (A)		329 (B)

Prevalence Index = B/A = 3.257

Hydrophytic Vegetation Indicators:

[ ] Dominance Test is >50%

[ ] Prevalence Index is ≤3.0[1]

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

[ ] 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:
Vegetation adjacent to patch of rushes is primarily *Phleum pratense.*

SOIL

Sampling Point: PW7sp1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/2	100						Silty Clay Loam	
10-18	10YR	3/2	99	10YR	3/6	1	C	M	Silty Clay Loam	Faint Mottles

[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)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ 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)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:
Soil is relatively dry.

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) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ 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)
- ☐ Thick Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

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:
Irrigated field; however, this section of the field is relatively dry compared to the Northwest corner near data plot DP-4.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station | City/County: Ellensburg/Kittitas | Sampling Date: 5/7/2019

Applicant/Owner: Kittitas Solid Waste | State: WA | Sampling Point: PW8sp1

Investigator(s): Jen Bader, Kevin Haydon | Section, Township, Range: S28 T18N R18E

Landform (hillslope, terrace, etc.): Relatively flat | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): LRR B | Lat: 47.014551 | Long: -120.590449 | Datum: NAD83

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes | NWI Classification: Upland

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:
Data Plot is south of DP-1 in the center of a patch of rushes and sedges that is approximately 125 feet east of ditch D1. Water is less than 1 inch deep within ditch D1.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
Tree Stratum (Plot size: 30 ft)				
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5 ft)				
1. *Juncus balticus*	40	Y	44.4	FACW
2. *Carex filifolia*	40	Y	44.4	UPL
3. *Poa pratensis*	5	N	5.6	FAC
4. *Bromus tectorum*	3	N	3.3	UPL
5. *Barbarea orthoceras*	1	N	1.1	FACW
6. *Taraxacum officinale*	1	N	1.1	FACU
7.				
8.				
	90 = Total Cover			
Woody Vine Stratum (Plot size: 15 ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	41	x 2 =	82
FAC species	5	x 3 =	15
FACU species	1	x 4 =	4
UPL species	43	x 5 =	215
Column Totals:	90 (A)		316 (B)

Prevalence Index = B/A = 3.511

Hydrophytic Vegetation Indicators:

[ ] Dominance Test is >50%

[ ] Prevalence Index is ≤3.0[1]

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

[ ] 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:
The remainder of ground cover is litter.

SOIL

Sampling Point: PW8sp1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					Sandy silt clay	
6-18	10YR 2/1	100					Sandy silt clay	

[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)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ 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)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

Soil is damp below 8 inches.

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) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ 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)
- ☐ Thick Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station | City/County: Ellensburg/Kittitas | Sampling Date: 5/7/2019

Applicant/Owner: Kittitas Solid Waste | State: WA | Sampling Point: PW9sp1

Investigator(s): Jen Bader, Kevin Haydon | Section, Township, Range: S28 T18N R18E

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion (LRR): LRR B | Lat: 47.014295 | Long: -120.589008 | Datum: NAD83

Soil Map Unit Name: Nack-Opnish Complex, 0 to 2 percent slopes | NWI Classification: Upland

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:
Data Plot is east of DP-2 in the center of a patch of rushes and sedges near the southern boundary of the property.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5 ft)				
1. *Phleum pratense*	25	Y	33.3	FACU
2. *Juncus balticus*	25	Y	33.3	FACW
3. *Carex filifolia*	25	Y	33.3	UPL
4.				
5.				
6.				
7.				
8.				
	75 = Total Cover			
Woody Vine Stratum (Plot size: 15 ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 1 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	25	x 4 =	100
UPL species	25	x 5 =	125
Column Totals:	75 (A)		275 (B)

Prevalence Index = B/A = 3.667

Hydrophytic Vegetation Indicators:

[ ] Dominance Test is >50%

[ ] Prevalence Index is ≤3.0[1]

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

[ ] 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:
Vegetation adjacent to patch of rushes is primarily *Phleum pratense* with patchy *Carex filifolia.* The remainding ground cover is all litter.

SOIL

Sampling Point: PW9sp1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	3/2	100						Silty clay loam	
14-18	10YR	2/1	99	10YR	3/6	1	C	M	Silty clay loam	w/ some gravels

[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)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ 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)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:
Soil is damp.

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) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ 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)
- ☐ Thick Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

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 – Arid West Region

Project/Site: Kittitas County Waste Transfer Station | City/County: Ellensburg/Kittitas | Sampling Date: 5/7/2019

Applicant/Owner: Kittitas Solid Waste | State: WA | Sampling Point: PW10sp1

Investigator(s): Jen Bader, Kevin Haydon | Section, Township, Range: S28 T18N R18E

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): LRR B | Lat: 47.017524 | Long: -120.587454 | Datum: NAD83

Soil Map Unit Name: Naneum ashy loam, 0 to 2 percent slopes | NWI Classification: Upland

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:
Data plot is in northeast corner of irrigated field. Ground is uneven with lots of depressions from cow hooves.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5 ft)				
1. *Phleum pratense*	100	Y	100.0	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
	100 = Total Cover			
Woody Vine Stratum (Plot size: 15 ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

[ ] Dominance Test is >50%

[ ] Prevalence Index is ≤3.0[1]

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

[ ] 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:
No change in vegetation species compared to surrounding area but *Phleum pratense* is very short (less than 6 inches) and already flowering indicating it is stressed in this location. From a distance, this looked like a depression filled with grazed *Carex;* however, closer inspection indicated it was a solid patch of short grass.

SOIL

Sampling Point: PW10sp1

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
0-18	10YR 2/1	100					Silty clay 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)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ 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)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:
Soil is damp.

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) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ 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)
- ☐ Thick Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

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:
The main irrigation ditch for the field, D5, is directly north of this data plot and full of water. There are also small, dry side ditches east and west of the point.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Kittitas County Waste Transfer Station | City/County: Ellensburg/Kittitas | Sampling Date: 5/7/2019

Applicant/Owner: Kittitas Solid Waste | State: WA | Sampling Point: D12sp1

Investigator(s): Jen Bader, Kevin Haydon | Section, Township, Range: S28 T18N R18E

Landform (hillslope, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): LRR B | Lat: 47.014028 | Long: -120.587855 | Datum: NAD83

Soil Map Unit Name: Nack-Opnish complex, 0 to 2 percent slopes | NWI Classification: Upland

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:
This data plot is along the offsite ditch approximately 5 feet south of the property boundary. The ditch is primarly *Phalaris arundinacea;* however, there were sections along it that include isolated riparian shrubs and *Typha latifolia.*

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft)				
1. *Cornus alba*	5	Y	62.5	FACW
2. *Rosa nutkana*	3	Y	37.5	FACU
3.				
4.				
5.				
	8 = Total Cover			
Herb Stratum (Plot size: 5 ft)				
1. *Phalaris arundinacea*	75	Y	75.0	FACW
2. *Solanum dulcamara*	25	Y	25.0	FAC
3.				
4.				
5.				
6.				
7.				
8.				
	100 = Total Cover			
Woody Vine Stratum (Plot size: 15 ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	25	x 3 =	75
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	108 (A)		247 (B)

Prevalence Index = B/A = 2.287

Hydrophytic Vegetation Indicators:

- [✓] Dominance Test is >50%
- [✓] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 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:
Uplands to the south of this ditch are weedy.

SOIL

Sampling Point: D12sp1

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
0-18	10YR 2/2	100					Silty clay	

[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)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ 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)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ 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:
Saturated to surface

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) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ 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)
- ☐ Thick Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches):

Water Table Present? ◉ Yes ○ No Depth (inches): 5

Saturation Present? (includes capillary fringe) ◉ Yes ○ No Depth (inches): 0

Wetland Hydrology Present? ◉ Yes ○ No

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

Remarks:
There is surface water present in the ditch approximatly 2 feet south of the data plot.

Appendix D
Wetland Rating Forms

Wetland name or number W1

RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): WETLAND 1 Date of site visit: 10/26/18

Rated by P. O'NEILL Trained by Ecology? __ Yes X No Date of training_____

HGM Class used for rating SLOPE Wetland has multiple HGM classes? ___Y X N

NOTE: Form is not complete without the figures requested (*figures can be combined*).

Source of base aerial photo/map GOOGLE EARTH

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 22-27

_____**Category II** – Total score = 19-21

_____**Category III** – Total score = 16-18

14 **Category IV** – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H M (L)	H (M) L	
Value	H (M) L	(H) M L	H M (L)	TOTAL
Score Based on Ratings	5	5	4	14

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY *Circle the appropriate category*
Vernal Pools	II III
Alkali	I
Wetland of High Conservation Value	I
Bog and Calcareous Fens	I
Old Growth or Mature Forest – slow growing	I
Aspen Forest	I
Old Growth or Mature Forest – fast growing	II
Floodplain forest	II
None of the above	✓

Wetland name or number_____

Maps and figures required to answer questions correctly for Eastern Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream *(can be added to another figure)*	R 4.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	

Wetland name or number W1

HGM Classification of Wetland in Eastern Washington

For questions 1-4, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?
   ___The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size
   ___At least 30% of the open water area is deeper than 10 ft (3 m)

   NO – go to 2 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

   NO - go to 3 YES – The wetland class is **Slope**
   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).

3. 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 10 years.

   NO - go to 4 YES – The wetland class is **Riverine**
   NOTE: The Riverine wetland can contain depressions that are filled with water when the river is not flooding.

4. 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 5 YES – The wetland class is **Depressional**

5. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

Wetland name or number W1

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

Wetland name or number W1

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

Rating of Site Potential If score is: ___ 12 = H ___ 6-11 = M 2 0-5 = L *Record the rating on the first page*

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

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

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

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

Wetland name or number W1

SLOPE WETLANDS **Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion	Points (only 1 score per box)
S 4.0. Does the site have the potential to reduce flooding and erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland — points = 1 All other conditions — points = 0	0

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

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

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

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number W1

H 1.6. Special habitat features *Check the habitat features that are present in the wetland. The number of checks is the number of points.* ____Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. ____Cattails or bulrushes are present within the wetland. ____Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ____Emergent or shrub vegetation in areas that are permanently inundated/ponded. ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity ✓ Invasive species cover less than 20% in each stratum of vegetation *(canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)*	1
Total for H 1 — Add the points in the boxes above	2

Rating of Site Potential If score is: ___ 15-18 = H ___ 7-14 = M (2) 0-6 = L *Record the rating on the first page*

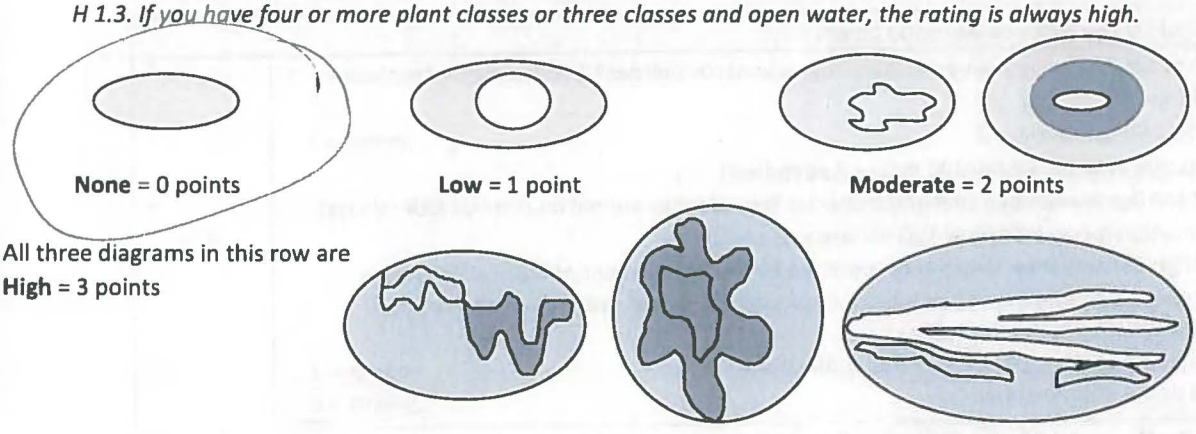
H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: *Calculate:* % undisturbed habitat 10 + [(% moderate and low intensity land uses)/2] 15 = 25 % (30/2) > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1km Polygon — points = 2 10-19% of 1km Polygon — points = 1 <10% of 1km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. *Calculate:* % undisturbed habitat 10 + [(% moderate and low intensity land uses)/2] 15 = 25 % (30/2) Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of Polygon — points = 0	2
H 2.3. Land use intensity in 1 km Polygon: > 50% of Polygon is high intensity land use — points = (-2) Does not meet criterion above — points = 0	-2
H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. *Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs* Yes = 3 No = 0	0
Total for H 2 — Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ 4-9 = H (2) 1-3 = M ___ < 1 = L *Record the rating on the first page*

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

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

Wetland name or number W1

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	(only 1 score per box)
H 1.0. Does the wetland have the potential to provide habitat for many species?	
H 1.1. Structure of the plant community: *Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is >= ¼ ac or >= 10% of the wetland if wetland is < 2.5 ac.* ____Aquatic bed ____Emergent plants 0-12 in (0-30 cm) high are the highest layer and have > 30% cover ✓ Emergent plants >12-40 in (>30-100 cm) high are the highest layer with >30% cover ____Emergent plants > 40 in (> 100 cm) high are the highest layer with >30% cover ____Scrub-shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) 4 or more checks: points = 3 3 checks: points = 2 2 checks: points = 1 1 check: points = 0	0
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 No = 0	0
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least ¼ ac **OR** 10% of its area during the March to early June **OR** in August to the end of September? *Answer YES for Lake Fringe wetlands.* Yes = 3 points & go to H 1.4 No = go to H 1.3.2 H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least ¼ ac or 10% of its area? *Answer yes only if H 1.3.1 is No.* Yes = 3 No = 0	0
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold. You do not have to name the species.* *Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk)* # of species 4 Scoring: > 9 species: points = 2 4-9 species: points = 1 < 4 species: points = 0	1
H 1.5. Interspersion of habitats Decide from the diagrams below whether interspersion among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none. *Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points **Low** = 1 point **Moderate** = 2 points All three diagrams in this row are **High** = 3 points Riparian braided channels with 2 classes	Figure__ 0

Wetland name or number W1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Vernal pools Is the wetland **less than 4000 ft²**, and does it meet at least **two** of the following criteria? — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input. — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. *If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.* — The soil in the wetland is shallow [< 1 ft (30 cm)deep] and is underlain by an impermeable layer such as basalt or clay. — Surface water is present for less than 120 days during the wet season. Yes – Go to **SC 1.1** No = **Not a vernal pool** SC 1.1. Is the vernal pool relatively undisturbed in February and March? Yes – Go to **SC 1.2** No = **Not a vernal pool with special characteristics**	
SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)? Yes = **Category II** No = **Category III**	**Cat. II** **Cat. III**
SC 2.0. Alkali wetlands Does the wetland meet **one** of the following criteria? — The wetland has a conductivity > 3.0 mS/cm. — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as "alkali" species (see Table 4 for list of plants found in alkali systems). — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt. **OR** does the wetland unit meet two of the following three sub-criteria? — Salt encrustations around more than 75% of the edge of the wetland — More than ⅔ of the plant cover consists of species listed on Table 4 — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands. Yes = **Category I** No= **Not an alkali wetland**	**Cat. I**
SC 3.0. Wetlands of High Conservation Value (WHCV) SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 3.2** No – Go to **SC 3.3** SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 3.4** No = **Not a WHCV** SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website? Yes = **Category I** No =**Not a WHCV**	**Cat. I**

Wetland name or number W1

SC 4.0 Bogs and Calcareous Fens Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? *Use the key below to identify if the wetland is a bog or calcareous fen.* ***If you answer yes you will still need to rate the wetland based on its functions.*** SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? *See Appendix C for a field key to identify organic soils.* Yes – Go to **SC 4.3** No – Go to **SC 4.2** SC 4.2. Does an area within the wetland have organic soils, either peats or mucks, that are less than 16 in deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 4.3** No = **Is not a bog for rating** SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5? Yes = **Category I bog** No – Go to **SC 4.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 5 are present, the wetland is a bog. SC 4.4. Is an area with peats or mucks forested (> 30% cover) with subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 5 provide more than 30% of the cover under the canopy? Yes = **Category I bog** No – Go to **SC 4.5** SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks? Yes = **Is a Calcareous Fen for purpose of rating** No – Go to **SC 4.6** SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met: — Marl deposits [calcium carbonate ($CaCO_3$) precipitate] occur on the soil surface or plant stems — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland Yes = **Is a Category I calcareous fen** No = **Is not a calcareous fen**	**Cat. I** **Cat. I**

SC 5.0. Forested Wetlands Does the wetland have an area of forest rooted within its boundary that meets **at least one** of the following three criteria? (*Continue only if you have identified that a forested class is present in question H 1.1*) — The wetland is within the 100 year floodplain of a river or stream — Aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species — There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are "mature" or "old-growth" according to the definitions for these priority habitats developed by WDFW *(see definitions in question H3.1)* Yes – Go to **SC 5.1** No = **Not a forested wetland with special characteristics**	
SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (*see Table 7*)? Yes = **Category I** No – Go to **SC 5.2**	**Cat. I**
SC 5.2. Does the wetland have areas where aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species? Yes = **Category I** No – Go to **SC 5.3**	**Cat. I**
SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (*see Table 7*)? Yes = **Category II** No – Go to **SC 5.4**	**Cat. II**
SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream? Yes = **Category II** No = **Not a forested wetland with special characteristics**	**Cat. II**
Category of wetland based on Special Characteristics *Choose the highest rating if wetland falls into several categories* If you answered No for all types, enter "Not Applicable" on Summary Form	NA

W1

Appendix B: WDFW Priority Habitats in Eastern Washington

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

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

NO **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

NO **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

NO **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west and 80-160 years old east of the Cascade crest.

NO **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

NO **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

NO **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

NO **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

NO **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

NO **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

NO **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 12 in (30 cm)in eastern Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

NO **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).

NO **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).

NO **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number W2

RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): WETLAND 2 Date of site visit: 10/26/18

Rated by P. O'NEILL Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating SLOPE Wetland has multiple HGM classes? ___Y X N

NOTE: Form is not complete without the figures requested (*figures can be combined*).
Source of base aerial photo/map GOOGLE EARTH

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 22-27
_____**Category II** – Total score = 19-21
_____**Category III** – Total score = 16-18
14 **Category IV** – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H M (L)	H (M) L	
Value	H (M) L	(H) M L	H M (L)	TOTAL
Score Based on Ratings	5	5	4	14

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY *Circle the appropriate category*
Vernal Pools	II III
Alkali	I
Wetland of High Conservation Value	I
Bog and Calcareous Fens	I
Old Growth or Mature Forest – slow growing	I
Aspen Forest	I
Old Growth or Mature Forest – fast growing	II
Floodplain forest	II
None of the above	✓

Wetland name or number_____

Maps and figures required to answer questions correctly for Eastern Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream *(can be added to another figure)*	R 4.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	

Wetland name or number W2

HGM Classification of Wetland in Eastern Washington

For questions 1-4, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?
   ___The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size
   ___At least 30% of the open water area is deeper than 10 ft (3 m)

   NO – go to 2 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

   NO - go to 3 YES – The wetland class is **Slope**
   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).

3. 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 10 years.

   NO - go to 4 YES – The wetland class is **Riverine**
   NOTE: The Riverine wetland can contain depressions that are filled with water when the river is not flooding.

4. 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 5 YES – The wetland class is **Depressional**

5. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

Wetland name or number W2

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

Wetland name or number W2

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

Rating of Site Potential If score is: ___ 12 = H ___ 6-11 = M 2 0-5 = L *Record the rating on the first page*

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

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

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

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

Wetland name or number_____

SLOPE WETLANDS **Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion	Points (only 1 score per box)
S 4.0. Does the site have the potential to reduce flooding and erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland — points = 1 All other conditions — points = 0	0

Rating of Site Potential If score is: ___1 = M (0) 0 = L — *Record the rating on the first page*

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

Rating of Landscape Potential If score is: 1 = M ___0 = L — *Record the rating on the first page*

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

Rating of Value If score is: 2 2-4 = H ___1 = M ___0 = L — *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number W2

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	(only 1 score per box)
H 1.0. Does the wetland have the potential to provide habitat for many species?	
H 1.1. Structure of the plant community: *Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is >= ¼ ac or >= 10% of the wetland if wetland is < 2.5 ac.* ____Aquatic bed ____Emergent plants 0-12 in (0-30 cm) high are the highest layer and have > 30% cover __✓__Emergent plants >12-40 in (>30-100 cm) high are the highest layer with >30% cover ____Emergent plants > 40 in (> 100 cm) high are the highest layer with >30% cover ____Scrub-shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) 4 or more checks: points = 3 3 checks: points = 2 2 checks: points = 1 1 check: points = 0	0
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 (No = 0)	0
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least ¼ ac **OR** 10% of its area during the March to early June **OR** in August to the end of September? *Answer YES for Lake Fringe wetlands.* Yes = 3 points & go to H 1.4 (No = go to H 1.3.2) H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least ¼ ac or 10% of its area? *Answer yes only if H 1.3.1 is No.* Yes = 3 (No = 0)	0
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. D*ifferent 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, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk)* # of species 4 Scoring: > 9 species: points = 2 4-9 species: points = 1 < 4 species: points = 0	1
H 1.5. Interspersion of habitats Decide from the diagrams below whether interspersion among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none. *Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or three classes and open water, the rating is always high.* **None** = 0 points **Low** = 1 point **Moderate** = 2 points All three diagrams in this row are **High** = 3 points Riparian braided channels with 2 classes	Figure__ 0

Wetland name or number W2

H 1.6. Special habitat features *Check the habitat features that are present in the wetland. The number of checks is the number of points.* ____Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. ____Cattails or bulrushes are present within the wetland. ____Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ____Emergent or shrub vegetation in areas that are permanently inundated/ponded. ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity ✓ Invasive species cover less than 20% in each stratum of vegetation *(canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)*	1
Total for H 1 — Add the points in the boxes above	2

Rating of Site Potential If score is: ___15-18 = H ___7-14 = M 2 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: *Calculate:* % undisturbed habitat 10 + [(% moderate and low intensity land uses)/2] 19 = 29 % (38/2) > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1km Polygon — points = 2 10-19% of 1km Polygon — points = 1 <10% of 1km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. *Calculate:* % undisturbed habitat 10 + [(% moderate and low intensity land uses)/2] 19 = 29 % (38/2) Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of Polygon — points = 0	2
H 2.3. Land use intensity in 1 km Polygon: > 50% of Polygon is high intensity land use — points = (-2) Does not meet criterion above — points = 0	-2
H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. *Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs* — Yes = 3 No = 0	0
Total for H 2 — Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___4-9 = H 2 1-3 = M ___< 1 = L *Record the rating on the first page*

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

Rating of Value If score is: ___2 = H ___1 = M 0 0 = L *Record the rating on the first page*

Wetland name or number W2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Vernal pools Is the wetland **less than 4000 ft²**, and does it meet at least **two** of the following criteria? — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input. — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. *If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.* — The soil in the wetland is shallow [< 1 ft (30 cm)deep] and is underlain by an impermeable layer such as basalt or clay. — Surface water is present for less than 120 days during the wet season. Yes – Go to **SC 1.1** No = **Not a vernal pool** SC 1.1. Is the vernal pool relatively undisturbed in February and March? Yes – Go to **SC 1.2** No = **Not a vernal pool with special characteristics**	
SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)? Yes = **Category II** No = **Category III**	**Cat. II** **Cat. III**
SC 2.0. Alkali wetlands Does the wetland meet **one** of the following criteria? — The wetland has a conductivity > 3.0 mS/cm. — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as "alkali" species (see Table 4 for list of plants found in alkali systems). — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt. **OR** does the wetland unit meet two of the following three sub-criteria? — Salt encrustations around more than 75% of the edge of the wetland — More than ⅓ of the plant cover consists of species listed on Table 4 — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands. Yes = **Category I** No= **Not an alkali wetland**	**Cat. I**
SC 3.0. Wetlands of High Conservation Value (WHCV) SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 3.2** No – Go to **SC 3.3** SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 3.4** No = **Not a WHCV** SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website? Yes = **Category I** No =**Not a WHCV**	**Cat. I**

Wetland name or number W2

SC 4.0 Bogs and Calcareous Fens Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? *Use the key below to identify if the wetland is a bog or calcareous fen.* ***If you answer yes you will still need to rate the wetland based on its functions.*** SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? *See Appendix C for a field key to identify organic soils.* Yes – Go to **SC 4.3** No – Go to **SC 4.2** SC 4.2. Does an area within the wetland have organic soils, either peats or mucks, that are less than 16 in deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 4.3** No = **Is not a bog for rating** SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5? Yes = **Category I bog** No – Go to **SC 4.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 5 are present, the wetland is a bog. SC 4.4. Is an area with peats or mucks forested (> 30% cover) with subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 5 provide more than 30% of the cover under the canopy? Yes = **Category I bog** No – Go to **SC 4.5** SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks? Yes = **Is a Calcareous Fen for purpose of rating** No – Go to **SC 4.6** SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met: — Marl deposits [calcium carbonate ($CaCO_3$) precipitate] occur on the soil surface or plant stems — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland Yes = **Is a Category I calcareous fen** No = **Is not a calcareous fen**	**Cat. I** **Cat. I**

SC 5.0. Forested Wetlands Does the wetland have an area of forest rooted within its boundary that meets **at least one** of the following three criteria? (*Continue only if you have identified that a forested class is present in question H 1.1*) — The wetland is within the 100 year floodplain of a river or stream — Aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species — There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are "mature" or "old-growth" according to the definitions for these priority habitats developed by WDFW *(see definitions in question H3.1)* Yes – Go to **SC 5.1** No = **Not a forested wetland with special characteristics**	
SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (*see Table 7*)? Yes = **Category I** No – Go to **SC 5.2**	**Cat. I**
SC 5.2. Does the wetland have areas where aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species? Yes = **Category I** No – Go to **SC 5.3**	**Cat. I**
SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (*see Table 7*)? Yes = **Category II** No – Go to **SC 5.4**	**Cat. II**
SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream? Yes = **Category II** No = **Not a forested wetland with special characteristics**	**Cat. II**
Category of wetland based on Special Characteristics *Choose the highest rating if wetland falls into several categories* If you answered No for all types, enter "Not Applicable" on Summary Form	NA

W2

Appendix B: WDFW Priority Habitats in Eastern Washington

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

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

NO **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

NO **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

NO **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west and 80-160 years old east of the Cascade crest.

NO **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

NO **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

NO **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

NO **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

NO **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

NO **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

NO **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 12 in (30 cm)in eastern Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

NO **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).

NO **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).

NO **Juniper Savannah:** All juniper woodlands.

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

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Wetland name or number W3

RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): WETLAND 3 Date of site visit: 10/26/18

Rated by R. O'NEILL Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating SLOPE Wetland has multiple HGM classes? ___Y X N

NOTE: Form is not complete without the figures requested (*figures can be combined*).

Source of base aerial photo/map GOOGLE EARTH

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 22-27

_____**Category II** – Total score = 19-21

_____**Category III** – Total score = 16-18

14 **Category IV** – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H M (L)	H (M) L	
Value	H (M) L	(H) M L	H M (L)	TOTAL
Score Based on Ratings	5	5	4	15

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY *Circle the appropriate category*
Vernal Pools	II III
Alkali	I
Wetland of High Conservation Value	I
Bog and Calcareous Fens	I
Old Growth or Mature Forest – slow growing	I
Aspen Forest	I
Old Growth or Mature Forest – fast growing	II
Floodplain forest	II
None of the above	✓

Wetland name or number W3

Maps and figures required to answer questions correctly for Eastern Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream *(can be added to another figure)*	R 4.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	

Wetland name or number W3

HGM Classification of Wetland in Eastern Washington

For questions 1-4, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-4 apply, and go to Question 5.

1. Does the entire unit **meet both** of the following criteria?
   ___The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size
   ___At least 30% of the open water area is deeper than 10 ft (3 m)

   NO – go to 2 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

   NO - go to 3 YES – The wetland class is **Slope**
   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).

3. 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 10 years.

   NO - go to 4 YES – The wetland class is **Riverine**
   NOTE: The Riverine wetland can contain depressions that are filled with water when the river is not flooding.

4. 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 5 YES – The wetland class is **Depressional**

5. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-4 APPLY TO DIFFERENT AREAS IN THE WETLAND UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

Wetland name or number W3

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the wetland 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 (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

Wetland name or number W3

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

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** 2 **0-5 = L** *Record the rating on the first page*

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

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

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

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

Wetland name or number W3

SLOPE WETLANDS **Hydrologic Functions** - Indicators that the site functions to reduce flooding and erosion	Points (only 1 score per box)
S 4.0. Does the site have the potential to reduce flooding and erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland — points = 1 All other conditions — points = 0	0

Rating of Site Potential If score is: ___1 = M 0 0 = L *Record the rating on the first page*

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

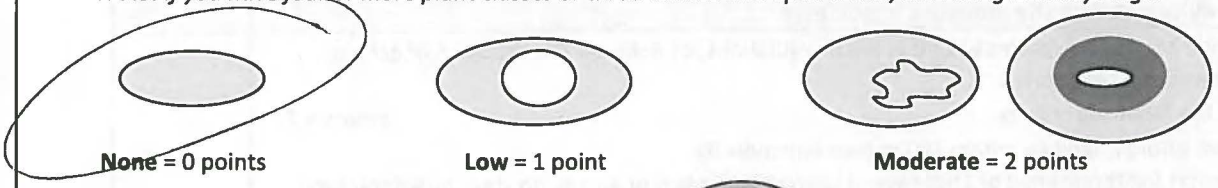
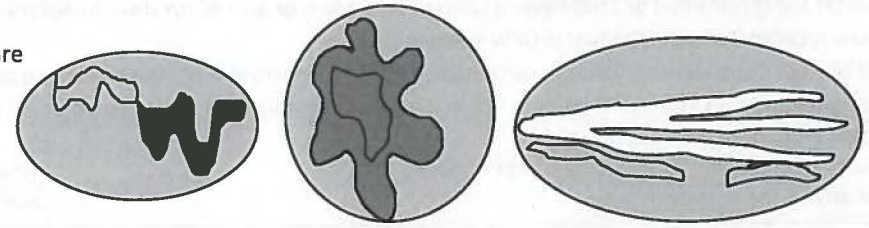
Rating of Landscape Potential If score is: 1 1 = M ___0 = L *Record the rating on the first page*

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

Rating of Value If score is: ___2-4 = H ___1 = M ___0 = L *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number_____

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	(only 1 score per box)
H 1.0. Does the wetland have the potential to provide habitat for many species?	
H 1.1. Structure of the plant community: *Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is >= ¼ ac or >= 10% of the wetland if wetland is < 2.5 ac.* ____Aquatic bed ____Emergent plants 0-12 in (0-30 cm) high are the highest layer and have > 30% cover __✓__Emergent plants >12-40 in (>30-100 cm) high are the highest layer with >30% cover ____Emergent plants > 40 in (> 100 cm) high are the highest layer with >30% cover ____Scrub-shrub (areas where shrubs have >30% cover) 4 or more checks: points = 3 ____Forested (areas where trees have >30% cover) 3 checks: points = 2 2 checks: points = 1 1 check: points = 0	0
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 No = 0	0
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least ¼ ac **OR** 10% of its area during the March to early June **OR** in August to the end of September? *Answer YES for Lake Fringe wetlands.* Yes = 3 points & go to H 1.4 No = go to H 1.3.2 H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least ¼ ac or 10% of its area? *Answer yes only if H 1.3.1 is No.* Yes = 3 No = 0	0
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. D*ifferent 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, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk)* # of species 4 Scoring: > 9 species: points = 2 4-9 species: points = 1 < 4 species: points = 0	1
H 1.5. Interspersion of habitats Decide from the diagrams below whether interspersion among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none. *Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points **Low** = 1 point **Moderate** = 2 points All three diagrams in this row are **High** = 3 points  Riparian braided channels with 2 classes	Figure__ 2

Wetland name or number W3

H 1.6. Special habitat features *Check the habitat features that are present in the wetland. The number of checks is the number of points.* ____Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. ____Cattails or bulrushes are present within the wetland. ____Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ____Emergent or shrub vegetation in areas that are permanently inundated/ponded. ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity __✓__ Invasive species cover less than 20% in each stratum of vegetation *(canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)*	1
Total for H 1 — Add the points in the boxes above	2

Rating of Site Potential If score is: ___15-18 = H ___7-14 = M 2 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: *Calculate:* % undisturbed habitat 10 + [(% moderate and low intensity land uses)/2] 15 = 25 % (30/2) > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1km Polygon — points = 2 10-19% of 1km Polygon — points = 1 <10% of 1km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. *Calculate:* % undisturbed habitat 10 + [(% moderate and low intensity land uses)/2] 15 = 25 % (30/2) Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of Polygon — points = 0	2
H 2.3. Land use intensity in 1 km Polygon: > 50% of Polygon is high intensity land use — points = (- 2) Does not meet criterion above — points = 0	-2
H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. *Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs* — Yes = 3 No = 0	0
Total for H 2 — Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___4-9 = H 2 1-3 = M ___< 1 = L *Record the rating on the first page*

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

Rating of Value If score is: ___2 = H ___1 = M 0 0 = L *Record the rating on the first page*

Wetland name or number_____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Vernal pools Is the wetland **less than 4000 ft²**, and does it meet at least **two** of the following criteria? — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input. — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. *If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.* — The soil in the wetland is shallow [< 1 ft (30 cm)deep] and is underlain by an impermeable layer such as basalt or clay. — Surface water is present for less than 120 days during the wet season. Yes – Go to **SC 1.1** No = **Not a vernal pool** SC 1.1. Is the vernal pool relatively undisturbed in February and March? Yes – Go to **SC 1.2** No = **Not a vernal pool with special characteristics**	
SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)? Yes = **Category II** No = **Category III**	**Cat. II** **Cat. III**
SC 2.0. Alkali wetlands Does the wetland meet **one** of the following criteria? — The wetland has a conductivity > 3.0 mS/cm. — The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as "alkali" species (see Table 4 for list of plants found in alkali systems). — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt. **OR** does the wetland unit meet two of the following three sub-criteria? — Salt encrustations around more than 75% of the edge of the wetland — More than ¾ of the plant cover consists of species listed on Table 4 — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands. Yes = **Category I** No= **Not an alkali wetland**	**Cat. I**
SC 3.0. Wetlands of High Conservation Value (WHCV) SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 3.2** No – Go to **SC 3.3** SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 3.4** No = **Not a WHCV** SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and it is listed on their website? Yes = **Category I** No =**Not a WHCV**	**Cat. I**

Wetland name or number_____

SC 4.0 Bogs and Calcareous Fens Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? *Use the key below to identify if the wetland is a bog or calcareous fen.* ***If you answer yes you will still need to rate the wetland based on its functions.*** SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? *See Appendix C for a field key to identify organic soils.* Yes – Go to **SC 4.3** No – Go to **SC 4.2** SC 4.2. Does an area within the wetland have organic soils, either peats or mucks, that are less than 16 in deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 4.3** No = **Is not a bog for rating** SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5? Yes = **Category I bog** No – Go to **SC 4.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 5 are present, the wetland is a bog. SC 4.4. Is an area with peats or mucks forested (> 30% cover) with subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 5 provide more than 30% of the cover under the canopy? Yes = **Category I bog** No – Go to **SC 4.5**	**Cat. I**
SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks? Yes = **Is a Calcareous Fen for purpose of rating** No – Go to **SC 4.6** SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met: — Marl deposits [calcium carbonate ($CaCO_3$) precipitate] occur on the soil surface or plant stems — The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland Yes = **Is a Category I calcareous fen** No = **Is not a calcareous fen**	**Cat. I**

SC 5.0. Forested Wetlands Does the wetland have an area of forest rooted within its boundary that meets **at least one** of the following three criteria? (*Continue only if you have identified that a forested class is present in question H 1.1*) — The wetland is within the 100 year floodplain of a river or stream — Aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species — There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are "mature" or "old-growth" according to the definitions for these priority habitats developed by WDFW *(see definitions in question H3.1)* Yes – Go to **SC 5.1** No = **Not a forested wetland with special characteristics**	
SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (*see Table 7*)? Yes = **Category I** No – Go to **SC 5.2**	**Cat. I**
SC 5.2. Does the wetland have areas where aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species? Yes = **Category I** No – Go to **SC 5.3**	**Cat. I**
SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (*see Table 7*)? Yes = **Category II** No – Go to **SC 5.4**	**Cat. II**
SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream? Yes = **Category II** No = **Not a forested wetland with special characteristics**	**Cat. II**
Category of wetland based on Special Characteristics *Choose the highest rating if wetland falls into several categories* If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Appendix B: WDFW Priority Habitats in Eastern Washington

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

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

No **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

No **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

No **Old-growth/Mature forests:** Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west and 80-160 years old east of the Cascade crest.

No **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

No **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

No **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

No **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

No **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

No **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

No **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 12 in (30 cm)in eastern Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

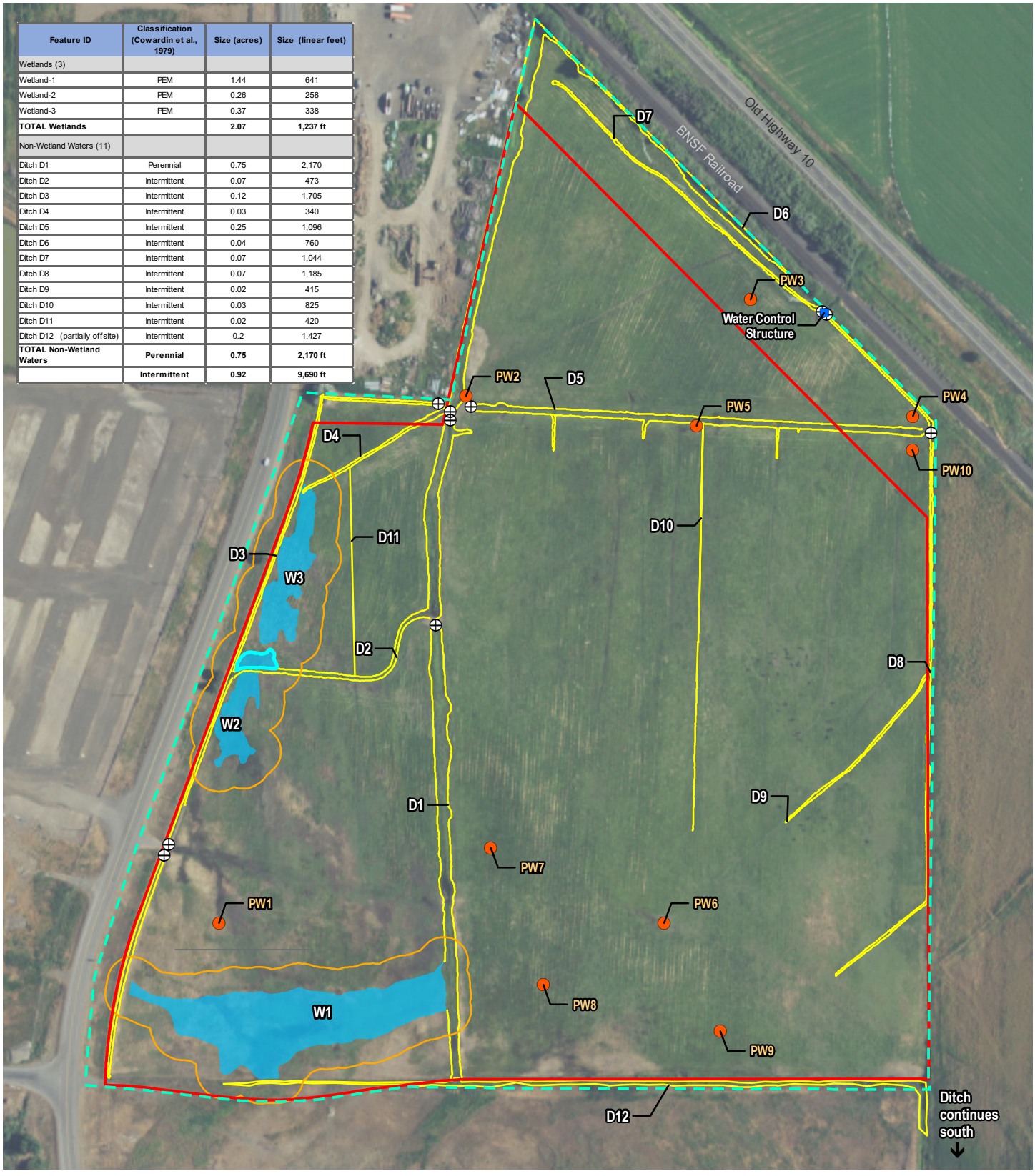
No **Shrub-steppe:** A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).

No **Eastside Steppe:** Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).

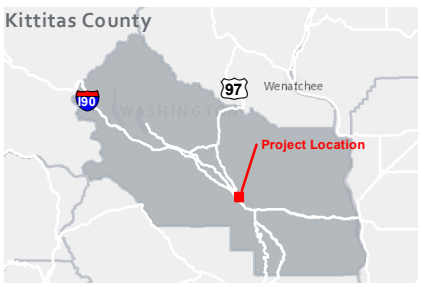
No **Juniper Savannah:** All juniper woodlands.

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

Feature ID	Classification (Cowardin et al., 1979)	Size (acres)	Size (linear feet)
Wetlands (3)			
Wetland-1	PEM	1.44	641
Wetland-2	PEM	0.26	258
Wetland-3	PEM	0.37	338
TOTAL Wetlands		**2.07**	**1,237 ft**
Non-Wetland Waters (11)			
Ditch D1	Perennial	0.75	2,170
Ditch D2	Intermittent	0.07	473
Ditch D3	Intermittent	0.12	1,705
Ditch D4	Intermittent	0.03	340
Ditch D5	Intermittent	0.25	1,096
Ditch D6	Intermittent	0.04	760
Ditch D7	Intermittent	0.07	1,044
Ditch D8	Intermittent	0.07	1,185
Ditch D9	Intermittent	0.02	415
Ditch D10	Intermittent	0.03	825
Ditch D11	Intermittent	0.02	420
Ditch D12 (partially offsite)	Intermittent	0.2	1,427
TOTAL Non-Wetland Waters	**Perennial**	**0.75**	**2,170 ft**
	Intermittent	**0.92**	**9,690 ft**



Locator Map



Legend

- Potential Wetlands
- Culvert
- Water Control Structure
- Ditch
- 50 ft buffer
- Wetland
- Site Boundary
- Study Area Boundary

0 250 500 Feet

Figure 1

Kittitas County Transfer Station and Maintenance Facility Relocation Project

WETLAND OVERVIEW

JACOBS

Document Path: \\brooksidefiles\GIS_SHARE\ENBG\oo_Proj\K\Kittitas_County_WA\Maps\Report\o2_Wetland_Overview_a.mxd

Source: GoogleEarth (2018)

Land Use

- Relatively undisturbed
- Moderate & low intensity
- High intensity

Figure 2a Land Use Within 1-km Polygon of W1
Kittitas County Waste Transfer Station Site
Ellensburg, Kittitas County, WA

Source: GoogleEarth (2018)

Land Use

- Relatively undisturbed
- Moderate & low intensity
- High intensity

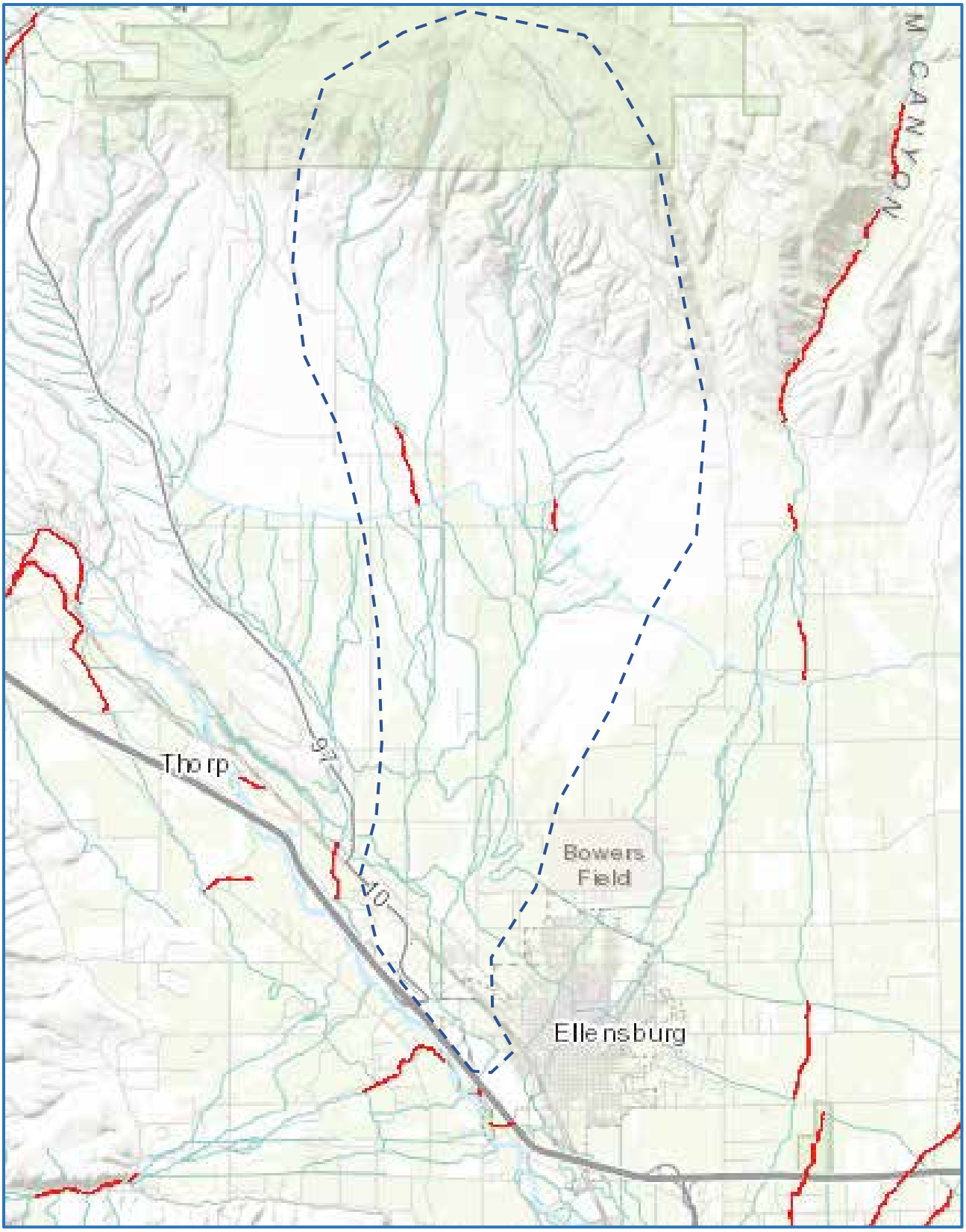
Figure 2b Land Use Within 1-km Polygon of W2 Kittitas County Waste Transfer Station Site
Ellensburg, Kittitas County, WA

Source: GoogleEarth (2018)

Land Use

- Relatively undisturbed
- Moderate & low intensity
- High intensity

Figure 2c Land Use Within 1-km Polygon of W3
Kittitas County Waste Transfer Station Site
Ellensburg, Kittitas County, WA



Source:
https://fortress.wa.gov/ecy/waterqualityatlas/map.aspx?CustomMap=y&RT=0&Layers=23,27,29&Filters=y,n,n,n&F1.4=n,n,n,n,n,y&BBox=-13521532,5875418,-13364429,6040225

Figure 3 303(d)-listed Waters in Contributing Basin
Kittitas County Waste Transfer Station Site
Ellensburg, Kittitas County, WA

DEPARTMENT OF ECOLOGY State of Washington

Kittitas County

Ecology homepage > Water & Shorelines > Water improvement > Total Maximum Daily Load process > Directory of projects > Kittitas County

Water quality improvement projects

Select the waterbody or pollutant name to find more information about the specific project.

Waterbody Name(s)	Pollutant(s)	Status	Project Lead(s)
Crystal Creek	Ammonia-N BOD (g-day) Chlorine Fecal Coliform	EPA approved	Jane Creech 509-454-7860
Naches River	Temperature	EPA approved	Laine Young 509-575-2642
Wilson/Cooke Creek Tributaries: • Badger Creek • Bull Ditch • Caribou Creek • Cherry Creek • CID Canal • Coleman Creek • Cook Creek • EWC Canal • Johnson Drain • KRD Canal • Mercer Creek • Naneum Creek • Parke Creek • Whisky Creek • Wilson Creek • Wipple Wasteway	Fecal Coliform	EPA approved Has an implementation plan Post-TMDL monitoring report	Jane Creech 509-454-7860 Greg Bohn 509-454-4174
Yakima River	Toxics	Under development	Jane Creech 509-454-7860
Upper Yakima River	Dieldrin DDT Suspended sediments Turbidity	EPA approved and Has implementation plan	Jane Creech 509-454-7860
Upper Yakima River	Temperature	Under development	Jane Creech 509-454-7860

To request ADA accommodation, call Ecology at 360-407-7668, 711 (relay service), or 877-833-6341 (TTY). More about our accessibility services.

Figure 4 TMDLs for WRIA 39 Upper Yakima River
Kittitas County Waste Transfer Station Site
Ellensburg, Kittitas County, WA

Appendix E
Sensitive Species Data Search Results

Sensitive Species Data Search Results

E1 IPaC Explore Location

E2 PHSPlus Map

E3 WNHP Historic Rare Plant Element Occurrences

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Kittitas County, Washington

Local office

Washington Fish And Wildlife Office

(360) 753-9440
(360) 753-9405

510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263

http://www.fws.gov/wafwo/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Canada Lynx Lynx canadensis — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/3652

Gray Wolf Canis lupus — Endangered
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/4488

North American Wolverine Gulo gulo luscus — Proposed Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5123

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **proposed** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES

THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Dec 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Brewer's Sparrow Spizella breweri — Breeds May 15 to Aug 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9291

Golden Eagle Aquila chrysaetos — Breeds Dec 1 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/1680

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Long-billed Curlew Numenius americanus — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Sage Thrasher Oreoscoptes montanus — Breeds Apr 15 to Aug 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9433

White Headed Woodpecker Picoides albolarvatus — Breeds May 1 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9411

Willow Flycatcher Empidonax traillii — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/3482

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

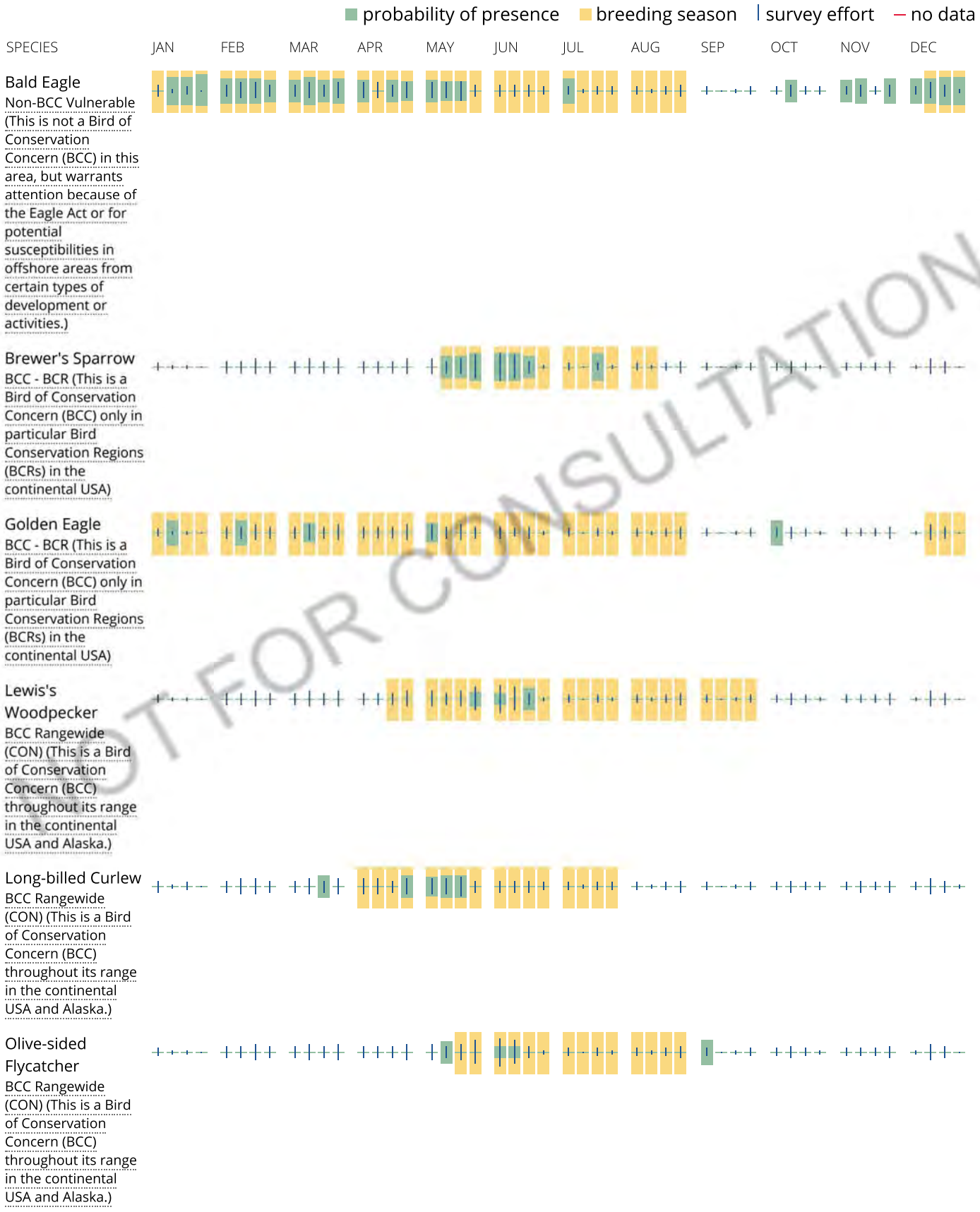
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

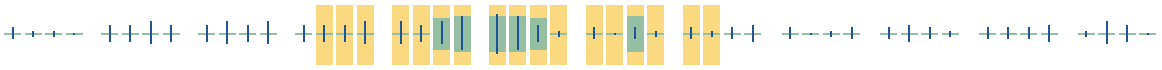
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Sage Thrasher
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



White Headed Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Willow Flycatcher
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look

carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1C

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

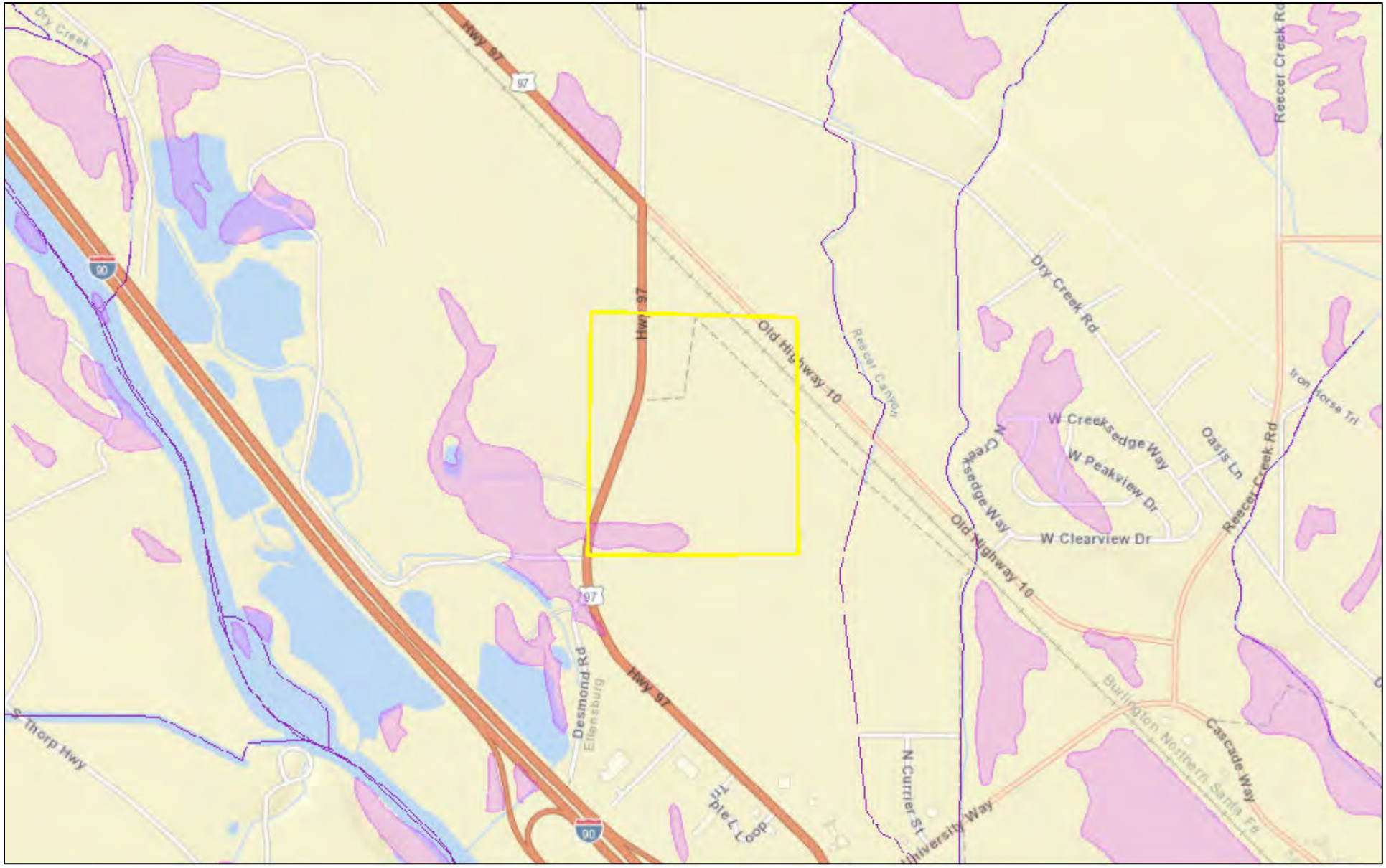
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic Query ID: P181018144214
REPORT DATE: 10/18/2018 2.42

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Freshwater Emergent	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons

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

WDFW Test Map



October 18, 2018

PHS Report Clip Area

PT

LN

POLY

AS MAPPED

SECTION

QTR-TWP

TOWNSHIP

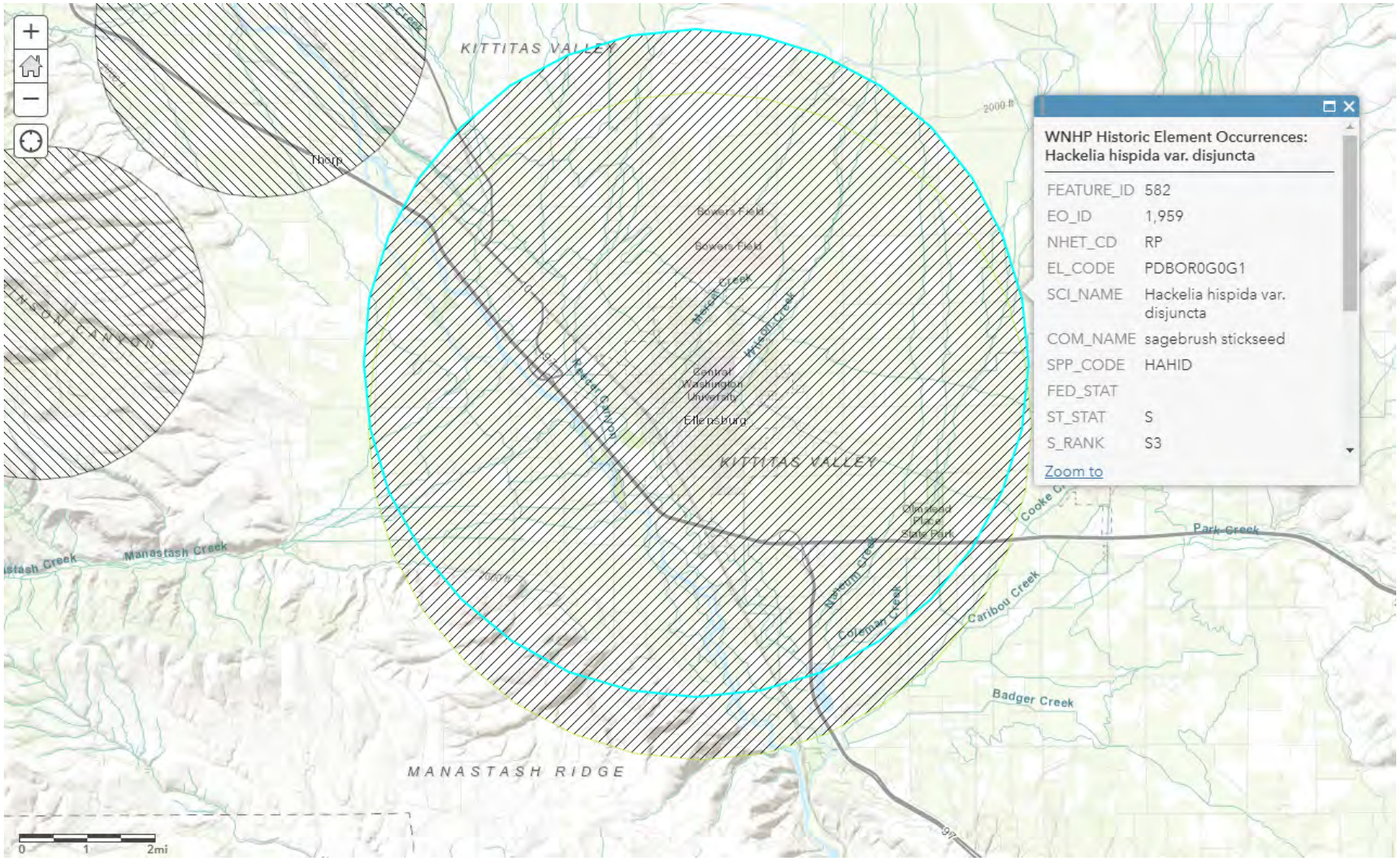
1:19,842

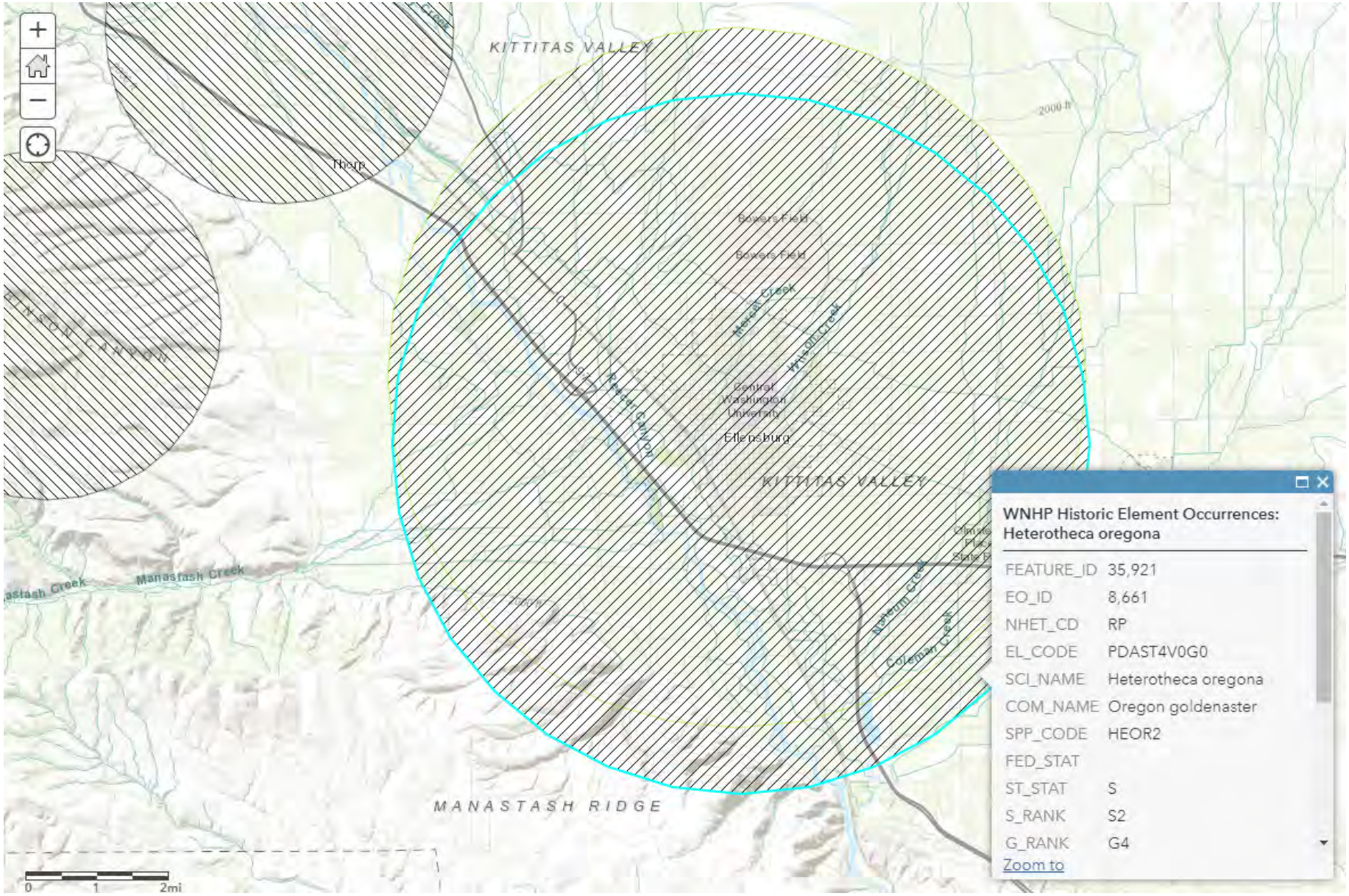
0 0.15 0.3 0.6 mi

0 0.275 0.55 1.1 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

WNHP Historic Rare Plant Element Occurrences. No current element occurrences of rare plant species. Nearest current occurrence is Heterotheca oregona, approximately 7.5 miles to the northwest.




KITTITAS VALLEY
Thorp
Bowers Field
Bowers Field
Mercer Creek
Wilson Creek
Central Washington University
Ellensburg
Reecer Creek
KITTITAS VALLEY
Manastash Creek
Manastash Creek
Naneum Creek
Coleman Creek
MANASTASH RIDGE
2000 ft
0
1
2mi
WNHP Historic Element Occurrences: Heterotheca oregona
FEATURE_ID 35,921
EO_ID 8,661
NHET_CD RP
EL_CODE PDAST4V0G0
SCI_NAME Heterotheca oregona
COM_NAME Oregon goldenaster
SPP_CODE HEOR2
FED_STAT
ST_STAT S
S_RANK S2
G_RANK G4
Zoom to

Appendix F
Plant Species Observed List

Plant Species Observed List Kittitas County Waste Transfer Station Site
October 25-26, 2018

Family	Scientific Name	Common Name	Native	Non-native	Washington State Weed Designation[a]
Asteraceae	*Cirsium arvense*	Canada thistle		X	
	Conyza canadensis	Canadian horseweed	X		
	Hypochaeris radicata	hairy cat's ears		X	
	Senecio jacobaea	tansy ragweed		X	C
	Taraxicum officinale	dandelion		X	
Brassicaceae	*Rorippa curvisiliqua*	curvepod yellowcress	X		
Cyperaceae	*Carex amplifolia*	bigleaf sedge	X		
Fabaceae	*Melilotus officinalis*	sweetclover		X	
	Trifolium arvense	rabbitfoot clover		X	
	Trifolium repens	white clover		X	
Geraniaceae	*Erodium cicutarium*	redstem stork's bill		X	
Juncacea	*Juncus effusus*	common rush	X		
Lemnaceae	*Lemna minor*	common duckweed	X		
Malvaceae	*Malva neglecta*	common mallow		X	
Plantaginaceae	*Plantago lanceolata*	narrowleaf plantain		X	
Poacea	*Agrostis stolonifera*	creeping bentgrass		X	
	Bromus tectorum	cheatgrass		X	
	Festuca idahoensis	Idaho fescue	X		
	Phalaris arundinaceae	reed canarygrass		X	
	Poa pratensis	Kentucky bluegrass		X	
Polygonaceae	*Rumex salicifolius*	willow dock	X		
Ranunculaceae	*Nasturtium officinale*	watercress		x	
	Ranunculus sceleratus	celery-leaved buttercup	X		
Salicaceae	*Salix sp.*	willow dock	X		
Scrophulariaceae	*Verbascum thapsus*	common mullein		X	
	Veronica americana	American brookline	X		
Typhaceae	*Typha latifolia*	cattail	X		

[a]Source: Chapter 16-750 WAC STATE NOXIOUS WEED LIST AND SCHEDULE OF MONETARY PENALTIES
• Class A noxious weeds are those noxious weeds not native to the state that are of limited distribution or are unrecorded in the state and that pose a serious threat to the state
• Class B noxious weeds are those noxious weeds not native to the state that are of limited distribution or are unrecorded in a region of the state and that pose a serious threat to that region.
• "Class B designate" means those Class B noxious weeds whose populations in a region or area are such that all seed production can be prevented within a calendar year.
• Class C are any other noxious weeds. (3) Any county noxious weed control board may enhance the clarity of any definition contained in subsection

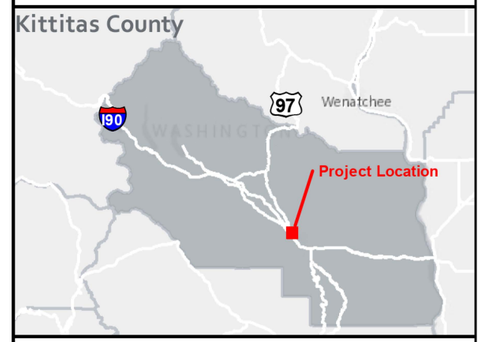
Appendix C
Site Plan Map

US 97 / OLD HIGHWAY 10 SITE

NOTES:

1. FINAL COLLECTOR ROAD LOCATION IN VICINITY OF EXISTING WETLAND TO BE DETERMINED IN FINAL DESIGN.

VICINITY MAP



LEGEND

- TRAFFIC FLOW
- COMMERCIAL ROUTE
- SELF-HAUL ROUTE
- COMPOSTING ROUTE
- TRANSFER TRAILER ROUTE
- PROPERTY BOUNDARY
- 1555 EXISTING GROUND CONTOURS (1-FT INTERVAL)
- EXISTING FEMA 100-YEAR FLOODPLAIN
- NEW FLOODPLAIN CHANNEL
- PARCEL BOUNDARY
- SITE FENCING AND GATES
- W WATER MAIN
- SS SEWER MAIN
- ELECTRICAL (BURIED)
- GAS MAIN (BY OTHERS)
- DRAINAGE CHANNEL OR SWALE
- DRAINAGE FLOW DIRECTION
- DELINEATED WETLAND
- 50-FT BUFFER, WETLAND
- BUFFER AVERAGE AREA

DRAFT
AUG. 2, 2019

N

0 100' 200' 300'
1" = 100'

FIGURE 2
TRANSFER STATION SITE PLAN
KITTITAS COUNTY TRANSFER STATION
KITTITAS COUNTY, WASHINGTON

JACOBS

FILENAME: Kittitas_DraftSitePlan_R16.dgn PLOT DATE: 8/16/2019 PLOT TIME: 11:48:26 AM