Appendix K: Urtica Solar Project Site Reports and Permit Applications

K-1: Urtica Solar Project Critical Areas Report
K-2: Urtica Solar Project Cultural Resources Report
K-3: Urtica Solar Project Permit Applications
K-4: Urtica Solar Project Geotechnical Engineering Study

K-5: Urtica Solar Project Drainage Report

Appendix K-1: Urtica Solar	Project Critical Areas Re	port



July 10, 2017

SWCA Environmental Consultants SEATTLE, WASHINGTON

CRITICAL AREAS WETLAND AND WATERS DELINEATION REPORT FOR THE URTICA SOLAR PROJECT KITTITAS COUNTY, WASHINGTON

Section 10, Township 17 North, Range 18 East Parcel Numbers 808533, 869436, 879436, 889436, 950243, 950244, 950245, 950246, 950247, and 950248

Report Prepared for

TUUSSO Energy, LLC

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Project Number 38727.05

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1 INTRODUCTION

This report describes the methods and findings of wetland, stream, and other critical areas delineation for the proposed Urtica Solar Project. The report was prepared by SWCA Environmental Consultants (SWCA), and is intended to address permitting requirements under Energy Facility Site Evaluation Council (EFSEC) Washington Administrative Code (WAC) 463-60-322, -332, and -333, and to show compliance of the proposed project with Kittitas County's Code for Critical Areas Ordinance (KCC Chapter 17A).

1.1 Background

TUUSSO Energy, LLC (TUUSSO), is proposing to construct a new photovoltaic solar facility installation on approximately 51.1 acres of private agricultural land, which would connect into the existing Puget Sound Energy (PSE) distribution transmission line along Umptanum Road, located southwest of Ellensburg, Kittitas County, Washington. The Urtica Solar Project is intended to provide up to 5 MW of solar energy to PSE for use within their service area.

1.2 Project Setting

The Urtica Solar Project site primarily consists of active agricultural land located on the west side of Umptanum Road and approximately 0.2 mile southwest of the Yakima River, with McCarl Creek flowing through the study area from west to east, southwest of Ellensburg in unincorporated Kittitas County, Washington. The project would be located approximately 0.2 mile north of the intersection of Umptanum Road and Manastash Road, in Section 10 of Township 17 North, Range 18 East, Willamette Meridian (Figure 1). The project site totals approximately 51.1 acres. Topography of the site generally slopes to the east toward Umptanum Road and toward McCarl Creek, which flows through the study area. Surface elevation within the study area ranges from 1,539 to 1,575 feet above mean sea level, the lowest elevation being within the eastern portion of the McCarl Creek channel along Umptanum Road and the highest elevation being along the western site boundary.

2 METHODS

2.1 Study Area

The Urtica Solar Project site is approximately 51.1 acres in size (Figure 1). Wetlands and streams outside of the project site but that occur within 200 feet of the project site boundary and had the potential to have buffers extend into the project site were included in the study area. Wetlands and streams outside of the project site and within the study area were visually inspected but not formally delineated.

2.2 Review of Existing Information

Prior to conducting fieldwork, background materials were reviewed to determine the potential for wetlands, floodplains, habitats, and other critical areas and their buffers that may occur within the study area. Materials referenced during the desktop study are listed below. The following checklist follows the KCC Critical Areas required checklist outlined in KCC Chapter 17A.03.035.

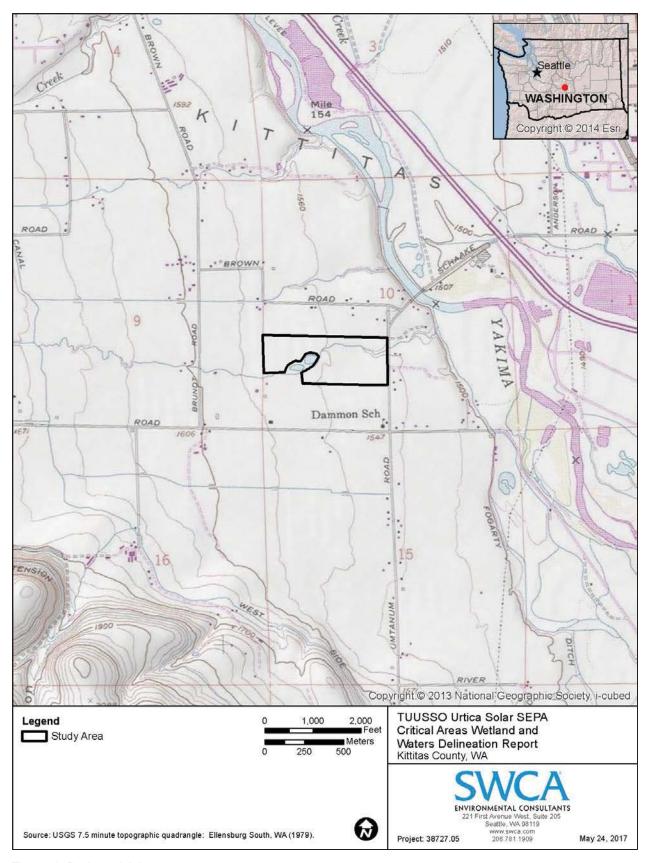


Figure 1. Project vicinity map.

Wetlands (KCC Chapter 17A.04)

- Historical Google Earth aerial photography (2000–2016).
- U.S. Department of Agriculture (USDA) historical imagery (USDA 1954).
- U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map for Ellensburg South, Washington, included in Figure 1.
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data and USGS National Hydrography Dataset (NHD), included in Figure 2.
- Natural Resources Conversation Service (NRCS) Soil Survey of Kittitas County Area, Washington and NRCS Web Soil Survey map of the study area, included in Figure 3.

Frequently flooded areas (KCC Chapter 17A.05)

 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 5300950552C (as cited by Kittitas County 2017 and modified by Encompass Engineering & Surveying), included in Figure 2.

Geologically hazardous areas (KCC Chapter 17A.06)

- Includes erosion, landslide, mine, and seismic hazard areas.
- Kittitas County COMPAS mapping tool.

Habitats (KCC Chapter 17A.07)

- Includes riparian habitats and streams and rivers.
- Washington State Department of Fish and Wildlife (WDFW) SalmonScape online mapper.
- WDFW Priority Habitats and Species (PHS) online mapper, included in Figure 3.

Aquifer recharge areas (KCC Chapter 17A.08)

No critical aguifer recharge locations have been identified in Kittitas County.

Spatial data obtained during the review of existing information were incorporated into the Urtica Solar Project base maps (Figures 1–3).

2.3 Field Investigation

Following the desktop review of existing information, a team of two biologists conducted site visits on April 6 and 7, 2017, to assess the study area for the presence of wetland and waterbody features and to record data relevant to the Washington State Department of Ecology's (Ecology's) most recently approved version of the *Washington State Wetland Rating System for Eastern Washington, 2014 Update* (Hruby 2014). Visual observations were recorded within 200 feet of the project site, and included wildlife and habitat data.

Precipitation data were obtained from the closest wetlands climate analysis (WETS) climate station, the Ellensburg National Weather Service (NWS) station (ELBW1), approximately 1.5 miles to the east of the project site in southern Ellensburg, Washington. Historical (1971–2000) average annual rainfall is listed as 8.96 inches. Table 1 shows the monthly precipitation at the Ellensburg NWS weather station for the 3 months prior to the April 6 and 7, 2017, site visits. Table 2 shows the rainfall received 2 weeks prior to the site visits, and the water-year-to-date (WYTD) rainfall. Rainfall recorded 3 months prior to fieldwork was wetter than normal.

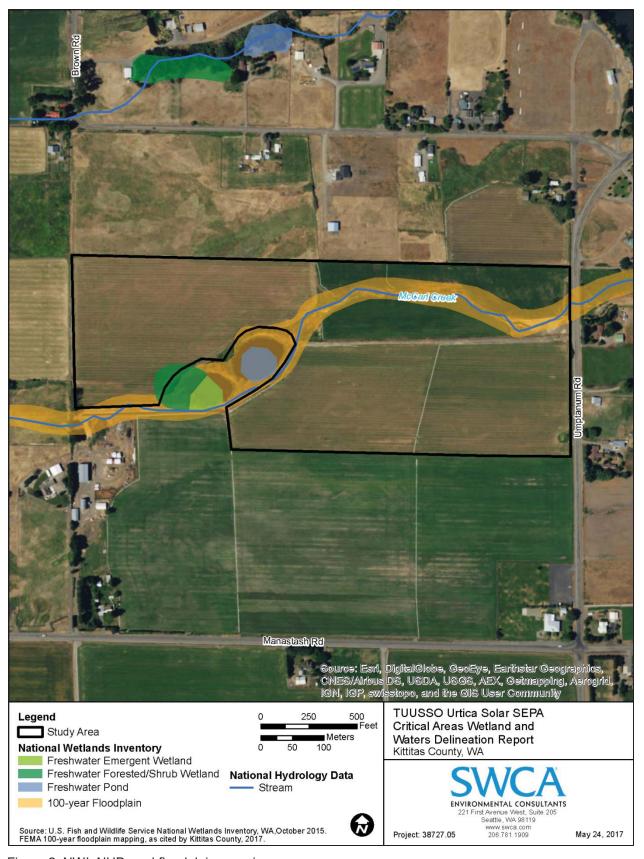


Figure 2. NWI, NHD, and floodplain mapping.

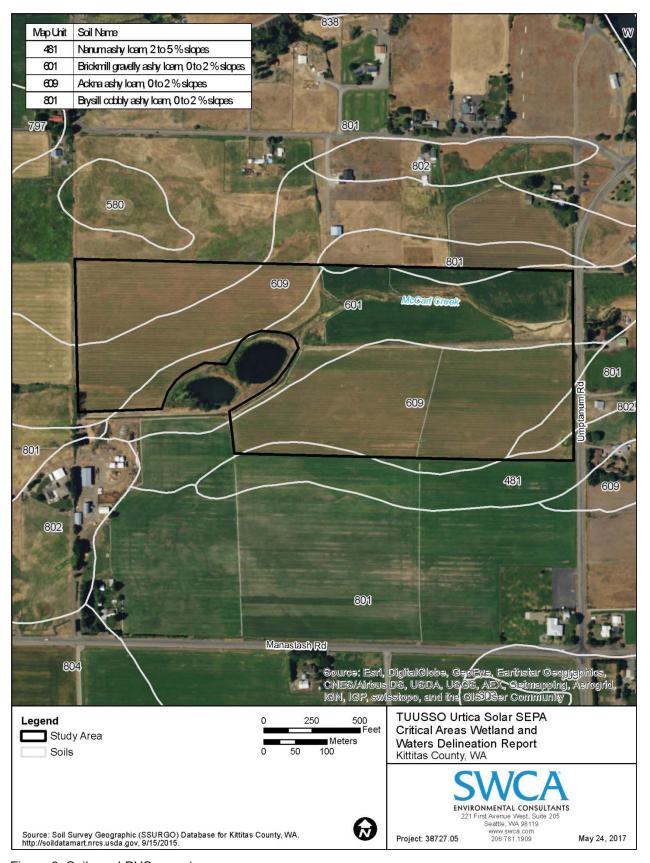


Figure 3. Soils and PHS mapping.

Table 1. Precipitation for 3 Months Prior to Site Visits (in inches)

Month Avera		30% Chance Will Have		Observed	Within Normal
WOITH	Average	Less Than	More Than	Precipitation	Range?
March	0.76	0.36	0.93	1.49	Above
February	0.91	0.59	1.10	2.04	Above
January	1.19	0.65	1.45	1.54	Above

Source: NRCS 2017b.

Table 2. Precipitation 2 Weeks Prior to Site Visits (in inches)

Field Study	Precipitation 2 Weeks Prior	WYTD	Inches Above or Below Normal WYTD*
April 5–March 23, 2017	0.48	8.93	2.74 above
April 6–March 24, 2017	0.60	9.06	3.85 above

*Based on average precipitation from 1981 to 2010.

Source: NRCS 2017b.

2.3.1 Wetlands

The study area was investigated for wetlands in accordance with the current methodology of the U.S. Army Corps of Engineers' (USACE's) 2008 *Arid West Regional Supplement (Version 2)* and the *Wetlands Delineation Manual* (Environmental Laboratory 1987). A detailed description of the field methods used in this study is provided in Appendix A.

A Trimble Geo XT global positioning system (GPS) unit was used by the field team to assist in identifying the project site boundaries and to record site spatial data. This device is capable of submeter accuracy. The full extent of the study area was covered by the team of biologists. Photographs were collected and vegetation, soil, and hydrology characteristics were documented. The boundaries for wetlands located outside of the project site but within the study area were approximated using field observations and aerial imagery to determine the extent of on-site wetland buffers.

Geographic information system (GIS) software were used to analyze data and to produce the report figures (Figures 4 and 5). Per WAC 463-60-333 and KCC Chapter 17A, wetlands were rated using the *Washington State Wetland Rating System for Eastern Washington, 2014 Update*. Per KCC 17A.04.020, the resulting wetland ratings were used to determine the County-prescribed range of wetland buffers for each wetland. Table 3 lists Ecology's wetland rating criteria. Kittitas County's definition of a wetland is based on the Revised Code of Washington (RCW) 36.70A.030, which states:

(21) "Wetland" or "wetlands" means areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas created to mitigate conversion of wetlands.

Table 3. Washington State Department of Ecology Wetland Rating System

Category

_	=	=	2
Category I wetlands: Represent a unique or rare wetland type; are more sensitive to disturbance than most wetlands; are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or provide a high level of functions. Specific wetlands that meet the Category I criteria include: 1. alkali wetlands, characterized by the presence of shallow saline water with a high pH; 2. natural heritage wetlands, specifically, wetlands identified by the Washington Natural Heritage Program/DNR as high quality relatively undisturbed wetlands; and wetlands that support state-listed threatened or endangered plants; 3. bogs and calcareous fens; 4. mature and old-growth forested wetlands with slow growing trees that are over 0.25 acre in size; and 5. wetlands that perform many functions very well, as indicated by a score of 22 or more points out of 27 on the wetland rating form.	Category II wetlands: Wetlands that are difficult, though not impossible, to replace, and provide high levels of some functions. Specific wetlands that meet the Category II criteria include: 1. forested wetlands in the floodplains of rivers; 2. mature and old-growth forested wetlands with fast growing trees that are over 0.25 acre in size; 3. vernal pool that are located in a landscape with other wetlands and that are relatively undisturbed during the early spring; and 4. wetlands scoring between 19 and 21 points, out of 27, on the wetland rating form.	Category III wetlands: Wetlands that provide a moderate level of functions. Specific wetlands that meet the Category III criteria include: 1. wetlands scoring between 16 and 18 points, out of 27, on the wetland rating form.	Category IV wetlands: Wetlands that have the lowest levels of functions and are heavily disturbed. Specific wetlands that meet the Category IV criteria include: 1. wetlands scoring less than 16 points out of 27 on the wetland rating form.
Source: Hruby (2014).	Source: Hruby (2014).		

Source: Hruby (2014).
Kittitas County wetland category definitions defer to Washington Administrative Code for guidance.
Appendix F includes the County-issued guidance.

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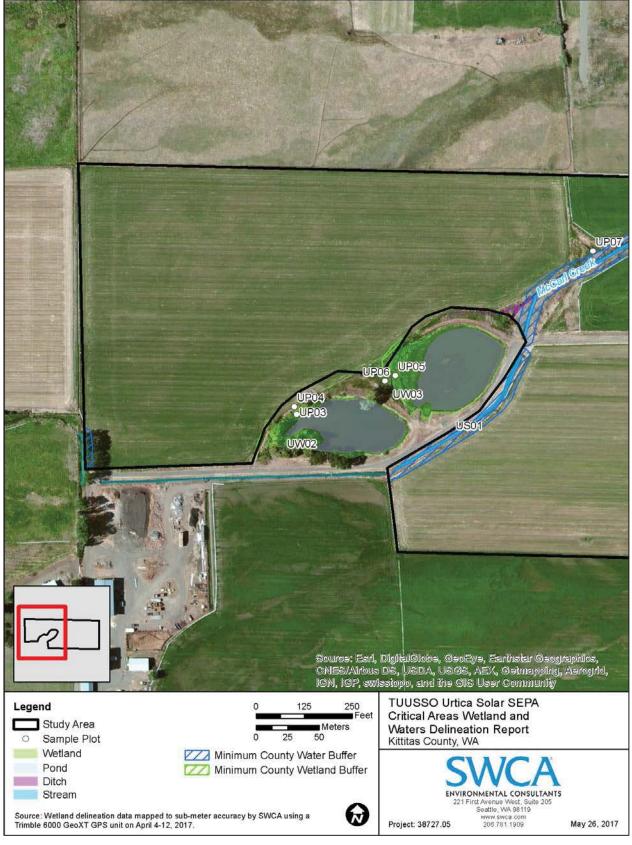


Figure 4. Wetland and waters delineation map, west portion.

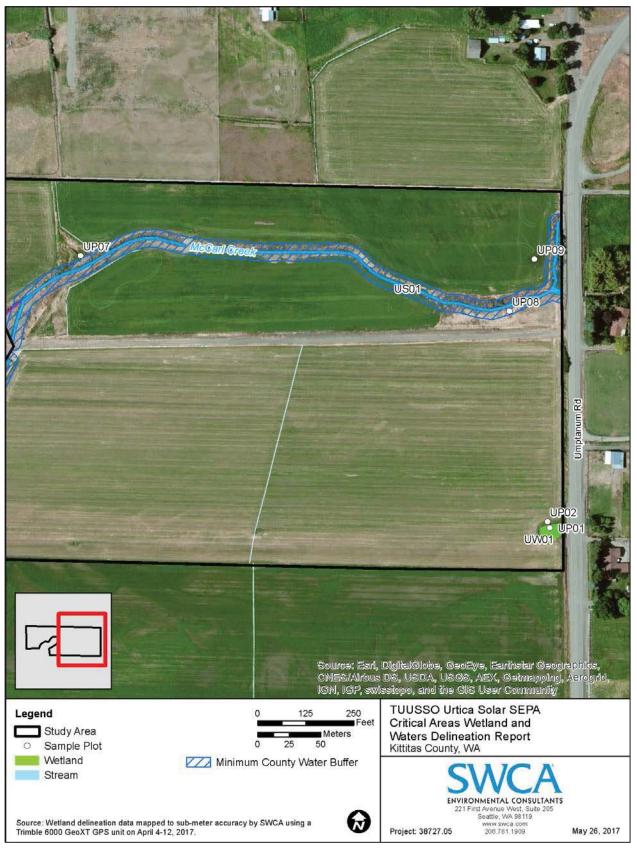


Figure 5. Wetland and waters delineation map, east portion.

A detailed analysis of wetland functions is not included in this report; however, a brief description of wetland functions is provided as part of the general description for each wetland.

2.3.2 Riparian Habitats

Biologists also investigated the study area for the presence of waterbodies and used a GPS device to delineate the ordinary high water marks (OHWMs) of streams per the definitions in WAC 173-22-030 (Figure 5). The OHWMs of streams and rivers outside of the project site but within the study area were approximated using field observations and aerial imagery to determine the extent of on-site stream buffers.

Streams identified in the study areas were classified according to the WAC stream typing system (WAC 222-16-030). Criteria for this typing system are described in Table 4. The stream types described in this report are based on the stream reaches within the study area; downstream reaches may be rated higher.

Table 4. Summary of the Water Typing System

Stream Type	Definition ^a
S	All waters, within their bankfull width, as inventoried as "shorelines of the state" under Chapter 90.58 RCW and the rules promulgated pursuant to Chapter 90.58 RCW including periodically inundated areas of their associated wetlands.
F	All segments of natural waters that are not Type S waters, and that contain fish or fish habitat, including: 1) waters diverted for domestic use by more than 10 residential or camping units or by a public accommodation facility; 2) waters diverted for use by a federal, state, or Tribal fish hatchery from the point of diversion for 1,500 feet or the entire tributary if the tributary is highly significant for protection of downstream water quality; 3) waters that are within a federal, state, local, or private campground having more than 10 camping units; or riverine ponds, wall-based channels, and other channel features that are used by fish for off-channel habitat.
Np	All segments of natural waters within the bankfull width of defined channels that are perennial non–fish habitat streams. Perennial streams are flowing waters that do not go dry any time of a year of normal rainfall and include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.
Ns	All segments of natural waters within the bankfull width of the defined channels that are not Type S, F, or Np waters. These are seasonal, non–fish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and the stream is not located downstream from any stream reach that is a Type Np water. Ns waters must be physically connected by an above-ground channel system to Type S, F, or Np waters.

^a Definitions are summarized from WAC 222-16-030. Kittitas County stream type definitions defer to WAC for guidance.

3 RESULTS AND DISCUSSION

The Urtica Solar Project site primarily consists of actively managed agriculture for growing common timothy (*Phleum pratense*) hay with a highly manipulated stream (formerly called McCarl Creek) that flows south of two ponds in the western portion of the site (outside of the project site) and through the northeastern quarter of the project site. In addition, a farm road bisects the project site, crossing the site from east to west and passing over McCarl Creek just east of the ponds. Some species of weeds and non-native herbaceous species occur around the edges of the agricultural land, along the sides of the farm road, and in the interspace between planted timothy, including tall false rye grass (*Schedonorus arundinaceus*), bluegrass (*Poa* spp.), creeping wild rye (*Elymus repens*), colonial bent grass (*Agrostis capillaris*), white clover (*Trifolium repens*), hairy cat's-ear (*Hypochaeris radicata*), and common dandelion (*Taraxacum officinale*). In addition, there are areas adjacent to McCarl Creek in the northeastern quarter of the project site that do not meet wetland criteria but are dominated by wetland species and could be partially influenced by McCarl Creek. These areas would be within the county-required minimum buffer of McCarl Creek and are dominated by reed canary grass (*Phalaris arundinacea*). Refer to Appendix B for a complete list of vegetation observed within the study area.

The proposed Urtica Solar Project site is situated between Umptanum Road and Brondt Road to the east and west and between Brown Road and Manastash Road to the north and south. The project site is approximately 0.2 mile from the Yakima River and is surrounded by active agricultural land and rural residences in all directions. Access to the proposed project is on the west side of Umptanum Road via the farm road that bisects the project site.

According to NRCS, the study area encompasses four different soil map units (Table 5). These soil map units range from somewhat poorly drained to well drained soils that occur on terraces, piedmont slopes, valleys, and alluvial fans. None of the soil units within the study area are on the National Hydric Soils list (NRCS 2015), which is a list of soils that can be indicative of saturated, flooded, or ponded areas that could meet the definition of a hydric soil.

Table 5. Soil Mapping within the Study Area

Map Unit Symbol	Map Unit Name	Hydric
481	Nanum ashy loam, 2% to 5% slopes	No
601	Brickmill gravelly ashy loam, 0% to 2% slopes	No
609	Ackna ashy loam, 0% to 2% slopes	No
801	Brysill cobbly ashy loam, 0% to 2% slopes	No

Source: NRCS 2015 and 2017b.

3.1 Wetlands

Only one wetland (UW01) was delineated within the study area, but two more wetlands (UW02 and UW03) were delineated outside of the study area that would have protection buffers that extend into the study area. Wetlands were distinguished from adjoining uplands by the presence or absence of indicators for wetland hydrology, hydric soils, and hydrophytic vegetation. Wetland delineation data sheets are provided in Appendix C, photographs are provided in Appendix D, and wetland rating forms are provided in Appendix E.

Table 6 summarizes the size, rating, and classification of wetlands found within and adjacent to the study area. All delineated wetlands would fall under the jurisdiction of the USACE, Ecology, and Kittitas County. Figures 4 and 5 show the locations of the wetlands, streams, data plots, and their associated minimum protection buffers. The minimum wetland protection buffers were calculated per KCC guidance based on Ecology's Wetland Rating for each wetland. Detailed descriptions of each wetland are provided in the following sections.

Wetland Name	Delineated Area within Project Site (Wetland Rating Unit Size) a (acres)	Wetland Rating ^b	Hydrogeomorphic Classification	Cowardin Classification ^c	Dominant Species Observed within Wetland
UW01	0.05 (0.05)	III	Depressional	PEM	Reed canary grass, broad-leaf cat-tail, common duckweed
UW02	0.00 (0.97)	III	Depressional	PEM	Reed canary grass, curly dock, lamp rush, broad-leaf cat-tail
UW03	0.00 (1.19)	III	Depressional	PEM	Reed canary grass, broad-leaf cat-tail, colonial bent grass, curly dock, lamp rush

Table 6. Wetland Size, Rating, and Classification for Wetlands within the Study Area

3.1.1 Wetland UW01

Palustrine emergent Category III

0.05 acre within the project site and in total

Wetland UW01 is a small depressional wetland located near the southeastern corner of the project site (see Figure 5; and wetland rating Figures 1 through 5 in Appendix E). Delineation data were recorded at sample plots UP01 and TP02, provided on datasheets in Appendix C. The wetland does not extend off-site and is fed by overflow from the roadside ditch along Umptanum Road and from overland flow from the adjacent uplands to the west. The upland boundary is defined by an obvious rise in elevation and change in the plant community in every direction.

Wetland UW01 is a palustrine emergent (PEM) wetland habitat type (Cowardin et al. 1979). Refer to Table A-1 in Appendix A for definitions of wetland indictor statuses listed in this section (i.e., FAC, FACW, and OBL). The wetland is dominated by reed canary grass (FACW) and broad-leaf cat-tail (*Typha latifolia*, OBL), except for about a quarter of the wetland that was sparsely vegetated from recent standing water with dead common duckweed (*Lemna minor*, OBL).

Soils in Wetland UW01 are mapped as Nanum ashy loam with 2% to 5% slopes and Brysill cobbly ashy loam with 0% to 2% slopes (NRCS 2017a) (see Figure 3). The typical soil profile observed within 16 inches of the soil surface consists of very dark grayish brown (10YR 3/2) silt loam with redoximorphic features starting at 2 inches, with a thin layer of sand at 2 inches, over a very dark gray (2.5Y 3/1) silt loam layer starting at 8 inches with more prominent redoximorphic features (Munsell Color 2009). The soils in Wetland UW01 meet the hydric soil indicator for Redox Dark Surface (F6).

Primary indicators of hydrology within the wetland include saturation from 0 to 8 inches from recent surface water ponding, surface soil cracks, inundation visible on aerial imagery, and aquatic invertebrates. The presence of these indicators meets wetland hydrology criteria.

Wetland UW01 is rated as a Category III wetland in the Ecology rating system (see Table 3), with a moderately high score for hydrologic function (8/9 points), a moderate score for water quality improvement (6/9), and a low score for habitat function (4/9 points). Wetland UW01 has a moderately high potential to provide hydrologic function because it does not have a surface water outlet, has high storage during seasonal ponding, and receives stormwater from the adjacent roadside ditch.

a Wetland rating unit size is the total area of wetland delineated or estimated based on aerial photograph interpretation and field reconnaissance. Area of delineated portions of the wetlands is based on SWCA survey data.

b Wetland ratings are based on Washington State Wetland Rating System for Eastern Washington - Revised (Hruby 2014).

c Cowardin et al. (1979).

3.1.2 Wetland UW02

Palustrine emergent
Category III
0.00 acre within the project site, 0.97 acre in total

Wetland UW02 is a depressional wetland fringe around a 0.69-acre open water pond, which is included in the total wetland unit acreage, and is fed by impounded water diverted from McCarl Creek and overland flow from surrounding uplands (see Figure 4; and wetland rating Figures 1 through 5 in Appendix E). Delineation data were recorded at sample plots UP03 and UP04 and is provided on datasheets in Appendix C. The upland boundary is defined by an obvious rise in elevation in every direction associated with the original grading of the western pond and observations of primary and secondary hydrology.

Wetland UW02 is a PEM wetland habitat type (Cowardin et al. 1979). The wetland is dominated by reed canary grass, with some other wetland plant species scattered around the edges that include curly dock (*Rumex crispus*, FAC), lamp rush (*Juncus effusus*, FACW), and broad-leaf cat-tail. The dominance of these species meets the wetland vegetation criteria. Wetland UW02 partially overlaps two NWI-mapped wetland types: palustrine forested, broad-leaved deciduous, temporarily flooded (PFO1A) wetland; and palustrine emergent, persistent, unconsolidated bottom, semi-permanently flooded, excavated (PEM1/UBFx) wetland (see Figure 2).

Soils in Wetland UW02 are mapped as Brickmill gravelly ashy loam with 0% to 2% slopes (NRCS 2017a) (see Figure 3). The typical soil profile observed within 16 inches of the soil surface consists of very dark grayish brown (10YR 3/2) silty clay loam over very dark gray (10YR 3/1) silty clay loam with redoximorphic features starting at 7 inches (Munsell Color 2009). The soils in Wetland UW02 meet the hydric soil indicator for Redox Dark Surface (F6).

Primary indicators of hydrology within the wetland include a high water table and saturation within the upper 12 inches. The presence of these indicators meets wetland hydrology criteria.

Wetland UW02 is rated as a Category III wetland in the Ecology rating system, with a moderately high score for hydrologic function (7/9 points) and moderately low scores for water quality improvement and habitat function (5/9 points). Wetland UW02 has a moderately high potential to provide hydrologic functions because of its high storage during seasonal ponding and highly constricted outlet feeding into the eastern pond.

3.1.3 Wetland UW03

Palustrine emergent Category III 0.00 acre within the project site, 1.19 acres in total

Wetland UW03 is a depressional wetland fringe around a 0.83-acre open water pond, which is included in the total wetland unit acreage, and is fed by impounded water diverted from McCarl Creek that passes through the western pond and overland flow from surrounding uplands (see Figure 4; and wetland rating Figures 1 through 5 in Appendix E). Delineation data were recorded at sample plots UP05 and UP06 and is provided on datasheets in Appendix C. The upland boundary is defined by an obvious rise in elevation in every direction associated with the original grading of the eastern pond and observations of primary and secondary hydrology.

Wetland UW03 is a PEM wetland habitat type (Cowardin et al. 1979). The wetland is dominated by reed canary grass, broad-leaf cat-tail, and colonial bent grass (FAC), with some other wetland plant species scattered around the edges that include curly dock and lamp rush. The dominance of these species meets the wetland vegetation criteria. Wetland UW03 partially overlaps an NWI-mapped palustrine, unconsolidated bottom, permanently flooded, excavated (PUBHx) wetland (see Figure 2).

Soils in Wetland UW03 are mapped as Brickmill gravelly ashy loam with 0% to 2% slopes (NRCS 2017a) (see Figure 3). The typical soil profile observed within 16 inches of the soil surface consists of very dark gray (10YR 3/1) silty clay loam over very dark gray (7.5YR 3/1) silt loam with redoximorphic features starting at 5 inches (Munsell Color 2009). The soils in Wetland UW02 meet the hydric soil indicator for Redox Dark Surface (F6).

No primary indicators of hydrology were observed within the wetland plot (UP05); however, secondary indicators of saturation visible on aerial imagery and the FAC-neutral test were satisfied by field and desktop observations. The presence of these indicators meets wetland hydrology criteria.

Wetland UW03 is rated as a Category III wetland in the Ecology rating system, with a moderately high score for hydrologic function (7/9 points) and moderately low scores for water quality improvement and habitat function (5/9 points). Wetland UW02 has a moderately high potential to provide hydrologic functions because of its high storage during seasonal ponding and highly constricted outlet feeding into the McCarl Creek.

3.2 Frequently Flooded Areas

FEMA floodplain mapping depicts the 100-year floodplain along McCarl Creek and incorporates the two ponds (see Figure 2). This area overlaps most of Wetlands UW02 and UW03 and McCarl Creek, with a total area of 5.56 acres within the project site, and will likely be avoided during project design. Development within the 100-year floodplain will be avoided; therefore, no net loss of floodplain storage will be achieved.

3.3 Geologically Hazardous Areas

The Urtica Solar Project site is not within any mapped geologically hazardous areas. No erosion/landslide geologic hazard areas, snow avalanche hazards, or mine hazard areas are mapped on any of the parcels that encompass the project site (Kittitas County 2017). The Urtica Solar Project will not require specialized engineering to ascertain that the property is suitable for development.

3.4 Habitats

Based on the criteria provided in KCC Chapter 17A.07, the study area only includes riparian habitat. The Urtica Solar Project is not located on federal land or land owned or leased by the WDFW, and therefore is not considered big game winter range.

3.4.1 Riparian Habitat

Two ponds and one intermittent stream (McCarl Creek) and ephemeral ditch are located in the study area. Based on the field observations, McCarl Creek would be considered a jurisdictional water for the USACE, Ecology, and Kittitas County because it satisfies the definition of "waters of the United States" under the Clean Water Rule 40 CFR 230.3. The ponds are fed by water diverted from McCarl Creek and feed back into McCarl Creek through an ephemeral ditch. Because the ponds and ditch are hydrologically connected to McCarl Creek, they would likely be considered jurisdictional. Table 7

summarizes the size, rating, and classification of the streams found in the study area (see Figures 4 and 5). Photographs of these features are provided in Appendix D.

Table 7. Summary of Streams in the Study Area

Stream Name	Tributary to	Stream Type ^a	USACE Jurisdiction ^b	Average Width in Study Area (feet) °	Approximate Length in Project Site (feet) ^c
McCarl Creek (US01)) Yakima River	F	RPW	7	2108
Unnamed Ephemeral Ditch	McCarl Creek	N/A	NRPW	3	269

^a F = fish-bearing stream (WAC 222-16-030), N/A = not applicable, due to ditches and canals being excluded from the WAC typing system.

3.4.1.1 McCarl Creek

McCarl Creek is an intermittent, potentially fish bearing tributary of the Yakima River. Fish presence was not observed in the field and the culvert under Umptanum Road is likely acting as a barrier to fish passage; however, if that barrier were to be replaced, then fish could utilize this stream for a portion of the year. The majority of the on-site portion of this stream has been heavily manipulated and ditched, with a portion of the water flow being diverted through the two ponds that are located north of McCarl Creek and outside of the project site. Diverted water from McCarl Creek feeds the two ponds and their surrounding wetlands (UW02 and UW03), as well as the ephemeral ditch north of the eastern pond that is fed from a hole on the north side of the pond. The ephemeral ditch runs along the north side of the eastern pond and collects water from an outfall pipe from the eastern pond, just before feeding back into McCarl Creek. McCarl Creek flows through the northeastern quarter of the study area for approximately 2,108 feet before leaving the study area through a culvert under Umptanum Road in the northeastern corner of the study area.

The riparian area around McCarl Creek consists primarily of herbaceous species, including reed canary grass, tall scouring-rush (*Equisetum hyemale*), creeping wild rye, prickly lettuce (*Lactuca serriola*), garden yellow-rocket (*Barbarea vulgaris*), curly dock, tall annual willowherb (*Epilobium brachycarpum*), creeping buttercup (*Ranunculus repens*), broad-leaf cat-tail, stinging nettle (*Urtica dioica*), and Fuller's teasel (*Dipsacus fullonum*). Based on the Washington Water Typing Criteria (WAC 222-16-030) and communication with WDFW, McCarl Creek is designated as a Type F water because of its potential to support fish species if downstream barriers were removed.

3.4.2 Priority Habitats and Species

Upon review of the PHS mapper, no PHS-listed species or habitats occur within the study area (WDFW 2017a). The nearest PHS-mapped species are located approximately 0.2 mile northeast of the study area in the Yakima River. In addition, no PHS-mapped areas or their protection buffers occur within the study area; therefore, no additional designation will be required under KCC 17A.07.020.

3.5 Aquifer Recharge Areas

As described in KCC 17A.08.010, no critical aquifer recharge locations have been identified in Kittitas County. Additionally, the Urtica Solar Project will not involve any hazardous materials or disposal of onsite sewage. No well-heads have been identified within the study area.

^b RPW = relatively permanent water; NPRW = non-relatively permanent water.

^c Average widths and approximate lengths were determined based on SWCA survey data and field observations.

4 CONCLUSIONS AND RECOMMENDATIONS

EFSEC will provide permitting requirements for the Urtica Solar Project, but this report evaluates and shows compliance with County requirements. A review of the study area determined that the following Kittitas County defined critical areas have the potential to be affected by the Urtica Solar Project:

- Wetlands
- Frequently Flooded Areas
- Habitats:
 - Riparian Habitat

A summary of all wetlands, waters, and critical area buffers documented within the study area is provided in Table 8. The wetland and non-wetland waters identified in this study will likely be determined jurisdictional by Ecology and the USACE, including the delineated ditch. Although EFSEC will provide permitting requirements for the proposed project, to show compliance with County requirements, KCC guidance (Chapter 17A.07.010) defines a minimum 20-foot protection buffer for Type F waters, such as McCarl Creek. However, up to a 100-foot protection buffer could be requested once Kittitas County has had the opportunity to review the results of this study, and has had discussions with TUUSSO (see Figures 4 and 5). KCC guidance does not define protection buffers for the ephemeral ditch because it does not qualify as a stream.

To show compliance with County requirements, the minimum and maximum wetland protection buffers defined by the KCC (Chapter 17A.04.020) are listed in Appendix F, and are provided for these wetlands in Table 8, but only the minimum protection buffers are depicted on Figures 4 and 5.

Table 8. Wetland and Waters Summary

Critical Area	Wetland Rating/Water Typing ^a	Kittitas County Minimum/Maximum Buffer Distances (feet) ^b	Total Size of Feature Within the Project Site (acres) c	
Wetlands				
Wetland UW01	III	0 / 0 ^d	0.05	
Wetland UW02	III	20 / 80	0.00	
Wetland UW03	III	20 / 80	0.00	
Frequently Flooded Areas				
100-year flood zone	N/A	N/A	5.56	
Riparian Habitat				
McCarl Creek (US01)	F	20 / 100	0.32	
Ditch	N/A	None	0.01	

^a III = Category III (Hruby 2014); F = fish bearing water (WAC 22-16-030);

^b Only minimum buffer distances are depicted on maps;

^c Does not include buffer areas;

^d No Kittitas County buffer is defined because the wetland area is below the minimum size threshold for protection; however, building setbacks may be required based on zoning lot line setbacks, but would not exceed 25 feet.

Design plans are incomplete for the proposed Urtica Solar Project; however, TUUSSO will attempt to design the project to avoid, reduce, or eliminate impacts to wetlands, waters, and their buffers. Following the finalization of the design footprint, all removal-fill activities proposed within jurisdictional features would require a Joint Aquatic Resources Permit Application (JARPA) submitted for USACE and Ecology review.

There is no minimum threshold to implement mitigation sequencing for potential impacts to wetland and water features. Where possible, the Urtica Solar Project should demonstrate avoidance of jurisdictional features and then minimization of impacts. Avoidance and minimization could be achieved by making minor design alterations around delineated feature boundaries.

Where impact avoidance is not possible, mitigation measures should be implemented to minimize temporary construction disturbance and other permanent alterations to the features. Mitigation would include the implementation of construction best management practices. Where permanent alterations to wetland and waters features are unavoidable, wetland mitigation measures to achieve "no net loss" would be required. Desktop research shows that there are no approved mitigation banks or in-lieu fee programs in Kittitas County; therefore, any mitigation that would be required must be conducted as an Advance Permittee-Responsible Mitigation. Under KCC guidance (Chapter 17A.04.050), the mitigation ratio for a Category III wetland is 1:1.

5 DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigators. This should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and is not a final determination.

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APPENDIX A: WETLAND DELINEATION METHODOLOGY

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The methods used to delineate wetlands within the study area conform to guidance in the Washington State Wetland Identification and Delineation Manual (Ecology 1997), the Corps of Engineers Wetland 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).

To be considered a wetland by the U.S. Army Corps of Engineers (USACE), an area must express hydrophytic vegetation, hydric soils, and wetland hydrology. SWCA Environmental Consultants (SWCA) staff documented site conditions for these parameters in areas representative of the project site and in areas most likely to exhibit wetland features. Staff collected additional data in associated uplands, as needed, to confirm wetland boundaries. Wetland boundaries, stream boundaries, and wetland data plot locations in the study area were recorded with a Trimble Geo XT global positioning system (GPS) unit. All delineated wetlands and streams were processed and projected onto existing base maps using ArcGIS software.

Vegetation

The dominant and sub-dominant plants were identified and recorded at each sample plot location. These plants were evaluated based on their wetland indicator status to determine if the vegetation was hydrophytic. SWCA biologists utilized the 50/20 rule per USACE recommendations to determine which plants were dominant at each sample plot. Under this guidance, absolute cover estimates were made for each species found rooted within the sample plot radius for each vegetative strata found in the habitat (tree, sapling/shrub, herb, and woody vine). Refer to the USACE regional supplement for exact applications of this method of determining dominance (USACE 2008).

Sample plot radii varied in size depending on site topography and habitat complexity. When documenting vegetation in smaller or oddly-shaped wetlands or habitat features, vegetation strata radii may be adjusted to more accurately depict vegetation rooted within the wetland or habitat feature being delineated.

Hydrophytic vegetation is defined as vegetation adapted to wetland conditions, such as inundation or prolonged saturation. To meet the hydrophytic vegetation criterion, more than 50% of the total dominant plants across all stratums must have a wetland indicator status of Facultative (FAC), Facultative Wetland (FACW), or Obligate (OBL). The wetland indicator status is assigned to plant species that have the potential to occur in wetlands by the USACE (Lichvar et al. 2016). Table A-1 lists the definitions for each wetland indicator status.

Table A-1. Definitions for Each Wetland Plant Indicator Status

Wetland Indicator Status	Symbol	Definition
Obligate Wetland Plants	OBL	Plants that almost always (> 99% of the time) occur in wetlands, but which may rarely (< 1% of the time) occur in non-wetlands.
Facultative Wetland Plants	FACW	Plants that often (67 to 99% of the time) occurs in wetlands, but sometimes (1 to 33% of the time) occur in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (34 to 66% of the time) of occurring in both wetlands and non-wetlands.
Facultative Upland Plants	FACU	Plants that sometimes (1 to 33% of the time) occur in wetlands, but occur more often (67 to 99% of the time) in non-wetlands.
Upland Plants	UPL	Plants that rarely (< 1% of the time) occur in wetlands, and almost always (> 99% of the time) occur in non-wetlands.

Source: Lichvar et al. (2016).

SWCA biologists identified plants found in the field to species whenever possible, when adequate vegetative or flowering characteristics were available. Scientific and common plant names were reported with the currently accepted nomenclature.

Soils

An area typically must contain hydric soils to be considered a wetland, except when problematic site conditions occur. Hydric soils typically form under an area that experiences durations of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper portion of the soil profile. Chemical and biological processes in saturated soil result in reduced oxygen concentrations and promote anaerobic metabolism in microorganisms. These prolonged anaerobic conditions often create mottling and other distinct patterns in the soil, which are used as indicators of hydric soils. The hue, value, and chroma and relative percentage of mottling are recorded in the field at each data plot location. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic matter staining in the soil profile (Natural Resource Conservation Service [NRCS] 2017a).

SWCA staff examined soil profiles at each data plot location by excavating sample pits to a depth of 16 to 20 inches to observe the soil profile, colors, and textures. In some cases, a shallower soil pit was used due to shovel refusal from obstructions in the soil profile, such as gravel, bedrock, thick roots, or clay hardpan. Munsell color charts (Munsell Color 2009) were used to determine soil colors in the field.

Hydrology

SWCA staff investigated the entire project site for evidence of wetland hydrology. Where data plot locations were taken, additional notes were recorded to fully document the presence of primary and secondary wetland hydrology indicators at the sample location. According to the USACE, wetland hydrology criteria were considered to be satisfied if the soil was seasonally inundated or saturated to the surface for a consecutive number of days greater than or equal to 12.5% of the growing season. The growing season for the area was determined based on the period in which temperatures are above 28 degrees Fahrenheit 5 out of 10 years (Ecology 1997) using the long-term climatological data collected by the NRCS (2017). Using the wetlands climate analysis (WETS) table for the nearest station (Ellensburg, Washington), the growing season was approximated as typically between April 20 and October 10, or a total of 173 days (NRCS 17b).

However, often times multiple site visits to determine the duration of seasonal inundation or saturation are not possible. Therefore, field indicators are used in an attempt to determine an area's hydro-period through field observations. Wetland hydrology indicators are divided into two categories: primary and secondary indicators (USACE 2008). Primary indicators of hydrology include, but are not limited to, surface inundation and high water table and saturated soils within 12 inches of the soil surface. The presence of one primary indicator is sufficient to conclude that wetland hydrology is present. Secondary hydrology indicators are also recorded and may substitute in the case of a lack of any primary indicators if multiple secondary indicators are observed. Secondary indicators of hydrology include, but are not limited to, drainage patterns, crayfish burrows, and dry-season water table (USACE 2008). If no primary indicators, and fewer than two secondary indicators, are observed within the sample area, then it is likely that the area is not considered a wetland, unless problematic conditions exist on-site. Aerial and historic imagery are often reviewed before and after site visits to ensure all possible hydrology indicators are taken into account.

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APPENDIX B: VEGETATION LIST

Urtica Solar Project Vegetation Table April 6-7, 2017

Common Name	Scientific Name	Wetland Indicator Status ¹	Native / Introduced and Invasive / Noxious		
Colonial Bent	Agrostis capillaris	FAC	non-native		
Garden Yellow-Rocket	Barbarea vulgaris	FAC	non-native		
Devil's-Pitchfork	Bidens frondosa	FACW	native		
		FACU	non-native		
Shepherd's-Purse	Capsella bursa-pastoris	OBL to FACU	non-nauve		
sedge	Carex species Centaurea stoebe	NOL NOL	- novious		
spotted knapweed Canadian Thistle		FACU	noxious		
	Cirsium arvense	FACU	invasive, noxious non-native		
Orchard Grass	Dactylis glomerata				
Queen Anne's-Lace	Daucus carota	UPL	non-native, noxious		
Fuller's Teasel	Dipsacus fullonum	FAC	invasive, noxious		
common viper's bugloss	Echium vulgare	NOL	non-native		
Creeping Wild Rye	Elymus repens	FAC	non-native		
tall annual willowherb	Epilobium brachycarpum	NOL	native		
Tall Scouring-Rush	Equisetum hyemale	FACW	native		
Hairy Cat's-Ear	Hypochaeris radicata	FACU	non-native, noxious		
Baltic Rush	Juncus balticus	FACW	native		
Lamp Rush	Juncus effusus	FACW	native		
Prickly Lettuce	Lactuca serriola	FACU	non-native		
Common Duckweed	Lemna minor	OBL	native		
Spearmint	Mentha spicata	FACW	non-native		
True Forget-Me-Not	Myosotis scorpioides	FACW	non-native		
scotch thistle	Onopordum acanthium	NOL	noxious		
Reed Canary Grass	Phalaris arundinacea	FACW	invasive, noxious		
Common Timothy	Phleum pratense	FACU	non-native		
English Plantain	Plantago lanceolata	FAC	non-native		
bluegrass	Poa species	FAC?	-		
Quaking Aspen	Populus tremuloides	FACU	native		
Creeping Buttercup	Ranunculus repens	FAC	non-native		
Black Locust	Robinia pseudoacacia	FACU	non-native		
Curly Dock	Rumex crispus	FAC	non-native		
crack willow	Salix X fragilis	FAC	non-native		
Common Dandelion	Taraxacum officinale	FACU	non-native		
yellow salsify	Tragopogon dubius	NOL	non-native		
White Clover	Trifolium repens	FACU	non-native		
Broad-Leaf Cat-Tail	Typha latifolia	OBL	native		
Stinging Nettle	Urtica dioica	FAC	native		
Great Mullein	Verbascum thapsus	FACU	non-native		

¹Wetland Indicator Status (WIS) from the NWPL AW Region - see below.

A question mark (?) preceded by a space indicates our default assumption that the plant is FAC.

Wetland Indicator Status (WIS) and taxonomy for the AW Region per the National Wetland Plant List 2016v3.3:

(common names are capitalized) http://wetland-plants.usace.army.mil/ Accessed January 10, 2017

WIS for non-wetland plants and taxonomy from Reed 1988 and Reed et al. 1993, and the USDA PLANTS database:

(common names are not capitalized) http://plants.usda.gov/ Accessed multiple dates

http://www.nwcb.wa.gov/

WETLAND INDICATOR STATUS - Arid	ETLAND INDICATOR STATUS - Arid West Region									
OBL	Obligate Wetland – Almost always is a hydrophyte, rarely in uplands. Examples: broad-leaf at-tail, yellow-skunk-cabbage									
FACW	Facultative Wetland - Usually is a hydrophyte but occasionally found in uplands. Examples: Oregon ash, red osier									
FAC	Facultative – Commonly occurs as either a hydrophyte or non-hydrophyte. Examples: red alder, salmon raspberry									
FACU	Facultative Upland - Occasionally is a hydrophyte but usually occurs in uplands. Examples: big-leaf maple, Himalayan blackberry									
UPL	Upland - Rarely is a hydrophyte, almost always in uplands. These plants have been removed from the NWPL WMVC Region.									
NOL	Not Listed - Not on the list; assumed to be UPL.									



Project/Site: Urtica Solar Project		City/County:	- / Kittitas	Sampling Date: 4/6/2017
Applicant/Owner: TUUSSO Energy, LLC				State: WA Sampling Point: UP01
Investigator(s): Evan Dulin, Jamie Young		Section, T	ownship, Rang	 pe: Section 10, T17N, R18E
Landform (hillslope, terrace, etc.): Depression	1			(concave, convex, none): Concave Slope (%): 3
Subregion (LRR): B, Columbia/Snake River P		Lat: 46.972973	_	ng: -120.570319 Datum: NAD 1983
<u> </u>	n, 2 to 5 percent s		_	NWI classification: None
Are climatic / hydrologic conditions on the site to	•	, ,	Ye	
, ,	, or Hydrology	•		Are "Normal Circumstances" present? Yes X No
	, or Hydrology			If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach	site map show	/ing sampling	point locat	tions, transects, important features, etc.
Hydrophytic Vegetation Present?	Yes X	No		
Hydric Soil Present?	Yes X	No	Is the Samp	oled Area
Wetland Hydrology Present?	Yes X	No	within a We	etland? Yes X No
Precipitation prior to fieldwork: 0.48" two water Remarks: UW01. Wetland is in a depression that is fed by	•			ove normal for WYTD. *Wetter than normal.
VEGETATION				
	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 30' r)	% Cover	Species?	<u>Status</u>	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2.				
3.				Total Number of Dominant
4.		<u> </u>		Species Across All Strata: 2 (B)
	0% =	Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: 100% (A/B)
2.			-	Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species 20 x 1 = 20
5.				FACW species 55 x 2 = 110
		Total Cover		FAC species 0 x 3 = 0
Herb Stratum (Plot size: 5' r_)		- Total Cover		FACU species 0 x 4 = 0
,	55%	Vaa	FACW	UPL species 0 x 5 = 0
Phalaris arundinacea Typha latifolia		Yes		
		Yes	OBL	Column Totals: 75 (A) 130 (B) Prevalence Index = B/A = 1.73
3.				Hydrophytic Vegetation Indicators:
4				
5.				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7.	_			3 - Prevalence Index is ≤3.0 ¹
8.				4 - Morphological Adaptations (Provide supporting
9				data in Remarks or on a separate sheet)
10				5 - Wetland Non-Vascular Plants ¹
11				Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size: 10' r		Total Cover		¹ Indicators of hydric soil and wetland hydrology must be present.
1 2.				Hydrophytic
	0% =	Total Cover		Vegetation Yes X No
% Bare Ground in Herb Stratum 25%		- 10tai 00v6l		Present?
Remarks: 25% bare ground where previously ponded and	d dominated by <i>Lei</i>	mna minor.		Entered by: KL/ED QC by: TJD

Profile Description: (Descripte to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type* Loc* Texture Remarks 0-2 10YR 8/2 100 - Sand Type* Loc* San	SOIL Drofile Decerir	stion: (Deceribe to t	ha danth r	seeded to decume	nt the indicator o	. a a m fi um	the change of i	Sampling Po	int: UPU1
Color (moist)			ne aeptn r	ieeded to docume			the absence of it	idicators.)	
10 10 10 10 10 10 10 10	·		0/	0-1(1 - 2	T 4	Damada
2	, ,				· -			,	Remarks
2-8				7.5YR 4/6	5	<u> </u>	PL		
Setable Seta				7 FVD 4/C					very thin layer
Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. **Location: PL=Pore Lining, M=Matrix.* **Location: PL=Pore Lining, M=Matrix.* **Indicators for Problematic Hydric Solis*: 1 cm muck (A9) (LRR C) Histocal (A1)					· -		_		
Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. Secondary Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solis*:	8-13+	2.5Y 3/1	80		· -		_	SIL	
Indicators (Applicable to all LRRs, unless otherwise noted.)				7.5YR 3/4		C	PL		· -
Indicators (Applicable to all LRRs, unless otherwise noted.)				· -	·				· -
Indicators (Applicable to all LRRs, unless otherwise noted.)					·		_	-	
hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histoscol (A1) Sandy Redox (S5) Histoscol (A1) Sandy Redox (S5) Black Histic (A3) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Trink Dark Surface (A12) Depleted Dark Surface (F6) Depleted Bellow Dark Surface (A11) Depleted Dark Surface (F7) Trink Dark Surface (A12) Redox Dark Surface (F7) Trink Dark Surface (A12) Redox Dark Surface (F7) Trink Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Cleyed Matrix (S4) Unreal Pools (F9) Wetland Hydrology must be present, unless distrubed or problematic. Westrictive Layer (if present): Type: None Depth (inches): N/A Word of organic matter extends above soil surface. Hydric Soil Present? Yes X No Water Marks (B1) (Riverine) Surface Water (A1) Surface Water (A1) Surface Water (A1) High Water Table (A2) Soil Biotic Crust (B12) Soil Crust (B12) Soil Crust (B13) Water Marks (B1) (Riverine) Hydrology Indicators (B1) Diff Deposits (B2) (Ronriverine) Diff Deposits (B2) (Ronriverine) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C5) Salturation Present? Yes No Water Marks (B1) (Riverine) Diff Deposits (B2) (Ronriverine) Diff Deposits (B2) (Ronriverine) Diff Deposits (B2) (Ronriverine) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Salturation Visible on Aerial Imagery (C7) Salturation Present? Yes No Depth (inches): Dictator Reduced Iron (C4) Water Table (C2) Soldinant Deposits (B2) (Ronriverine) Diff Deposits (B3) (Ronriverine) Diff Deposits (B2) (Ronriverine) Diff Deposits (Type: C=Conc	entration D-Depletio	n PM-Per		overed or Coated S	and Grain	2 ocation: l	DI - Dore Lining M-N	
Histosol (A1) Sandy Redox (S5) 1 cm muck (A9) (LRR C) Histose Epipedon (A2) Stripped Matrix (S6) 2 cm Muck (A10) (LRR B) Black Histo (A3) Loany Mucky Mineral (F1) Reduced Vertic (F18) Hydrogen Sulfide (A4) Loany Mucky Mineral (F2) Red Parent Material (TF2) Stratified Layers (A5) (LRR C) Depleted Matrix (F3) Other (Explain in Remarks) 1 cm Muck (A9) (LRR D) X Redox Dark Surface (F7) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) Vernal Pools (F9) wetland hydrology must be present, unless distrubed or problematic. **Letertrictive Layer (if present):** Type: None Depth (inches): N/A Wetland Hydrology Indicators: "thick mat of organic matter extends above soil surface. **POROLOGY** Vertand Hydrology Indicators: "thick mat of organic matter extends above soil surface. **POROLOGY** Vertand Hydrology Indicators: "thick mat of organic minimum of one required; check all that apply) Surface Water (A1) Salt Crust (B12) Sediment Deposits (B2) (Riverine) High Water Table (A2) Biotic Crust (B12) Sediment Deposits (B2) (Riverine) **Sutration (A3) X Aquatic Invertebrates (B13) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Oxidized Ritizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) X Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B8) Other (Explain in Remarks) X FAC-Neutral Test (D5) **Indicators and the Advance of Present? Yes X No Depth (Inches): N/A Water Table Present? Yes X No Depth (Inches): 133 Surface Water Present? Yes X No Depth (Inches): 133 Surface Water Present? Yes X No Depth (Inches): 133 Surface Water Present? Yes X No Depth (Inches): 133 Surface Water Present? Yes X No Depth (Inches): 134 Surface Water Present? Yes X No Depth (Inches): 135 Surface Water Present? Yes X No Depth (Inches): 136 Surface Water Present? Yes X No Depth (Inches): 136 Sur		•				and Grain			
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F2) Stratified Layers (A5) (LRR C) Depleted Matrix (F3) Other (Explain in Remarks) Thick Dark Surface (A12) Seed Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F6) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gieyed Matrix (F3) Other (Explain in Remarks) Permarks: S = sand; SI = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) **Potential or organic matter extends above soil surface.** **POTROLOGY** **Potential organic matter extends above soil surface.** **POTROLOGY** **Potential organic matter extends above soil surface.** **POTROLOGY** **Potend Hydrology Indicators:** **Innary Indicators (minimum of one required; check all that apply) Surface Water (A1) Salt Crust (B12) Salt Crust (B13) Dirit Deposits (B3) (Nonriverine) Hydrogen Sulfide Odor (C1) Dorfange Patterns (B10) Sediment Deposits (B2) (Nonriverine) Presence of Reduced Iron (C4) Salturation (A3) Sulface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Salturation Visible on Aerial Imagery (C9) Thin Muck Surface Water Present? Yes No Sulface (C7) Shallow Aquitard (D3) Water Table Present? Yes No Sulface (C7) Salturation Present? Yes No Sulface (C7) Salturation Present? Yes No Sulface (C7) Salturation Present? Yes No Depth (inches): N/A Water Table Presen	-							_	
Black Histic (A3)		•					 `	, ,	
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR C) Depleted Matrix (F3) Other (Explain in Remarks) To m Muck (A9) (LRR D) Red Ox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mineral (S1) Sandy Mineral (S2) Sandy Mineral (S3) Sandy Mineral (S4) Sandy Mineral (S4) Sandy Mineral (S4) Sandy Mineral (S4) Wernal Pools (F9) Wetland hydrology must be present, unless distributed or problematic. Wetland hydrology must be present, unless distributed or problematic. Wetland Hydrology must be present, unless distributed or problematic. Wetland Hydrology must be present, unless distributed or problematic. Wetland Hydrology must be present, unless distributed or problematic. Wetland Hydrology must be present, unless distributed or problematic. Wetland Hydrology indicators: **Timany Indicators (Sill Fresent? Yes X No Wetland Hydrology Indicators: **Timany Indicators (minimum of one required; check all that apply) Sufface Water (A1) Salt Crust (B11) Salt Crust (B11) Water Marks (B1) (Riverine) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drift Deposits (B3) (Riverine) Drift Deposits (B3) (Riverine) Salturation (A3) Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) X Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Salturation Visible on Aerial Imagery (C3) X Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water Table Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): N/A Wetland Hydrology Present? Yes X No Includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:									
Stratified Layers (A5) (LRR C) Depleted Matrix (F3) Other (Explain in Remarks) 1 cm Muck (A9) (LRR D) X Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depressions (F8) Sindicators of hydrophytic vegetation and wetland hydrology must be present, unless distrubed or problematic. Sandy Mucky Mineral (S1) Vernal Pools (F9) wetland hydrology must be present, unless distrubed or problematic. Sandy Gleyed Matrix (S4) Wetland Hydrology must be present, unless distrubed or problematic. Sestrictive Layer (if present): Type: None Depth (inches): N/A Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) **Thick mat of organic matter extends above soil surface. **PUROLOGY** Vetland Hydrology Indicators: **Purimary Indicators (minimum of one required; check all that apply) Surface Water (A1) Salt Crust (B11) Sediment Deposits (B2) (Riverine) High Water Table (A2) Biotic Crust (B12) Sediment Deposits (B3) (Riverine) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Sadiment Deposits (B3) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) X Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C8) Saturation Visible on Aerial Imagery (C3 X Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) X FAC-Neutral Test (D5) **Total Characteristics** **Water Table Present? Yes No Depth (inches): N/A Water-Table Present? Yes No Depth (inches): O-8 **Wetland Hydrology Present? Yes X No Depth (inches): O-8 **Wetland Hydrology Present? Yes X No Depth (inches): N/A **Wetland Hydrology Present? Yes X No Depth (inches): D-8 **Wetland Hydrology Present? Yes X No Depth (inches): D-8 **Wetland Hydrology Present? Yes X No Service		` '						,	
1 cm Muck (A9) (LRR D)								, ,	
Depleted Below Dark Surface (A12)				 '	` '		Оптот (Ехріа	iii iii rtomanto)	
Thick Dark Surface (A12) Redox Depressions (F8) Planticitors of hydrophytic vegetation and wetland hydrology must be present, unless distrubed or problematic. Retrictive Layer (if present): Type: None Depth (inches): N/A Remarks: S = sand; Si = sitt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) Wetland Hydrology Indicators: Whick mat of organic matter extends above soil surface. Hydrocoty Vetland Hydrology Indicators: Water Marks (B1) (Riverine) Surface Water (A1) Salt Crust (B11) Water Marks (B1) (Riverine) Hydrogen Sulfide Odor (C1) Drainage Patterns (B2) (Riverine) Water Marks (B1) (Nonriverine) Joidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) X Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) X Surface Water Resent? Yes No X Depth (inches): N/A Water-Stained Leaves (B9) Other (Explain in Remarks) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Entered by: KU/ED QC by: TJD Prose Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Entered by: KL/ED QC by: TJD Prose Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			11)		` ,				
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Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: None Depth (inches): N/A Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) "thick mat of organic matter extends above soil surface. HYDROLOGY Wetland Hydrology Indicators: Surface Water (A1) High Water Table (A2) Biotic Crust (B11) Sattration (A3) X Aquatic Invertebrates (B13) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Drift Deposits (B3) (Nonriverine) X Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) X Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Other (Explain in Remarks) No X Depth (inches): N/A Water Table Present? Yes X No Depth (inches): N/A Depth (•	. , ,	
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Secondary Indicators: Secondary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required)	z tilick iliat of o	nganic matter extends	s above so	ii suriace.					
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Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) X Surface Soil Cracks (B6) X Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Drift Observations: Surface Water Present? Yes No X Depth (inches): Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) X FAC-Neutral Test (D5) Wetland Hydrology Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) X FAC-Neutral Test (D5) Wetland Hydrology Present? Yes X No Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Entered by: KL/ED QC by: TJD	— High Water	Table (A2)		Biotic Crust (B	12)			Sediment Deposits (B2) (Riverine)
Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) X Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) X Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Other (Explain in Remarks) Thin Muck Surface (C7) Water-Stained Leaves (B9) Other (Explain in Remarks) Thin Muck Surface (C7) Shallow Aquitard (D3) X FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No No X Depth (inches): N/A Water Table Present? Yes No Depth (inches): Saturation Present? Yes X No Depth (inches): Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Entered by: KL/ED QC by: TJD	X Saturation ((A3)		X Aquatic Inverte	ebrates (B13)			Drift Deposits (B3) (I	Riverine)
Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) X Surface Soil Cracks (B6) X Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Other (Explain in Remarks) Thin Muck Surface (C7) Water Table Present? Yes No X Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Seturation Present? Yes No Depth (inches): Seturation Present? Yes No Depth (inches): Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Entered by: KL/ED Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9 Shallow Aquitard (D3) X FAC-Neutral Test (D5) Wetland Hydrology Present? Yes X No Seturation Present? Yes X No Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Water Mark	s (B1) (Nonriverine)		Hydrogen Sulfi	de Odor (C1)			Drainage Patterns (E	310)
X Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9 X Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) X FAC-Neutral Test (D5) Water-Stained Leaves (B9) Other (Explain in Remarks) X FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): >13 Saturation Present? Yes X No Depth (inches): 0-8 Wetland Hydrology Present? Yes X No Security Present? Yes X No Depth (inches): 0-8 Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	Sediment D	eposits (B2) (Nonriv	erine)	Oxidized Rhizo	spheres along Livi	ng Roots ((C3)	Dry-Season Water T	able (C2)
Thin Muck Surface (C7) Shallow Aquitard (D3)	Drift Deposi	its (B3) (Nonriverine)	Presence of Re	educed Iron (C4)			Crayfish Burrows (C	8)
X Inundation Visible on Aerial Imagery (B7)						oils (C6)			
Water-Stained Leaves (B9) Other (Explain in Remarks) X FAC-Neutral Test (D5) Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): >13 Saturation Present? Yes X No Depth (inches): 0-8 Wetland Hydrology Present? Yes X No Depth (inches): 0-8 Yes X No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:			gery (B7)			. ,			
Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): >13 Saturation Present? Yes X No Depth (inches): 0-8 Wetland Hydrology Present? Yes X No Depth (inches): 0-8 Yes X No Cincludes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	— Water-Stair	ned Leaves (B9)							
Water Table Present? Yes No X Depth (inches): >13 Wetland Hydrology Present? Saturation Present? Yes X No Depth (inches): 0-8 Yes X No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Entered by: KL/ED QC by: TJD	ield Observati	ions:			·			<u> </u>	
Water Table Present? Yes No X Depth (inches): >13 Wetland Hydrology Present? Saturation Present? Yes X No Depth (inches): 0-8 Yes X No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Entered by: KL/ED QC by: TJD	Surface Water	Present? Ves		No. Y	Denth (inches):	NI/A			
Saturation Present? Yes X No Depth (inches): 0-8 Yes X No Cincludes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Entered by: KL/ED QC by: TJD		_			· · · · -		- Watland	Hydrology Present	2
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Entered by: KL/ED QC by: TJD			Y				- vvetiand		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Entered by: KL/ED QC by: TJD		_	^		Deput (IIIoties).	0-0	-	169 A	. 140
	Describe Recor	ded Data (stream ga	uge, monito	oring well, aerial pho	otos, previous insp	ections), if	available:		
	Domarka							Entered by 1/1/ED	OC by: TID
, , , ,		re observed in area ດ	f previously	open water that re	cently dried up. Su	rface satu	ration from recent		

Project/Site: Urtica Solar Project		City/County:	- / Kittitas	Samplir	ng Date: 4/6/2017
Applicant/Owner: TUUSSO Energy, LLC				State: WA Sar	mpling Point: UP02
Investigator(s): Evan Dulin, Jamie Young		Section, To	ownship, Rand	ge: Section 10, T17N, R18E	
Landform (hillslope, terrace, etc.): Hillslope				(concave, convex, none): Convex	Slope (%): 1
Subregion (LRR): B, Columbia/Snake River Pl	ateau	Lat: 46.973019	_		Datum: NAD 1983
		rcent slopes (801)	_	NWI classifica	<u> </u>
Are climatic / hydrologic conditions on the site to			Ye		no, explain in Remarks)
, ,	, or Hydrology	•	disturbed?	Are "Normal Circumstances" pre	
	, or Hydrology			(If needed, explain any answers	
SUMMARY OF FINDINGS - Attach	- site map sho	wing sampling	point loca	tions, transects, importa	nt features, etc.
Hydrophytic Vegetation Present?	Yes	No X			
Hydric Soil Present?	Yes	No X	Is the Samp	pled Area	
Wetland Hydrology Present?	Yes	No X	within a We	etland? Yes	No X
Precipitation prior to fieldwork: 0.48" two was Remarks: Sample plot is approximately 4' higher in elevation				ove normal for WYTD. *Wetter t	han normal.
VEGETATION					
	Absolute	Dominant	Indicator	Dominance Test workshee	t:
Tree Stratum (Plot size: 30' r_)	% Cover	Species?	<u>Status</u>	Number of Dominant Species	S
1.	_			That Are OBL, FACW, or FA	.C: <u>0</u> (A)
2					
3.	_			Total Number of Dominant	
4.	_			Species Across All Strata:	1 (B)
	0%	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10' r	_)			Percent of Dominant Species	S
1.				That Are OBL, FACW, or FA	.C: <u>0%</u> (A/B)
2.				Prevalence Index workshe	et:
3.				Total % Cover of: Mu	ıltiply by:
4.				OBL species 0 x 1	= 0
5.				FACW species 5 x 2	10
	0%	= Total Cover		FAC species 0 x 3	= 0
Herb Stratum (Plot size: <u>5' r</u>)				FACU species 95 x 4	= 380
1. Phleum pratense	90%	Yes	FACU	UPL species 0 x 5	= 0
Cirsium arvense	5%	No	FACU	Column Totals: 100 (A)	
Phalaris arundinacea	5%	No	FACW	Prevalence Index = B/A :	
4.		· · · · · · · · · · · · · · · · · · ·		Hydrophytic Vegetation Inc	licators:
5.	-			1 - Rapid Test for Hydron	
6.				2 - Dominance Test is >5	50%
7.				3 - Prevalence Index is ≤	
8.					ations ¹ (Provide supporting
9.			-	data in Remarks or or	
10.				5 - Wetland Non-Vascula	
11.	_	· · · · · · · · · · · · · · · · · · ·		Problematic Hydrophytic	
· · ·	100%	= Total Cover		¹ Indicators of hydric soil and	
Woody Vine Stratum (Plot size: 10' r		- Total Covel		be present.	wedana nyarology must
1	_	_		1	
2.				Hydrophytic	
	0%	= Total Cover		Vegetation Yes	NoX
% Bare Ground in Herb Stratum 0%				Present?	
Remarks: Planted timothy.				Entered by: KL	/ED_QC by: TJD

Depth	Mati	rix		Redox Fea	atures		_	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-9	10YR 3/2	100	<u> </u>				SiCL	
9-14	10YR 3/1	98	7.5YR 3/4	2	С	M	SiCL	
	<u> </u>		<u> </u>					
						_		
1						2		
, ·	entration, D=Deple				Sand Grain		PL=Pore Lining, M=Ma for Problematic Hydric	
-		ie to all Liviv					(A9) (LRR C)	Jons .
Histosol (A			Sandy Redox	•				
Histic Epipe			Stripped Matri				(A10) (LRR B)	
Black Histic	` ,		Loamy Mucky	, ,		Reduced V	,	
Hydrogen S			Loamy Gleyed				t Material (TF2)	
	ayers (A5) (LRR C)		Depleted Mati			Other (Exp	lain in Remarks)	
	(A9) (LRR D)	(444)	Redox Dark S	· /				
	elow Dark Surface	(A11)	Depleted Dark		³ Indicators of h	ydrophytic vegetation ar	nd	
	Surface (A12)		Redox Depres				Id	
	ky Mineral (S1)		Vernal Pools		-	ology must be present, bed or problematic.		
Sandy Glev	ed Matrix (S4)					uniess distru	bed of broblematic.	
	ver (if present):					Hydric Soil Pr	<u> </u>	No X
Restrictive Lay Type: Depth (inches Remarks:	ver (if present): None N/A			= coarse; f = fine;	vf = very fil	Hydric Soil Pr	<u> </u>	
Restrictive Lay Type: Depth (inches Remarks: Redox features	None None N/A S = sand; Si = silt; below 9" could pos			= coarse; f = fine;	vf = very fii	Hydric Soil Pr	esent? Yes	
Restrictive Lay Type: Depth (inches Remarks: Redox features	None None N/A S = sand; Si = silt; below 9" could pos			= coarse; f = fine;	vf = very fil	Hydric Soil Pr	esent? Yes	
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro	None None N/A S = sand; Si = silt; below 9" could pos	sibly be relic	redox.	= coarse; f = fine;	vf = very fii	Hydric Soil Pr ne; + = heavy (n	esent? Yesnore clay); - = light (less	clay)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicato	None None N/A S = sand; Si = silt; below 9" could pose SY Sology Indicators: Ors (minimum of one)	sibly be relic	redox.		vf = very fil	Hydric Soil Pr ne; + = heavy (n	esent? Yes nore clay); - = light (less	clay)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicato Surface Wa	None S: N/A S = sand; Si = silt; below 9" could pose SY logy Indicators: ors (minimum of on later (A1)	sibly be relic	neck all that apply) Salt Crust (B1	1)	vf = very fil	Hydric Soil Pr ne; + = heavy (n	esent? Yes	quired)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicato Surface Wa High Water	None None N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A Table (A1)	sibly be relic	neck all that apply) Salt Crust (B1 Biotic Crust (E	1)	vf = very fii	Hydric Soil Pr ne; + = heavy (n	esent? Yes nore clay); - = light (less Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B2)	quired) verine) 2) (Riverine)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicato Surface Wa High Water Saturation (None None None N/A S = sand; Si = silt; below 9" could pose N/A S = silt; below 9" could pose N/A None N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A Table (A2) (A3)	sibly be relic	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert	1) 312) ebrates (B13)	vf = very fil	Hydric Soil Pr ne; + = heavy (n	esent? Yes nore clay); - = light (less Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) (Riv	quired) verine) 2) (Riverine) verine)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicato Surface Wa High Water Saturation (Water Mark	None None None N/A S = sand; Si = silt; below 9" could pose None N/A S = sand; Si = silt; below 9" could pose None No	e required; ch	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert	1) 312) ebrates (B13) fide Odor (C1)		Hydric Soil Pr	esent? Yes nore clay); - = light (less Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) (Riv Drainage Patterns (B1	quired) verine) 2) (Riverine) verine)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D	None None None N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A Nology Indicators: Ors (minimum of one o	e required; ch	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sul	1) 312) ebrates (B13) fide Odor (C1) ospheres along Liv		Hydric Soil Pr	esent? Yes nore clay); - = light (less Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal	quired) verine) 2) (Riverine) verine) 0) ble (C2)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi	None None None None N/A S = sand; Si = silt; below 9" could positive (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A4) (A5) (A5) (A6) (A6) (A6) (A7) (A7) (A8) (A8) (A9) (A9)	e required; ch	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sult Oxidized Rhiz Presence of F	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4)	ring Roots (Hydric Soil Pr	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8)	quired) verine) 2) (Riverine) verine) 0) ble (C2)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Surface Soi	None None N/A S = sand; Si = silt; below 9" could position (A3) Table (A2) (A3) Six (B1) (Nonrivering (B3) (Nonrivering (B4) (B6))	e required; che e) riverine) ne)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S	ring Roots (Hydric Soil Pr	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation	None None None N/A S = sand; Si = silt; below 9" could pose None N/A S = sand; Si = silt; below 9" could pose None No	e required; che e) riverine) ne)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S	ring Roots (Hydric Soil Pr	esent? Yes Incre clay); - = light (less Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A Shallow Aquitard (D3)	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Surface Soi Inundation (Water-Stair	None None N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A None N/A S = sand; Si = silt; below 9" could pose N/A Nology Indicators: Ors (minimum of one of the could be could	e required; che e) riverine) ne)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S	ring Roots (Hydric Soil Pr	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation (Water-Stair	None None N/A S = sand; Si = silt; below 9" could positive (A1) Table (A2) (A3) (A3) (A3) (A3) (A4) (A5) (A6) (A6) (A6) (A6) (A7) (A7) (A8) (A8) (A8) (A9) (A9) (A9) (A9) (A9) (A9) (A9) (A9	e required; che riverine) ne) nagery (B7)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Thin Muck Su	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S rface (C7) in in Remarks)	ring Roots (Soils (C6)	Hydric Soil Pr	esent? Yes Incre clay); - = light (less Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A Shallow Aquitard (D3)	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation (Water-Stair Field Observati	None None N/A S = sand; Si = silt; below 9" could pose N/A S = sand; Si = silt; below 9" could pose N/A None N/A S = sand; Si = silt; below 9" could pose N/A Nology Indicators: Ors (minimum of one of the could be could	e required; che e) riverine) ne) nagery (B7)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sult Oxidized Rhiz Presence of F Recent Iron R Thin Muck Su Other (Explain	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S rface (C7) n in Remarks) Depth (inches):	ring Roots (Soils (C6)	Hydric Soil Pr ne; + = heavy (n Secondary C3)	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) (Ri Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A Shallow Aquitard (D3) FAC-Neutral Test (D5)	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Surface Soi Inundation (Water-Stair Field Observat Surface Water Water Table Pr	None None None N/A S = sand; Si = silt; below 9" could positions: Present? None N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions N/A S = sand; Si = sa	e required; che e required; che riverine) ne) nagery (B7)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sull Oxidized Rhiz Presence of F Recent Iron R Thin Muck Su Other (Explain	1) B12) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S rface (C7) n in Remarks) Depth (inches): Depth (inches):	ring Roots (Soils (C6) N/A >14	Hydric Soil Pr ne; + = heavy (n Secondary C3)	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A Shallow Aquitard (D3) FAC-Neutral Test (D5)	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation (Water-Stair	None None None N/A S = sand; Si = silt; below 9" could positions: Present? None N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions N/A	e required; che e required; che riverine) ne) nagery (B7)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sult Oxidized Rhiz Presence of F Recent Iron R Thin Muck Su Other (Explain	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S rface (C7) n in Remarks) Depth (inches):	ring Roots (Soils (C6)	Hydric Soil Pr ne; + = heavy (n Secondary C3)	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) (Ri Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A Shallow Aquitard (D3) FAC-Neutral Test (D5)	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9)
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wat High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation V Water-Stair Field Observat Surface Water Water Table Pr Saturation Pres (includes capilla	None None None N/A S = sand; Si = silt; below 9" could positions: Present? None N/A S = sand; Si = silt; below 9" could positions: N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions: N/A N/A S = sand; Si = silt; below 9" could positions N/A	e required; che riverine) ne) nagery (B7)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sult Oxidized Rhiz Presence of F Recent Iron R Thin Muck Su Other (Explain No X No X No X No X	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S rface (C7) n in Remarks) Depth (inches): Depth (inches):	N/A >14	Hydric Soil Pr ne; + = heavy (n Secondary C3) Wetlar	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A Shallow Aquitard (D3) FAC-Neutral Test (D5)	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9
Restrictive Lay Type: Depth (inches Remarks: Redox features HYDROLOG Wetland Hydro Primary Indicate Surface Wat High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation V Water-Stair Field Observat Surface Water Water Table Pr Saturation Pres (includes capilla	None None None None N/A S = sand; Si = silt; below 9" could position (A) None N/A S = sand; Si = silt; below 9" could position (A) None (e required; che riverine) ne) nagery (B7)	neck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Invert Hydrogen Sult Oxidized Rhiz Presence of F Recent Iron R Thin Muck Su Other (Explain No X No X No X No X	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv Reduced Iron (C4) eduction in Tilled S rface (C7) n in Remarks) Depth (inches): Depth (inches):	N/A >14	Hydric Soil Pr ne; + = heavy (n Secondary C3) Wetlar	esent? Yes Indicators (2 or more re Water Marks (B1) (Riv Sediment Deposits (B3) Drift Deposits (B3) (Riv Drainage Patterns (B1 Dry-Season Water Tal Crayfish Burrows (C8) Saturation Visible on A Shallow Aquitard (D3) FAC-Neutral Test (D5)	quired) verine) 2) (Riverine) verine) 0) ble (C2) Aerial Imagery (C9)

Project/Site: Urtica Solar Project		City/County:	- / Kittitas	Sampling Date: 4/7/2017
Applicant/Owner: TUUSSO Energy, LLC				State: WA Sampling Point: UP03
Investigator(s): Evan Dulin, Jamie Young		Section, To	ownship, Rand	ge: Section 10, T17N, R18E
Landform (hillslope, terrace, etc.): Depression				f (concave, convex, none): Concave Slope (%): 1
Subregion (LRR): B, Columbia/Snake River Plat	eau	Lat: 46.973920	_	ng: -120.578257 Datum: NAD 1983
Soil Map Unit Name: Brickmill gravelly as			_	NWI classification: None
Are climatic / hydrologic conditions on the site typ				es No X* (If no, explain in Remarks)
, ,	or Hydrology	•	disturbed?	Are "Normal Circumstances" present? Yes X No
	or Hydrology			(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach si	te map shov	ving sampling	point loca	tions, transects, important features, etc.
Hydrophytic Vegetation Present? Y	es X	No		
Hydric Soil Present? Y	es X	No	Is the Samp	pled Area
Wetland Hydrology Present? Y	es X	No	within a We	etland? Yes X No
Precipitation prior to fieldwork: 0.60" two week Remarks: UW02. Wetland on fringes of the permanent open	•		YTD, 2.85" ab	ove normal for WYTD. *Wetter than normal.
VEGETATION				
TEGETATION	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30' r)	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: 1 (A)
2.				(',
3.				Total Number of Dominant
4.				Species Across All Strata: 1 (B)
	0%	= Total Cover		(B)
Sapling/Shrub Stratum (Plot size: 10' r		- Total Cover		Percent of Dominant Species
1.	,			That Are OBL, FACW, or FAC: 100% (A/B)
2.	-			Prevalence Index worksheet:
3.				Total % Cover of: _ Multiply by:
4.				OBL species 0 x 1 = 0
5.				
J		T-1-1-0		
Herb Stratum (Plot size: 5' r_)	0%	= Total Cover		FAC species 5 x 3 = 15 FACU species 0 x 4 = 0
	050/		E 4 0 14 /	· — — — — — — — — — — — — — — — — — — —
1. Phalaris arundinacea	95%	Yes	FACW	UPL species 3 x 5 = 15
2. Rumex crispus	5%	No	FAC	Column Totals: 103 (A) 220 (B)
3. Epilobium brachycarpum	3%	No	NOL	Prevalence Index = B/A = 2.14
4.				Hydrophytic Vegetation Indicators:
5.				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7				3 - Prevalence Index is ≤3.0 ¹
8.				4 - Morphological Adaptations ¹ (Provide supporting
9				data in Remarks or on a separate sheet)
10.				5 - Wetland Non-Vascular Plants ¹
11				Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size: 10' r	103%	= Total Cover		¹ Indicators of hydric soil and wetland hydrology must be present.
1.				Li dronh dio
2		Tatal Comm		Hydrophytic
N. Barra Caramadia II. I. Cir. I	0%	= Total Cover		Vegetation Yes X No
% Bare Ground in Herb Stratum0%				Present?
Remarks:				Entered by: KL/ED QC by: TJD

Profile Descrip	tion: (Describ	e to the depth	needed	to docum	nent the indicator	or confirm	the absence of in	Sampling Poin ndicators.)	i. UPU3
Depth		/latrix			Redox Fe	eatures			
(inches)	Color (moist) %	Co	olor (moist)) %	Type ¹	Loc ²	Texture	Remarks
0-7	10YR 3/2	100						SiCL	
7-14	10YR 3/1	98		7.5YR 3/3	2	С	PL	SiCL	
		<u> </u>			_				
		-							
		-							
		•			Covered or Coated	Sand Grain		PL=Pore Lining, M=Ma	•
Hydric Soil Indi		cable to all LRI						or Problematic Hydrid	: Soils":
Histosol (A1	,			ndy Redo	• •		1 cm muck (
Histic Epipe				ripped Mat				A10) (LRR B)	
Black Histic	` '			-	xy Mineral (F1)		Reduced Ve		
Hydrogen St				-	ed Matrix (F2)			Material (TF2)	
	yers (A5) (LRR	(C)		pleted Ma			Other (Expla	in in Remarks)	
<u> </u>	A9) (LRR D)				Surface (F6)				
	low Dark Surfa	ce (A11)		•	rk Surface (F7)		3Indicators of by	drankutia vagatatian ar	
Thick Dark S				essions (F8)		•	drophytic vegetation ar	iu	
	y Mineral (S1)		Ve	rnal Pools	s (F9)		-	ogy must be present,	
Sandy Gleye	ed Matrix (S4)						unless distrube	ed or problematic.	
Restrictive Laye	er (if present):								
Type:	None								
Depth (inches)	N/A						Hydric Soil Pres	sent? Yes X	No
Remarks:	S = sand; Si =	silt; C = clay; L	= loam c	r loamy; c	o = coarse; f = fine	; vf = very fir	ne; + = heavy (mo	re clay); - = light (less	clay)
HYDROLOG	Υ								
Wetland Hydrol):							
Primary Indicator			heck all	that apply)		Secondary Ir	ndicators (2 or more re	auired)
Surface Wat	ter (A1)		Sa	ılt Crust (B	811)			Water Marks (B1) (Riv	
X High Water				otic Crust (Sediment Deposits (B2	•
X Saturation (A					rtebrates (B13)			Drift Deposits (B3) (Ri	
	s (B1) (Nonriv e	erine)			ulfide Odor (C1)			Drainage Patterns (B1	,
	eposits (B2) (N			•	izospheres along L	ivina Roots (Dry-Season Water Tal	
	s (B3) (Nonriv	•			Reduced Iron (C4)	-		Crayfish Burrows (C8)	(02)
Surface Soil	`	,			Reduction in Tilled			Saturation Visible on A	erial Imagery (C9)
		I Imagery (B7)				- Como (GG)		Shallow Aquitard (D3)	ionai imagery (ee)
Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Water-Stained Leaves (B9) Other (Explain in Remarks)								FAC-Neutral Test (D5)	
Field Observation		'		(=,q,,,					
Surface Water F		/os	No	Y	Donth (inches)	NI/A			
Water Table Pre		/es	_ No	X	Depth (inches):	N/A o	-	Hudrolom: December	
		/es X	_ No		Depth (inches):	8	_ vvetiand	Hydrology Present?	No
Saturation Prese (includes capilla	ry fringe)	/es X	_ No	-	Depth (inches):	5	-	Yes X	No
Describe Record	ded Data (strea	m gauge, moni	toring we	ell, aerial p	hotos, previous ins	spections), if	available:		
Remarks:								Entered by: KL/ED (QC by: TJD
About 6' from the	pond's OHWI	Л.						, <u> </u>	-

Project/Site: Ur	tica Solar Project				City/County:	- / Kittitas		San	npling Date	e: <u>4/7/2</u> 01	7
Applicant/Owner:	TUUSSO Energy, LLC						State: WA	_	Sampling	Point:	UP04
Investigator(s):	Evan Dulin, Jamie Young				Section, To	ownship, Range	e: Section 10, T17N,	R18E			
Landform (hillslope,	terrace, etc.): Hillslope					Local relief ((concave, convex, none)	: Conv	/ex	Slope (%): 4
Subregion (LRR):	B, Columbia/Snake River P	lateau		Lat:	46.973974	– Lon	g: -120.578279		Datur	n: NAD 19	983
Soil Map Unit Nam	e: Brickmill gravelly	ashy lo	oam, 0 to 2	2 perce	ent slopes (60	<u> </u>	NW	classi	ification: N	lone	
Are climatic / hydro	ologic conditions on the site t	typical f	or this tim	e of ye	ar?	Yes	s No	X*	(If no, ex	plain in Re	emarks)
Are Vegetation	,Soil	_ , or H	ydrology		significantly o	disturbed? A	re "Normal Circumst	ances"	present?	Yes >	<u>No</u>
Are Vegetation	,Soil	_	ydrology		naturally prob		f needed, explain an				
SUMMARY OF	FINDINGS - Attach	site m	nap sho	wing	sampling	point locat	ions, transects,	impo	rtant fe	atures,	etc.
Hydrophytic Veget	tation Present?	Yes		No	X						
Hydric Soil Presen	nt?	Yes		No	X	Is the Samp					
Wetland Hydrology	y Present?	Yes		No	Х	within a Wet	tland? Yes		No_	X	
Precipitation prior t Remarks: Sample plot located	o fieldwork: 0.60" two w		rior, 2.39"	above	normal for C	YTD, 2.85" abo	ve normal for WYTD	. *Wet	ter than no	ormal.	
VEGETATION											
			Absolute		Dominant	Indicator	Dominance Test	works	heet:		
Tree Stratum	(Plot size: <u>30' r</u>)	,	% Cover		Species?	<u>Status</u>	Number of Domina	ant Spe	ecies		
1. 2.							That Are OBL, FA	CW, or	r FAC:	0	(A)
3.				•			Total Number of D	omina	nt		
4.				•			Species Across Al			1	(B)
-			0%	- Tota	al Cover		Openies Across Ai	Ollate	_	'	— (D)
Sapling/Shrub Stra	<u>ıtum</u> (Plot size: 10' r) —	0 70	- 1012	ii Covei		Percent of Domina	ant Sne	ories		
1.										0%	(A/B)
2.							That Are OBL, FA			<u>070</u>	(A/D)
3.							Total % Cove		Multiply b	ov:	
4.							OBL species		x 1 =		
5.							FACW species	0	x2=	0	
J			00/	T - 4 -	1.0			10	-	20	
Herb Stratum	(Plot size: <u>5' r</u>)	_	0%	= 10ta	l Cover		FAC species FACU species	90	_x3= _x4=	36	
,	·		000/		.,	E4.011			_		
1. Phleum prater			90%		Yes	FACU	UPL species	0	x 5 =	0	
2. Phalaris arund	linacea		10%		No	FACW	Column Totals:	100	(A)	38	
3.							Prevalence Ind			<u>3.80</u>	
4							Hydrophytic Vege				
5.							1 - Rapid Test	-		Vegetatio	า
6.							2 - Dominance				
7							3 - Prevalence				
8.							4 - Morphologi		•	•	
9.							data in Rer				et)
10							5 - Wetland No				
11							Problematic H	ydroph	ytic Vege	tation¹ (Ex	plain)
	/Dist size 401	, –	100%	= Tota	l Cover		¹ Indicators of hydr	ic soil a	and wetlar	nd hydrolo	gy must
Woody Vine Stratu	<u>ım</u> (Plot size: 10' r)					be present.				
1. 2.							Hydrophytic				
			0%	= Tota	al Cover		Vegetation	Yes		lo X	
% Bare Ground in I	Herb Stratum 0%	_	U /0	- 1018	00/61		Present?	. 63			_
Remarks:							Fnte	red by:	KL/ED (QC hv· T.	D
Planted timothy.							2.1101	J.	<u> </u>		

	ption: (Describe									
Depth	Ma	atrix	_	Redox Fea	atures		_			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-7	10YR 3/1	100	_				SiCL			
7-11+	10YR 3/1	99	7.5YR 3/2	1	С	PL	SiCL	faint redox		
						<u> </u>		<u> </u>		
	<u> </u>						. <u> </u>	<u> </u>		
			_							
			_			_				
							<u> </u>			
1			_			2				
,,			educed Matrix CS=C		Sand Grain		PL=Pore Lining, M=I for Problematic Hyd			
-		ible to all Livi					-	ric soils :		
Histosol (A			Sandy Redox	` '			(A9) (LRR C)			
Histic Epipe			Stripped Matri				(A10) (LRR B)			
Black Histic	` ,		Loamy Cloves			Reduced Ve	,			
Hydrogen S	Sulfide (A4) ayers (A5) (LRR (~)	Loamy Gleyed				Material (TF2)			
		•)	Depleted Matr			Other (Expi	ain in Remarks)			
	(A9) (LRR D)	- (044)	Redox Dark S	` ,						
	elow Dark Surfac	e (ATT)	Depleted Dark		³ Indicators of h	/drophytic vegetation	and			
	Surface (A12)		Redox Depres		•					
	ky Mineral (S1)		Vernal Pools (wetland hydrology must be present, unless distrubed or problematic.					
	ed Matrix (S4)					uniess distrut	ed or problematic.			
Restrictive Lay Type:										
Restrictive Lay	None N/A	 lt; C = clay; L :	= loam or loamy; co	= coarse; f = fine;	vf = very fir	Hydric Soil Pre	esent? Yesore clay); - = light (le	No X		
Restrictive Lay Type: Depth (inches Remarks:	None N/A	 lt; C = clay; L	= loam or loamy; co	= coarse; f = fine;	vf = very fir	-				
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1	None None N/A S = sand; Si = si 11" due to rocks.	lt; C = clay; L	= loam or loamy; co	= coarse; f = fine;	vf = very fir	-				
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1	None None N/A S = sand; Si = si 11" due to rocks.	lt; C = clay; L	= loam or loamy; co	= coarse; f = fine;	vf = very fii	-				
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro	None Signature (if present): None N/A S = sand; Si = sind; due to rocks. SY Sology Indicators:		= loam or loamy; co	= coarse; f = fine;	vf = very fir	ne; + = heavy (m		ss clay)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicato	None S: N/A S = sand; Si = si 11" due to rocks. SY Slogy Indicators: ors (minimum of comparison)		heck all that apply)		vf = very fii	ne; + = heavy (m	ore clay); - = light (le	required)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicato Surface Wa	None Signature (if present): None Signature N/A S = sand; Si = sind; due to rocks. SY Plogy Indicators: Dors (minimum of content (A1)		heck all that apply)Salt Crust (B1	1)	vf = very fir	ne; + = heavy (m	ore clay); - = light (le	required) Riverine)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicato	None S = sand; Si = si 11" due to rocks. SY Diogy Indicators: Drs (minimum of cater (A1) Table (A2)		heck all that apply) Salt Crust (B1 Biotic Crust (E	1)	vf = very fir	ne; + = heavy (m	ndicators (2 or more Water Marks (B1) (F	required) Riverine) (B2) (Riverine)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicato Surface Wa High Water Saturation (None S = sand; Si = si 11" due to rocks. SY Diogy Indicators: Drs (minimum of cater (A1) Table (A2)	one required; c	heck all that apply)Salt Crust (B1Biotic Crust (BAquatic Invert	1) 312) ebrates (B13)	vf = very fii	ne; + = heavy (m	ore clay); - = light (les	required) Riverine) (B2) (Riverine) Riverine)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark	None S: N/A S = sand; Si = si 11" due to rocks. SY Slogy Indicators: ors (minimum of coater (A1) Table (A2) (A3)	one required; o	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte	1) 312) ebrates (B13)		Secondary	ore clay); - = light (less indicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (required) Riverine) (B2) (Riverine) Riverine) Riverine)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D	None Signature (if present): None Signature (N/A) Signature Signature (N/A) S	one required; conering ine)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf	1) 812) ebrates (B13) fide Odor (C1)		Secondary	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi	None S: N/A S = sand; Si = si 11" due to rocks. SY None S = sand; Si = si 11" due to rocks. SY None S = sand; Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks.	one required; conering ine)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverto Hydrogen Sulf Oxidized Rhizo	1) 312) ebrates (B13) fide Odor (C1) ospheres along Liv	ing Roots (Secondary	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Surface Soi	None	one required; one required; one required; one ine) ine) rine)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverto Hydrogen Sulf Oxidized Rhizo	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv teduced Iron (C4) eduction in Tilled S	ing Roots (Secondary	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) In Aerial Imagery (C9)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation	None S: N/A S = sand; Si = si 11" due to rocks. SY None S = sand; Si = si 11" due to rocks. SY None S = sand; Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks. SY None Si = si 11" due to rocks.	one required; one required; one required; one ine) ine) rine)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7)	ing Roots (Secondary	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or Shallow Aquitard (D	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) n Aerial Imagery (C9)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Surface Soi Inundation (Water-Stair	None	one required; one required; one required; one ine) ine) rine)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re	1) 812) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7)	ing Roots (Secondary	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) n Aerial Imagery (C9) 33)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation (Water-Stair	None Signature (if present): None Signature (if present): N/A S = sand; Si = signature (if present): N/A S = sand; Si = signature (if present): N/A S = sand; Si = signature (if present): Nor (if present): N/A S = sand; Si = signature (if present): SY Sy Indicators: Ors (minimum of control (if present): N/A S = sand; Si = signature (if present): Sy Sy Indicators: N/A S = sand; Si = signature (if present): N/A N/A N/A N/A N/A N/A N/A N/	ine) nriverine) magery (B7)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Thin Muck Sul	1) B12) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7) in in Remarks)	ing Roots (Secondary	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or Shallow Aquitard (D	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) n Aerial Imagery (C9) 33)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation (Water-Stair Field Observati	None None None None None None None None	ine) nriverine) magery (B7)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Thin Muck Sul Other (Explain	1) B12) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7) in Remarks) Depth (inches):	ing Roots (Soils (C6)	Secondary C3)	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or Shallow Aquitard (D FAC-Neutral Test (E	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) A Aerial Imagery (C9) 3)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Surface Soi Inundation (Water-Stair Field Observat Surface Water Water Table Pr	None Signature (if present): None Signature (if present): N/A S = sand; Si = sind; due to rocks. SY Plogy Indicators: Deposits (Monriver (Ma)) (A3) (A3) (A3) (A5) (A5) (A6) (A6) (A6) (A7) (A8) (A9) (A9) (A9) (A9) (A9) (A9) (A9) (A9	ine) nriverine) magery (B7)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Thin Muck Sul Other (Explain	1) B12) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7) in Remarks) Depth (inches): Depth (inches):	ing Roots (Soils (C6) N/A >12	Secondary C3)	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or Shallow Aquitard (D FAC-Neutral Test (E	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) A Aerial Imagery (C9) 3) 05)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation (Water-Stair Field Observati	None None None None N/A S = sand; Si = sind due to rocks. None S = sand; Si = sind due to rocks. None None None None None None None Non	ine) nriverine) magery (B7)	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Thin Muck Sul Other (Explain	1) B12) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7) in Remarks) Depth (inches):	ing Roots (Soils (C6)	Secondary C3)	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or Shallow Aquitard (D FAC-Neutral Test (E	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) A Aerial Imagery (C9) 3)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wat High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation V Water-Stair Field Observat Surface Water Water Table Pr Saturation Pres (includes capilla	None None None None N/A S = sand; Si = sind due to rocks. None N/A S = sand; Si = sind due to rocks. None None None None None None None Non	ine) nriverine) magery (B7) es es x	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Thin Muck Sul Other (Explain	1) B12) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7) in Remarks) Depth (inches): Depth (inches):	N/A >12 0-3	C3) Wetland	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or Shallow Aquitard (D FAC-Neutral Test (E	required) Riverine) (B2) (Riverine) Riverine) 310) Table (C2) 8) A Aerial Imagery (C9) 3) 05)		
Restrictive Lay Type: Depth (inches Remarks: Shovel refusal 1 HYDROLOG Wetland Hydro Primary Indicate Surface Wat High Water Saturation (Water Mark Sediment D Drift Deposi Surface Soi Inundation V Water-Stair Field Observat Surface Water Water Table Pr Saturation Pres (includes capilla	None None None None N/A S = sand; Si = sind due to rocks. None N/A S = sand; Si = sind due to rocks. None None None None None None None Non	ine) nriverine) magery (B7) es es x	heck all that apply) Salt Crust (B1 Biotic Crust (E Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Thin Muck Sul Other (Explain No X No X No X	1) B12) ebrates (B13) fide Odor (C1) ospheres along Liv deduced Iron (C4) eduction in Tilled S rface (C7) in Remarks) Depth (inches): Depth (inches):	N/A >12 0-3	C3) Wetland	ndicators (2 or more Water Marks (B1) (F Sediment Deposits (B3) (Drainage Patterns (I Dry-Season Water T Crayfish Burrows (C Saturation Visible or Shallow Aquitard (D FAC-Neutral Test (E	required) Riverine) (B2) (Riverine) Riverine) (B10) Fable (C2) (B1) Aerial Imagery (C9) (B2) (C9) (C9) (C9) (C9) (C9) (C9) (C9) (C9		

Project/Site: Urtica Solar Project		City/County:	- / Kittitas	Sampling Date: 4/7/2017
Applicant/Owner: TUUSSO Energy, LLC				State: WA Sampling Point: UP05
Investigator(s): Evan Dulin, Jamie Young		Section, T	ownship, Rang	ge: Section 10, T17N, R18E
Landform (hillslope, terrace, etc.): Depressio	n		Local relief	(concave, convex, none): Concave Slope (%): 1
Subregion (LRR): B, Columbia/Snake River F	Plateau	Lat: 46.974175	 Lon	ng: -120.577216 Datum: NAD 1983
Soil Map Unit Name: Brickmill gravelly	y ashy loam, 0 to 2	percent slopes (60	_ 01)	NWI classification: None
Are climatic / hydrologic conditions on the site	typical for this time	of year?	Υe	esNoX*(If no, explain in Remarks)
Are Vegetation,Soil	, or Hydrology	significantly	disturbed? A	Are "Normal Circumstances" present? Yes X No
	, or Hydrology	naturally pro		(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach		ing sampling	point locat	tions, transects, important features, etc.
Hydrophytic Vegetation Present?	Yes X	No		
Hydric Soil Present?	Yes X	No	Is the Samp	
Wetland Hydrology Present?	Yes X	No	within a We	etland? Yes X No
l ' '	weeks prior, 2.39" a	bove normal for C	YTD, 2.85" abo	ove normal for WYTD. *Wetter than normal.
Remarks: UW03. Wetland on fringes of the permanent of	nen water area of th	ne eastern nond		
54403. Wettand of fininges of the permanent of	pen water area or ti	ie eastern porid.		
VEGETATION				
	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30' r)	% Cover	Species?	<u>Status</u>	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: 3 (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: 3 (B)
	0% =	Total Cover		
Sapling/Shrub Stratum (Plot size: 10'	<u>r</u>)			Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: 100% (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.	_			OBL species 20 x 1 = 20
5.	_			FACW species 50 x 2 = 100
	0% =	Total Cover		FAC species 30 x 3 = 90
Herb Stratum (Plot size: <u>5' r</u>)				FACU species 0 x 4 = 0
1. Phalaris arundinacea	40%	Yes	FACW	UPL species 0 x 5 = 0
2. Typha latifolia	20%	Yes	OBL	Column Totals: 100 (A) 210 (B)
3. Agrostis capillaris	20%	Yes	FAC	Prevalence Index = B/A = 2.10
4. Juncus effusus	10%	No	FACW	Hydrophytic Vegetation Indicators:
5. Carex species	10%	No	FAC ?	1 - Rapid Test for Hydrophytic Vegetation
6.	1070		1710 .	X 2 - Dominance Test is >50%
7.				3 - Prevalence Index is ≤3.0 ¹
8.				4 - Morphological Adaptations ¹ (Provide supporting
9.				data in Remarks or on a separate sheet)
10.				5 - Wetland Non-Vascular Plants ¹
11.				Problematic Hydrophytic Vegetation ¹ (Explain)
· · · -	100% =	Total Cover		¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 10'		: Total Cover		be present.
1.				so produit.
2.				Hydrophytic
	0% =	Total Cover		Vegetation Yes X No
% Bare Ground in Herb Stratum0%				Present?
Remarks:	<u> </u>			Entered by: KL/ED QC by: TJD
				·

Profile Descript	tion: (Describe to	the depth	needed to doo	ument the	e indicator o	or confirm	the absen	ce of in	dicators.)	iii. 01 00	<u>'</u>
Depth	Matri				Redox Fea				,		
(inches)	Color (moist)	%	Color (mo	oist)	%	Type ¹	1	oc ²	Texture	F	Remarks
0-5	10YR 3/1	100	00101 (1110			. 7 [-			SiCL		tomanto
5-14	7.5YR 3/1	93	7.5YR :	3/4	7	С	M	PL	SiL		
	-									-	
¹ Type: C=Conce	ntration, D=Deplet	ion, RM=Re	duced Matrix C	S=Covere	d or Coated	Sand Grain	s. ² Loc	ation: P	L=Pore Lining, M=M	latrix.	
Hydric Soil India	cators: (Applicabl	e to all LRR	s, unless othe	erwise not	ted.)		Indic	ators fo	r Problematic Hydr	ic Soils ³	:
Histosol (A1))		Sandy Re	edox (S5)			1 cm	muck (A	(49) (LRR C)		
Histic Epiped	don (A2)		Stripped I	Matrix (S6))		2 cm	Muck (A	(10) (LRR B)		
Black Histic	(A3)		Loamy M	ucky Miner	ral (F1)		Redu	ced Vert	tic (F18)		
Hydrogen Sเ			Loamy Gl	leyed Matri	ix (F2)		Red I	Parent M	laterial (TF2)		
	yers (A5) (LRR C)		Depleted	Matrix (F3)		Othe	r (Explaii	n in Remarks)		
1 cm Muck (X Redox Da		` '						
	low Dark Surface (A11)		Dark Surfa	` '		3				
_	Surface (A12)			epressions	(F8)			-	rophytic vegetation a		
Sandy Mucky Mineral (S1) Vernal Pools (F9)								-	ogy must be present,		
Sandy Gleye	ed Matrix (S4)						unless	distrube	d or problematic.		
Restrictive Laye	er (if present):										
	Vone			_							
Depth (inches):	N/A						Hydric S	oil Pres	ent? Yes X	No	
		-		y; co = coa	rse; f = fine;	vf = very fir	ne; + = he	avy (mor	re clay); - = light (les	s clay)	
Small streaks of	black Mn concentra	ations from 7	7-14".								
HYDROLOG	Y										
Wetland Hydrole											
Primary Indicator	s (minimum of one	required; ch	neck all that ap	ply)			<u>Seco</u>	ndary In	dicators (2 or more r	equired)	
Surface Wat	er (A1)		Salt Crus	t (B11)				٧	Vater Marks (B1) (R	iverine)	
High Water ⁻	Table (A2)		Biotic Cru						Sediment Deposits (F	32) (Rive	rine)
Saturation (A	A3)		Aquatic Ir	nvertebrate	es (B13)				Orift Deposits (B3) (Riverine)	
Water Marks	(B1) (Nonriverine	e)	Hydrogen	Sulfide O	dor (C1)				Drainage Patterns (B	10)	
Sediment De	eposits (B2) (Nonri	verine)	Oxidized	Rhizosphe	res along Liv	ing Roots ((C3)		Dry-Season Water Ta	able (C2)	
Drift Deposit	s (B3) (Nonriverin	e)	Presence	of Reduce	ed Iron (C4)		_		Crayfish Burrows (C8	3)	
Surface Soil	Cracks (B6)		Recent Ire	on Reducti	on in Tilled S	Soils (C6)		X S	Saturation Visible on	Aerial Im	agery (C9)
Inundation V	isible on Aerial Ima	agery (B7)	Thin Muc	k Surface ((C7)				Shallow Aquitard (D3)	
Water-Staine	ed Leaves (B9)		Other (Ex	plain in Re	emarks)		_	X F	AC-Neutral Test (D	5)	
Field Observation	ons:										
Surface Water F	Present? Yes		No X	Dept	th (inches):	N/A					
Water Table Pre	esent? Yes		No X	Dept	h (inches):	>14	v	Vetland	Hydrology Present	?	
Saturation Prese	ent? Yes		No X	Dept	h (inches):	>14	_		Yes X	No	
(includes capilla				<u> </u>							
Describe Record	ded Data (stream g	auge, monit	oring well, aeri	al photos,	previous insp	pections), if	available:				
Remarks:									Entered by: KL/ED	QC bv:	ΓJD
		opears to be	fed by overlan	d flooding	from pond (d	does not ap	pear to be	fed by g	groundwater from the	· -	

Project/Site: U	rtica Solar Project				City/County:	- / Kittitas		Samı	pling Date	e: <u>4/7/201</u>	7
Applicant/Owner:	TUUSSO Energy, LLC						State: WA	{	Sampling	Point:	UP06
Investigator(s):	Evan Dulin, Jamie Young				Section, To	ownship, Range	e: Section 10, T17N,	R18E			
Landform (hillslope,	terrace, etc.): Hillslope					Local relief	(concave, convex, none)	: Conve	ex	Slope (%)): 4
Subregion (LRR):	B, Columbia/Snake River F	lateau	ļ	Lat:	46.974139	Long	g: -120.577325		Datum	: NAD 19	983
Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2					ent slopes (60	<u> </u>	NW	classifi	ication: N	one	
Are climatic / hydr	ologic conditions on the site	typical	l for this tim	e of ye	ar?	Ye	s No	X*	(If no, exp	lain in Re	emarks)
Are Vegetation	,Soil	, or	Hydrology		significantly o	disturbed? A	re "Normal Circumst	ances" p	present?	Yes X	No
Are Vegetation	,Soil		Hydrology		naturally prob		f needed, explain an				
SUMMARY OF	F FINDINGS - Attach	site	map sho	wing		point locat	ions, transects,	impor	rtant fe	atures,	etc.
Hydrophytic Vege	etation Present?	Yes		No	<u> </u>						
Hydric Soil Prese	nt?	Yes		No	X	Is the Samp					
Wetland Hydrolog	gy Present?	Yes		No	X	within a We	tland? Yes		No_	X	
Precipitation prior Remarks: Sample plot locate	to fieldwork: 0.60" two vertical times 0.60" the 0.			above	normal for C	YTD, 2.85" abo	ove normal for WYTD	. *Wette	er than no	rmal.	
VEGETATION											
			Absolute		Dominant	Indicator	Dominance Test	worksh	eet:		
Tree Stratum	(Plot size: <u>30' r</u>)		% Cover		Species?	<u>Status</u>	Number of Domina	ant Spe	cies		
1. 2.							That Are OBL, FA	CW, or	FAC:	0	_(A)
3.											
4. ————							Total Number of D				
4.							Species Across Al	l Strata:	: <u> </u>	1	_(B)
0 15 101 1- 04	-t (DL 1 : 40)		0%	= Tota	l Cover						
Sapling/Shrub Stra	atum (Plot size: 10'	<u>()</u>					Percent of Domina	ınt Spec	cies		
1.							That Are OBL, FA	CW, or	FAC:	<u>0%</u>	(A/B)
2.							Prevalence Index				
3.							Total % Cove	r of:	Multiply b	y:	
4							OBL species	0	x 1 =	0	
5							FACW species	0	x 2 =	0	
			0%	= Tota	l Cover		FAC species	0	x 3 =	0	
Herb Stratum	(Plot size: <u>5' r</u>)						FACU species	95	x 4 =	380	0
1. Phleum pratei	nse		95%		Yes	FACU	UPL species	0	x 5 =	0	
2							Column Totals:	95	(A)	380	(B)
3.							Prevalence Ind	ex = B/	/A =	4.00	
4.							Hydrophytic Vege	etation	Indicator	s:	
5.							1 - Rapid Test	for Hyd	Irophytic \	/egetatior	า
6.							2 - Dominance	: Test is	>50%		
7.							3 - Prevalence	Index i	s ≤3.0 ¹		
8.							4 - Morphologi	cal Ada	ptations ¹	(Provide	supporting
9.							data in Rer	narks o	r on a sep	arate she	et)
10.							5 - Wetland No	on-Vasc	ular Plan	ts ¹	
11.							Problematic H	ydrophy	tic Veget	ation ¹ (Ex	plain)
			95%	= Tota	l Cover		¹ Indicators of hydr		_		
Woody Vine Stratu	um (Plot size: 10'	<u></u>)	22.8				be present.			,	
1							·				
2.							Hydrophytic				
% Bare Ground in	Herb Stratum 5%	-	0%	= Tota	l Cover		Vegetation Present?	Yes	N	o <u>X</u>	_
Remarks:	- 1012 Glididiii							rod by	KL/ED G	C by: TI	D
Planted timothy.							⊏niei	eu by.	NL/LD (κο by. <u>10</u>	

Profile Description	n: (Describe to the o	depth needed to do	cument the indic	cator or confirm	the absence of in	dicators.)	IIII. UPU6		
Depth	Matrix		Red	ox Features					
(inches) (Color (moist)	% Color (m	oist) %	Type ¹	Loc ²	Texture	Remarks		
0-10	10YR 3/2 1	00				SiL			
10-14	10YR 3/2	97 10YR	3/3 3	С	М	SiL	faint redox		
				_					
¹ Type: C=Concentr	ation, D=Depletion, R	M=Reduced Matrix (CS=Covered or C	oated Sand Grain	s. ² Location: P	L=Pore Lining, M=N	 latrix.		
Hydric Soil Indicate	ors: (Applicable to a	II LRRs, unless oth	erwise noted.)		Indicators fo	r Problematic Hyd	ric Soils³:		
Histosol (A1)		Sandy R	edox (S5)		1 cm muck (A	(49) (LRR C)			
Histic Epipedon	n (A2)	Stripped	Matrix (S6)		2 cm Muck (A	10) (LRR B)			
Black Histic (A3	3)	Loamy N	lucky Mineral (F1)	Reduced Ver	tic (F18)			
Hydrogen Sulfic	de (A4)	Loamy G	Gleyed Matrix (F2)		Red Parent M	laterial (TF2)			
Stratified Layers	s (A5) (LRR C)	Depleted	Matrix (F3)		Other (Explain	n in Remarks)			
1 cm Muck (A9)	(LRR D)	Redox D	ark Surface (F6)						
Depleted Below	/ Dark Surface (A11)	Depleted	Dark Surface (F	7)					
Thick Dark Surf	face (A12)	Redox D	epressions (F8)		³ Indicators of hydrophytic vegetation and				
Sandy Mucky M	lineral (S1)	Vernal P	ools (F9)		wetland hydrology must be present,				
Sandy Gleyed N	Matrix (S4)				unless distrube	d or problematic.			
Restrictive Layer (i	if present):								
Type: Nor	ne								
Depth (inches):	N/A				Hydric Soil Pres	ent? Yes	No X		
Remarks: S =	sand; Si = silt; C = cl	lay; L = loam or loan	ıy; co = coarse; f	= fine; vf = very fi	ne; + = heavy (moi	re clay); - = light (les	s clay)		
HYDROLOGY									
Wetland Hydrology	y Indicators:								
Primary Indicators (minimum of one requ	ired; check all that a	oply)		Secondary In	dicators (2 or more	required)		
Surface Water ((A1)	Salt Crus	st (B11)		V	Vater Marks (B1) (R	iverine)		
High Water Tab	ole (A2)	Biotic Cr	ust (B12)		Sediment Deposits (B2) (Riverine)				
Saturation (A3)		Aquatic	nvertebrates (B13	3)	Drift Deposits (B3) (Riverine)				
Water Marks (B	31) (Nonriverine)	Hydroge	n Sulfide Odor (C	1)	Drainage Patterns (B10)				
Sediment Depo	sits (B2) (Nonriverin	e) Oxidized	Rhizospheres ald	ong Living Roots ((C3)	Ory-Season Water T	able (C2)		
Drift Deposits (F	B3) (Nonriverine)	Presence	e of Reduced Iron	(C4)		Crayfish Burrows (C	3)		
			Γilled Soils (C6)	ç	\\ \ /:_: _	Aerial Imagery (C9)			
Surface Soil Cra	acks (B6)	Recent I	on Reduction in	i iliou collo (co)		saturation visible on	rional imagory (00)		
	acks (B6) ble on Aerial Imagery		ck Surface (C7)	illiou collo (co)		Saturation visible on Shallow Aquitard (D3			
	ole on Aerial Imagery	(B7) Thin Muc					3)		
Inundation Visib Water-Stained I	ole on Aerial Imagery Leaves (B9)	(B7) Thin Muc	ck Surface (C7)			Shallow Aquitard (D3	3)		
Inundation Visib Water-Stained I	ole on Aerial Imagery Leaves (B9)	(B7) Thin Muc	ck Surface (C7)	s)		Shallow Aquitard (D3	3)		
Inundation Visib Water-Stained I Field Observations	ble on Aerial Imagery Leaves (B9) s: sent? Yes	(B7) Thin Muc	ck Surface (C7) xplain in Remarks	nes): <u>N/A</u>	S F	Shallow Aquitard (D3 FAC-Neutral Test (D	5)		
Inundation Visib Water-Stained I Field Observations Surface Water Prese Water Table Present Saturation Present	cole on Aerial Imagery Leaves (B9) S: Sent? Yes Int? Yes Int? Yes Int? Yes Int? Yes	(B7) Thin Muc Other (E	ck Surface (C7) xplain in Remarks Depth (incl	nes): N/A >14	S F	Shallow Aquitard (D3	5)		
Inundation Visib Water-Stained I Field Observations Surface Water Prese Water Table Present Saturation Present (includes capillary f	cole on Aerial Imagery Leaves (B9) S: Sent? Yes Int? Yes Int? Yes Int? Yes Int? Yes	(B7) Thin Muc Other (E No X No X	ck Surface (C7) xplain in Remarks Depth (incl Depth (incl	nes): N/A nes): >14 nes): >14	- Wetland	Shallow Aquitard (D3 FAC-Neutral Test (D Hydrology Present	?		
Inundation Visit Water-Stained I Field Observations Surface Water Prese Water Table Present Saturation Present (includes capillary f Describe Recorded	cole on Aerial Imagery Leaves (B9) S: Sent? Yes Int? Yes Yes Yes Yes Tringe)	(B7) Thin Muc Other (E No X No X	ck Surface (C7) xplain in Remarks Depth (incl Depth (incl	nes): N/A nes): >14 nes): >14	- Wetland	Shallow Aquitard (D3 FAC-Neutral Test (D Hydrology Present Yes	? No X		
Inundation Visib Water-Stained I Field Observations Surface Water Prese Water Table Present Saturation Present (includes capillary f	cole on Aerial Imagery Leaves (B9) S: Sent? Yes Int? Yes Yes Yes Yes Tringe)	(B7) Thin Muc Other (E No X No X	ck Surface (C7) xplain in Remarks Depth (incl Depth (incl	nes): N/A nes): >14 nes): >14	- Wetland	Shallow Aquitard (D3 FAC-Neutral Test (D Hydrology Present	? No X		

Project/Site: Urtica Solar Project		City/County:	- / Kittitas	Sampling D	ate: 4/7/2017
Applicant/Owner: TUUSSO Energy, LLC				State: WA Samplii	ng Point: UP07
Investigator(s): Evan Dulin, Jamie Young	<u> </u>	Section, To	ownship, Rand	ge: Section 10, T17N, R18E	
Landform (hillslope, terrace, etc.): Terrace			_	(concave, convex, none): Concave	Slope (%): 1
Subregion (LRR): B, Columbia/Snake Rive	r Plateau	Lat: 46.975018	-	· ———	um: NAD 1983
	elly ashy loam, 0 to 2		_	NWI classification:	
Are climatic / hydrologic conditions on the si			Ye		explain in Remarks)
, ,	, or Hydrology	•		Are "Normal Circumstances" present	
	, or Hydrology			(If needed, explain any answers in R	
SUMMARY OF FINDINGS - Attac					
Hydrophytic Vegetation Present?	Yes X	No			
Hydric Soil Present?	Yes	No X	Is the Samp	oled Area	
Wetland Hydrology Present?	Yes	No X	within a We	etland? Yes No	X
		above normal for C	T YTD, 2.85" abo	ove normal for WYTD. *Wetter than	
Remarks: Sample plot located about 20' north of US01					
VEGETATION					
	Absolute	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: 30' r)	% Cover	Species?	Status	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC:	1 (A)
2.					(` ')
3.				Total Number of Dominant	
4.				Species Across All Strata:	1 (B)
	0%	= Total Cover		openes / toross / till otrata.	(D)
		- Total Covel		Percent of Dominant Species	
1.				· ·	100% (A/B)
2.				That Are OBL, FACW, or FAC:	<u>100%</u> (A/B)
3.				Prevalence Index worksheet: Total % Cover of: Multiply	v hv·
4.				OBL species 0 x 1 =	0
5				FACW species 100 x 2 =	200
(Distriction Fig.)	0%	= Total Cover		FAC species 0 x 3 =	0
Herb Stratum (Plot size: 5' r)				FACU species 0 x 4 =	0
Phalaris arundinacea	100%	Yes	FACW	UPL species 0 x 5 =	0
2				Column Totals: 100 (A)	200 (B)
3.				Prevalence Index = B/A =	<u>2.00</u>
4.				Hydrophytic Vegetation Indica	tors:
5.				1 - Rapid Test for Hydrophyti	ic Vegetation
6.				X 2 - Dominance Test is >50%	
7.				3 - Prevalence Index is ≤3.0 ¹	
8.				4 - Morphological Adaptation	s ¹ (Provide supporting
9.				data in Remarks or on a s	separate sheet)
10.				5 - Wetland Non-Vascular Pl	ants ¹
11.				Problematic Hydrophytic Veg	getation ¹ (Explain)
	100%	= Total Cover		¹ Indicators of hydric soil and wetl	
Woody Vine Stratum (Plot size: 10				be present.	,
1.					
2.				Hydrophytic	
	0%	= Total Cover		Vegetation Yes X	No
% Bare Ground in Herb Stratum0	<u>%</u>			Present?	
Remarks:				Entered by: KL/ED	QC by: TJD

Profile Descripti	ion: (Describe to	o the depth	needed	to docum	ent the indica	tor or confirm	m the a	bsence of in	Sampling Poli dicators.)	it: UPU/			
Depth	Matr					Features			,				
(inches)	Color (moist)	%		olor (moist)		Type ¹		Loc ²	Texture	Rema	arke		
0-10	10YR 3/2	100		olor (IIIolot)	70	. , , , ,		Loc	SiCL	Ttoma	IIKO		
10-14+	10YR 3/1	98	7.5YR 3/4 2					M	SiCL				
10-141	10111 3/1			7.011(0/4		C		IVI	GIOL				
					_					-			
						<u> </u>							
¹ Type: C=Concer	ntration, D=Deple	tion, RM=Re	duced N	//atrix CS=	Covered or Coa	ted Sand Gra	ains.	² Location: P	L=Pore Lining, M=M	atrix.			
Hydric Soil Indic	ators: (Applicab	le to all LRF	Rs, unle	ss otherw	ise noted.)		ı		r Problematic Hydri	•			
Histosol (A1)			Sa	andy Redox	x (S5)			1 cm muck (A	9) (LRR C)				
Histic Epiped	on (A2)		St	ripped Mat	rix (S6)			2 cm Muck (A	10) (LRR B)				
Black Histic (A3)		Lo	amy Muck	y Mineral (F1)			Reduced Vert	ic (F18)				
Hydrogen Sul	lfide (A4)			-	ed Matrix (F2)			Red Parent M					
	ers (A5) (LRR C)			epleted Ma					n in Remarks)				
1 cm Muck (A	49) (LRR D)		Re	edox Dark	Surface (F6)								
Depleted Beld	ow Dark Surface	(A11)	De	epleted Dai	rk Surface (F7)								
Thick Dark Su	urface (A12)		Re	edox Depre	essions (F8)		³ Indi	³ Indicators of hydrophytic vegetation and					
Sandy Mucky	Mineral (S1)		Ve	ernal Pools	(F9)		We	wetland hydrology must be present,					
Sandy Gleyed	d Matrix (S4)						un	less distrube	d or problematic.				
Restrictive Layer	r (if present):												
_	lone												
Depth (inches):	N/A						Hyd	ric Soil Pres	ent? Yes	No X			
Remarks: S	= sand: Si = silt:	C = clav: L :	= loam c	or loamy: c	o = coarse: f =	fine: vf = verv	/ fine: +	= heavy (mor	e clay); - = light (less	clav)			
		,, -		, , -	, -	, ,	,,	, (,,,	,,			
HYDROLOGY													
Wetland Hydrolo		o roquirod: o	hook all	that apply	١								
Primary Indicators		e requirea; c						-	dicators (2 or more re				
Surface Wate	, ,			alt Crust (B					Vater Marks (B1) (Ri	,			
High Water T				otic Crust (,			Sediment Deposits (B2) (Riverine)					
Saturation (A	,				rtebrates (B13)			Drift Deposits (B3) (Riverine)					
	(B1) (Nonriverin			_	ılfide Odor (C1)			Drainage Patterns (B10)					
	posits (B2) (Nonr				zospheres alon	-	ts (C3)		ry-Season Water Ta				
	(B3) (Nonriverin	ne)			Reduced Iron (_		Crayfish Burrows (C8)				
Surface Soil Cracks (B6) Recent Iron Reduction in Til						ed Soils (C6))		Saturation Visible on		y (C9)		
Inundation Visible on Aerial Imagery (B7)Thin Muck Surface (C7)								Shallow Aquitard (D3)					
	d Leaves (B9)		Ot	her (Explai	in in Remarks)				AC-Neutral Test (D5)			
Field Observatio	ns:												
Surface Water Pr	resent? Yes		No_	X	Depth (inche	s): N/A							
Water Table Pres			No	Χ	Depth (inche	s): >14		Wetland	Hydrology Present?	•			
Saturation Preser			No	Х	Depth (inche	s): >14			Yes	No X			
(includes capillary Describe Records		naugo monit	oring w	all agricl s	hotoe provious	inencetions\	if over	able:					
Describe Records	en Dara (Sileail) (yauye, mom	omy we	ы, аспагр	notos, previous	mapechons),	, ıı avall	aule.					
Remarks:								ŀ	Entered by: KL/ED	QC by: TJD			

Project/Site: U	rtica Solar Project		City/County:	- / Kittitas	Sampling	Date: 4/7/2017
Applicant/Owner:	TUUSSO Energy, LLC				State: WA Sam	pling Point: UP08
Investigator(s):	Evan Dulin, Jamie Young		Section, T	ownship, Rang	ge: Section 10, T17N, R18E	
Landform (hillslope,	terrace, etc.): Terrace			Local relief	(concave, convex, none): Convex	Slope (%): 2
Subregion (LRR):	B, Columbia/Snake River P	lateau	Lat: 46.974528	Lon	ng: -120.570668 D	Datum: NAD 1983
Soil Map Unit Nam	ne: Brickmill gravelly	ashy loam, 0 to	2 percent slopes (60	<u> </u>	NWI classification	on: None
Are climatic / hydr	ologic conditions on the site	typical for this tin	ne of year?	Ye	es No X* (If no	o, explain in Remarks)
Are Vegetation	,Soil	_, or Hydrology	significantly		Are "Normal Circumstances" prese	ent? Yes X No
Are Vegetation	,Soil	_, or Hydrology	naturally prol		(If needed, explain any answers in	
SUMMARY OF	F FINDINGS – Attach		wing sampling	point locat	tions, transects, importan	t features, etc.
Hydrophytic Vege	etation Present?	Yes X	No			
Hydric Soil Prese	nt?	Yes	No X	Is the Samp		
Wetland Hydrolog	*	Yes	No X	within a We	165	No <u>X</u>
Precipitation prior Remarks: Sample plot is loca		·			ove normal for WYTD. *Wetter that 1. Does not meet wetland criteria.	
VEGETATION						
		Absolute	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum	(Plot size: <u>30' r</u>)	% Cover	Species?	<u>Status</u>	Number of Dominant Species	
1		_			That Are OBL, FACW, or FAC	: <u> </u>
2.		_				
3.		_			Total Number of Dominant	
4.		_			Species Across All Strata:	1 (B)
		0%	= Total Cover			
Sapling/Shrub Stra	atum (Plot size: <u>10' r</u>)			Percent of Dominant Species	
1		_			That Are OBL, FACW, or FAC	: <u>100%</u> (A/B)
2.		_			Prevalence Index worksheet	:
3.		_			Total % Cover of: Multi	iply by:
4					OBL species 0 x 1 =	0
5		_			FACW species 100 x 2 =	200
		0%	= Total Cover		FAC species 0 x 3 =	0
Herb Stratum	(Plot size: <u>5' r</u>)				FACU species 0 x 4 =	0
1. Phalaris arund	dinacea	100%	Yes	FACW	UPL species 0 x 5 =	0
2.					Column Totals: 100 (A)	(B)
3.		_			Prevalence Index = B/A =	2.00
4		_			Hydrophytic Vegetation India	cators:
5.					1 - Rapid Test for Hydroph	ytic Vegetation
6.					X 2 - Dominance Test is >50	1%
7					3 - Prevalence Index is ≤3.	.0 ¹
8.					4 - Morphological Adaptation	ons ¹ (Provide supporting
9.					data in Remarks or on a	a separate sheet)
10.		_			5 - Wetland Non-Vascular	Plants ¹
11.		_			Problematic Hydrophytic V	egetation ¹ (Explain)
		100%	= Total Cover		¹ Indicators of hydric soil and w	etland hydrology must
Woody Vine Stratu	<u>um</u> (Plot size: <u>10' r</u>				be present.	
1.		_			Hydrophytic	
2		0%	= Total Cover		Hydrophytic Vegetation Yes X	No
0/ Para Crawadia	Horb Stratum 00/	<u> </u>	- Total Cover		Present?	
% Bare Ground in	Herb Stratum 0%					TD 001 TID
Remarks:					Entered by: KL/E	U QC by: IJD

Profile Description	on: (Describe to	the depth	needed to docu	ment the indicator	or confirm	the absence of ir	ndicators.)	onic. Of Oo		
Depth	Matri	ix		Redox F	eatures					
(inches)	Color (moist)	%	Color (moi		Type ¹	Loc ²	Texture	Remarks		
0-8	10YR 3/2	100					SiCL			
8-15	10YR 3/1	89	10YR 3/	3 1	С	M	SiCL	mixed matrix		
	10YR 3/2	10			-		SiCL	mixing from top		
¹ Type: C=Concen	tration, D=Deplet	tion, RM=Re	duced Matrix CS	S=Covered or Coated	Sand Grain	s. ² Location: F	PL=Pore Lining, M=N	Matrix.		
Hydric Soil Indica	ators: (Applicabl	le to all LRR	s, unless other	wise noted.)		Indicators fo	or Problematic Hyd	ric Soils³:		
Histosol (A1)			Sandy Red	lox (S5)		1 cm muck (A9) (LRR C)			
Histic Epipedo	on (A2)		Stripped M	atrix (S6)		2 cm Muck (A	A10) (LRR B)			
Black Histic (A	A 3)		Loamy Mu	cky Mineral (F1)		Reduced Ver	tic (F18)			
Hydrogen Sul	fide (A4)		Loamy Gle	yed Matrix (F2)		Red Parent N	Material (TF2)			
Stratified Laye	ers (A5) (LRR C)		Depleted N	Matrix (F3)		Other (Explain	in in Remarks)			
1 cm Muck (A	9) (LRR D)		Redox Dar	k Surface (F6)						
Depleted Belo	ow Dark Surface ((A11)	Depleted D	ark Surface (F7)						
Thick Dark Su	ırface (A12)		Redox Dep	ressions (F8)		³ Indicators of hyd	drophytic vegetation	and		
Sandy Mucky	Mineral (S1)		Vernal Poo	ols (F9)		wetland hydrology must be present,				
Sandy Gleyed	l Matrix (S4)					unless distrubed or problematic.				
Restrictive Layer	(if present):									
Type: N	one									
Depth (inches):	N/A			-		Hydric Soil Pres	sent? Yes	No X		
Remarks: S	= sand; Si = silt;	C = clay; L =	loam or loamy	co = coarse; f = fine	e; vf = very fi	 ne; + = heavy (mo	re clay); - = light (les	ss clay)		
Large roots preser		•	,		•		<i>y,</i> • • • • • • • • • • • • • • • • • • •	,		
HYDROLOGY Wetland Hydrolo										
Primary Indicators		e required: cl	neck all that ann	dv)		Cocondon In	odiaatara (2 ar mara	raquirad)		
		o required, or					ndicators (2 or more	-		
Surface Wate			Salt Crust			Water Marks (B1) (Riverine)				
High Water Ta			Biotic Crus			Sediment Deposits (B2) (Riverine)				
Saturation (A	,	-)		vertebrates (B13)		Drift Deposits (B3) (Riverine)				
<u> </u>	(B1) (Nonrivering			Sulfide Odor (C1)	inima Danta (Drainage Patterns (B10)				
	oosits (B2) (Nonr			hizospheres along L	-		Dry-Season Water T			
	(B3) (Nonriverin	ie)		of Reduced Iron (C4)			Crayfish Burrows (C	,		
Surface Soil ((DZ)		n Reduction in Tilled	Solis (Co)			Aerial Imagery (C9)		
	sible on Aerial Ima	agery (B7)		Surface (C7)			Shallow Aquitard (D	•		
Water-Stained	. ,		Other (Exp	lain in Remarks)			FAC-Neutral Test (D	(5)		
Field Observation										
Surface Water Pr			No X	Depth (inches):		-				
Water Table Pres			No X	Depth (inches):	>15	Wetland	Hydrology Presen			
Saturation Preser			No X	Depth (inches):	>15	-	Yes	No X		
(includes capillary		ando monit	oring wall sari-	nhotos provious in	anoctions) :	available				
Describe Records	ou Data (Stream C	yauye, monit	oning well, aerla	photos, previous in:	speciions), II	avaliable.				
Remarks:							Entered by: KL/ED			
				y 3' in elevation abov eam. Does not meet		`	eam is nearly full). A	rea Could have		
previously been a	ilooupiaili ioi US	o i piloi to di	torning or the Str	zam. Dues mul meel	wetiand till	511a.				

Project/Site: Urtica Solar Project		City/County:	- / Kittitas	Sampling Da	te: 4/7/2017
Applicant/Owner: TUUSSO Energy, LLC				State: WA Sampling	g Point: UP09
Investigator(s): Evan Dulin, Jamie Young		Section, To	ownship, Rang	 ge: Section 10, T17N, R18E	
Landform (hillslope, terrace, etc.): Terrace				(concave, convex, none): Convex	Slope (%): 1
Subregion (LRR): B, Columbia/Snake River Pla	ıteau	Lat: 46.974892	_ Lor	ng: -120.570391 Datu	m: NAD 1983
Soil Map Unit Name: Brickmill gravelly a			_	NWI classification:	-
Are climatic / hydrologic conditions on the site ty	-		Υe		(plain in Remarks)
Are Vegetation ,Soil	, or Hydrology	significantly of	disturbed?	Are "Normal Circumstances" present?	•
	, or Hydrology		olematic? ((If needed, explain any answers in Re	marks.)
SUMMARY OF FINDINGS - Attach s	ite map shov	ving sampling	point locat	tions, transects, important fe	eatures, etc.
Hydrophytic Vegetation Present?	Yes X	No			
Hydric Soil Present?	Yes X	No	Is the Samp	oled Area	
Wetland Hydrology Present?	Yes	No X	within a We	etland? Yes No	X
Precipitation prior to fieldwork: 0.60" two we	eks prior, 2.39" a	above normal for C	YTD, 2.85" ab	ove normal for WYTD. *Wetter than n	ormal.
Remarks:			4 - f 41 4	-I- OLIVAVA	
Sample plot is located in a low spot at the bottor	n of the fleid, app	proximately 40° wes	st of the stream	1'S OHWM.	
VEGETATION					
	Absolute	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: 30' r)	% Cover	Species?	<u>Status</u>	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC:	2 (A)
2.				-	` ,
3.				Total Number of Dominant	
4.				Species Across All Strata:	2 (B)
	0%	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10' r				Percent of Dominant Species	
1.				That Are OBL, FACW, or FAC:	<u>100%</u> (A/B)
2.				Prevalence Index worksheet:	(/////
3.				Total % Cover of: Multiply	by:
4.				OBL species 0 x 1 =	0
5.				FACW species 30 x 2 =	60
	0%	= Total Cover		FAC species 50 x 3 =	150
Herb Stratum (Plot size: 5' r)	070	- Total Gover		FACU species 15 x 4 =	60
1. Poa species	40%	Yes	FAC?	UPL species 0 x 5 =	0
Juncus balticus	30%	Yes	FACW	Column Totals: 95 (A)	270 (B)
	10%		FAC	Prevalence Index = B/A =	2.84
Rumex crispus Taraxacum officinale	10%	No No		Hydrophytic Vegetation Indicate	
		No No	FACU	1 - Rapid Test for Hydrophytic	
6. Trifolium repens	5%	No	FACU	X 2 - Dominance Test is >50%	vegetation
				-	
7.				3 - Prevalence Index is ≤3.0 ¹	1.0
8.	-			4 - Morphological Adaptations	
9.				data in Remarks or on a se	
10.				5 - Wetland Non-Vascular Pla	
11.				Problematic Hydrophytic Vege	
(Plot size: 10' r		= Total Cover		¹ Indicators of hydric soil and wetla	nd hydrology must
<u>Woody Vine Stratum</u> (Plot size: <u>10' r</u> 1.	_/			be present.	
2.				Hydrophytic	
	0%	= Total Cover			No
% Bare Ground in Herb Stratum 5%				Present?	
Remarks:				Entered by: KL/ED	OC by: TJD
				Entorou by. NEILD	~ 5 × j. 1.02

Dopth	Profile Description	n: (Describe to	the depth	needed	to docur	ment the	e indicator o	or confirm t	the absenc	e of in	dicators.)	IIII. UPI	19
Color (molst) 56													
Since	· -			Co	olor (moist	t)			Loc	2	Texture		Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. T-Location: PL=Pore Lining, M=Matrix.			100	_	,						SiCL		
Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. Thydric Soil indicators: (Applicable to all LRRs, unless otherwise noted.) Histosci (A1)	5-15	10YR 3/1	80	7	7.5YR 2.5/	/3	18	С	M, F	PL	SiL		
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Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histoco (A1) Histoco (
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Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histoco (A1) Histoco (
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histoco (A1) Histoco (
Histosol (A1)		•						Sand Grain					•
Histic Epipedon (A2)	Hydric Soil Indicat	ors: (Applicab	le to all LRF	Rs, unle	ss otherv	wise not	ted.)		Indica	tors fo	r Problematic Hydi	ric Soils	s ³ :
Black Histic (A3) Loamy Mucky Mineral (F1) Reduced Vertic (F18) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Red Parent Material (TF2) Stratified Layers (A5) (LRR C) Depleted Matrix (F3) Other (Explain in Remarks) 1 cm Muck (A9) (LRR D) X Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depressions (F8) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distrubed or problematic. Restrictive Layer (if present): Type: None Depth (inches): N/A Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) Large rocks present throughout soil. HYDROLOGY Wetland Hydrology indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Saturation (A3) Aquatic Invertebrates (B13) Dirit Deposits (B2) (Riverine) Hydrogen Sulfide Codor (C1) Dirit Deposits (B2) (Nonriverine) Hydrogen Sulfide Odor (C1) Dirit Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Sulface Soil Crack (B6) Recent Iron Reduction in Tilled Soils (C8) Invalidation Visible on Aerial Imagery (C9) Thin Muck Surface (C7) Saturation (C4) Sulface Soil Crack (B6) Recent Iron Reduction in Tilled Soils (C8) Invalidation Visible on Aerial Imagery (C9) Thin Muck Surface (C7) Shallow Aquitar (D3) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): > 15 Wetland Hydrology Present? Yes No X Depth (inches): > 15 Yes No X Wetland Hydrology Present? Yes No X Depth (inches): > 15 Yes No X Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Histosol (A1)			Sa	andy Redo	ox (S5)			1 cm n	nuck (A	(9) (LRR C)		
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Red Parent Material (TF2) Stratified Layers (A5) (LRR C) Depleted Matrix (F3) Other (Explain in Remarks) 1 cm Muck (A9) (LRR D) X Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depressions (F8) "Indicators of hydrophytic vegetation and wetland hydrology must be present, unless distrubed or problematic. Sandy Mucky Mineral (S1) Vernal Pools (F9) Wetland hydrology must be present, unless distrubed or problematic. Restrictive Layer (if present): Type: None Depth (inches): N/A Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) Large rocks present throughout soil. HYDROLOGY Wetland Hydrology indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Surface Water (A1) Salt Crust (B12) Sediment Deposits (B2) (Riverine) High Water Table (A2) Biolic Crust (B12) Sediment Deposits (B2) (Riverine) Saturation (A3) Aquatic invertebrates (B13) Dirift Deposits (B3) (Riverine) Water Marks (B1) (Monriverine) Hydrogen Sulfide Odor (C1) Dirift Deposits (B3) (Riverine) Sediment Deposits (B3) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Dirift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): > 15 Yes No X Depth (inches): > 15 Yes No X Depth (inches): > 15 Descondary Indicators (Hydrology Present? Yes No X Depth (inches): > 15 Yes No X	Histic Epipedon	n (A2)		St	ripped Ma	atrix (S6))		2 cm N	1uck (A	(10) (LRR B)		
Stratified Layers (A5) (LRR C)	Black Histic (A3	3)		Lo	amy Muc	ky Miner	al (F1)		Reduce	ed Ver	tic (F18)		
1 cm Muck (A9) (LRR D)									_				
Depleted Below Dark Surface (A11)				De	epleted Ma	atrix (F3)		Other (Explaii	n in Remarks)		
Thick Dark Surface (A12) Redox Depressions (F8) andy Mucky Mineral (S1) Vernal Pools (F9) wetland hydrology must be present, unless distrubed or problematic. Restrictive Layer (if present): Type: None Depth (inches): N/A Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) Large rocks present throughout soil. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Surface Water (A1) Salt Crust (B11) Water Marks (B1) (Riverine) High Water Table (A2) Biotic Crust (B12) Sediment Deposits (B2) (Riverine) Saturation (A3) Aquatic Invertebrates (B13) Drift Deposits (B2) (Riverine) Sediment Deposits (B2) (Nonriverine) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Sediment Deposits (B3) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): > 15 Saturation Present? Yes No X Depth (inches): > 15 Saturation Present? Yes No X Depth (inches): > 15 Observice Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	1 cm Muck (A9)) (LRR D)		X Re	edox Dark	Surface	e (F6)						
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Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Other (Explain in Remarks) Surface Water Present? Yes No X Depth (inches): Saturation Present? Yes No X Depth (inches): Yes No X Yes No X Depth (inches): Yes No X Depth (inches): Yes No X Yes No X Depth (inches): Yes No X Yes No X No X Depth (inches): Yes No X Yes No X No X Depth (inches): Yes No X Yes No X No X Depth (inches): Yes No X Yes No X Yes No X No X Depth (inches): Yes No X Yes No X No			٥)							. , , ,)	
Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Thin Muck Surface (C7) Other (Explain in Remarks) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): Saturation Present? Yes No X Depth (inches): Source (C7) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					-			ina Poete ((C3)		,	,)\
Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): >15 Saturation Present? Yes No X Depth (inches): >15 Yes No X							_	ing Roots (-		()
Inundation Visible on Aerial Imagery (B7)			16)					Saila (CG)			-		magam, (CO)
Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): >15 Saturation Present? Yes No X Depth (inches): >15 Yes No X (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:						solis (Cb)							
Field Observations: Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): >15 Saturation Present? Yes No X Depth (inches): >15 Yes No X Depth (inches): >15 Yes No X (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:													
Surface Water Present? Yes No X Depth (inches): N/A Water Table Present? Yes No X Depth (inches): >15 Saturation Present? Yes No X Depth (inches): >15 Yes No X Depth (inches): >15 Yes No X (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		()			riei (⊏xpia	am in Re	emarks)				-AC-Neutral Test (D	o)	
Water Table Present? Yes No X Depth (inches): >15 Wetland Hydrology Present? Saturation Present? Yes No X Depth (inches): >15 Yes No X (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:													
Saturation Present? Yes No X Depth (inches): >15 Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							` ′ -		-			_	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							` ' -		_ We	etland			V
				_ No	X	Dept	h (inches):	>15	-		Yes	No	<u> </u>
Remarks: Entered by: KL/ED QC by: TJD	Describe Recorded	l Data (stream g	gauge, monit	oring w	ell, aerial ı	photos,	previous insp	ections), if	available:				
Tements by National St. Nationa	Remarks:										Entered by: KL/ED	QC by	TJD
										,		~y.	

APPENDIX D: WETLAND AND STREAM PHOTOGRAPHS



Photo A. View south of Wetland UW01 (UP02).



Photo B. View down of living snails in Wetland UW01.



Photo C. View southeast of off-site roadside ditch and drain east of Wetland UW01.



Photo D. View west of McCarl Creek (US01) in the southwest corner, off-site.



Photo E. View east of McCarl Creek where water is siphoned to the western pond.



Photo F. View southwest of confluence of McCarl Creek (left) with pond side ditch.



Photo G. View northeast of the middle portion of McCarl Creek.



Photo H. View south of McCarl Creek along eastern site boundary.



Photo I. View northeast of McCarl Creek flowing off-site through a culvert.



Photo J. View northeast of off-site pond fringe Wetland UW02 (UP03).



Photo K. View south of off-site pond fringe Wetland UW03 (UP05).



Photo L. View south of side seep from eastern pond feeding into drainage ditch.



Photo M. View east of side seep drainage ditch.



Photo N. View west of upland stream terrace near the middle of the site (UP07).



Photo O. View east of upland stream terrace in the eastern portion of the site (UP08).



Photo P. View east of upland in slight depression just west of McCarl Creek (UP09).



RATING SUMMARY – Eastern Washington

Name of wetland (or ID #):	Date of site visit: 4/6/14
Rated by N. Evan Dulin	_ Trained by Ecology?Yes No Date of training?/24/17
HGM Class used for rating Depression a	Wetland has multiple HGM classes?YN
NOTE: Form is not complete without Source of base aerial photo/map _	the figures requested (figures can be combined).
OVERALL WETLAND CATEGORY _	(based on functions vor 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
Category IV – Total score = 9-15

FUNCTION	Contract Contract	nprov ter Q	ring uality	Н	ydrolo	gic		Habita	it	
			Circle	the a	ppropi	iate r	atings	;]
Site Potential	Н	(N)	L	Ĥ	M	L	Н	M	L	1
Landscape Potential	(H)	М	L	(H)	М	L	Н	M	(L)	
Value	Н	М	(L)	Н	N	L	Н	M	L	TOTAL
Score Based on Ratings		6	,		8			- American		18

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	

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	1
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	1
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	NIA
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	1
Map of the contributing basin	D 5.3	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	3
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	Ų
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	5

-No outlet

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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
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	S 4.1	
(can be added to figure above)		
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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
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	

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.	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 (<i>slope can be very gradual</i>), 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 foo 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 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. <i>This means that any outlet, if present, is higher than the interior</i>

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.

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of the wetland.

NO - go to 5

YES - The wetland class is **Depressional**

Wetland name or number MWo 1

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.

		Points
Water Quality Functions - Indicators that the site functions to improve water quality		(only 1 score per box)
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland has no surface water outlet Wetland has an intermittently flowing outlet Wetland has a highly constricted permanently flowing outlet Wetland has a permanently flowing, unconstricted, surface outlet	points = 5 points = 3 points = 3 points = 1	5
D 1.2. <u>The soil 2 in below the surface (or duff layer</u>) is true clay or true organic <i>(use NRCS definitions of soi</i> YES =	(s) = 3 NO = 0	0
D 1.3. Characteristics of persistent vegetation (Emergent, Scrub-shrub, and/or Forested Cowardin classes) — Wetland has persistent, ungrazed, vegetation for $> ^2/_3$ of area Wetland has persistent, ungrazed, vegetation from $^1/_3$ to $^2/_3$ of area Wetland has persistent, ungrazed vegetation from $^1/_{10}$ to $< ^1/_3$ of area Wetland has persistent, ungrazed vegetation $< ^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: This is the area of ponding that fluctuates every year. Do not count the area that is permanently por Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland	points = 3 points = 1 points = 0	1
Total for D 1 Add the points in the b	oxes above	-11
ating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L Record the D 2.0. Does the landscape have the potential to support the water quality function of the site?	e rating on th	ie first pag
	= 1) No = 0	1
2.1. Does the wetland receive stormwater discharges? fed by roads de ditch (Yes 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? / Yes	= 1) No = 0	1
2.1. Does the wetland receive stormwater discharges? feel by routified ditch. (Yes 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes 2.3. Are there septic systems within 250 ft of the wetland? (Yes 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions	= 1) No = 0 = 1) No = 0	
2.1. Does the wetland receive stormwater discharges? feel by routile ditch (Yes 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes 2.3. Are there septic systems within 250 ft of the wetland? (Yes 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source Yes	= 1) No = 0 = 1) No = 0 = 1 (No = 0	1
2.1. Does the wetland receive stormwater discharges? feel by routified ditch. (Yes 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes 2.3. Are there septic systems within 250 ft of the wetland? (Yes 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source Yes Add the points in the base of the source of the points in the base of the source of the points in the base of the source of the points in the base of the points in the	= 1) No = 0 = 1) No = 0 = 1 (No = 0	1 0 3
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2.1. Does the wetland receive stormwater discharges? feel by routside ditch. (Yes D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes D 2.3. Are there septic systems within 250 ft of the wetland? (Yes D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source (Yes Total for D 2) (Yes D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source (Yes D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source (Yes D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source (Yes D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source (Yes D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.4. Are there other sources of pollutants coming into the wetland?	= 1) No = 0 = 1) No = 0 = 1 (No = 0) poxes above e rating on the	1 0 3
2.1. Does the wetland receive stormwater discharges? feel by routified ditted. (Yes D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? / Yes D 2.3. Are there septic systems within 250 ft of the wetland? / Yes D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source Yes Total for D 2 Add the points in the batting of Landscape Potential If score is:3 or 4 = H1 or 2 = M0 = L Record the D 3.0. Is the water quality improvement provided by the site valuable to society? D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(decomposition) and the stream of the strea	= 1) No = 0 = 1) No = 0 = 1 (No = 0) poxes above e rating on the	1 0 3 ae first pag
2.1. Does the wetland receive stormwater discharges? 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? 2.3. Are there septic systems within 250 ft of the wetland? 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source Yes Total for D 2 Add the points in the basin of Landscape Potential 2.5. If score is: 3 or 4 = H 1 or 2 = M 0 = L 2.6. Record the basin D 3.0. Is the water quality improvement provided by the site valuable to society? 2.7. In Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303 (or yes) 2.7. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303 eutrophic lakes, problems with nuisance and toxic algae]? 2.8. Is the site been identified in a watershed or local plan as important for maintaining water quality	= 1) No = 0 = 1) No = 0 = 1 (No = 0) boxes above e rating on the state of the s	1 0 3 ae first pag

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DEPRESSIONAL WETLANDS	Points (only 1 score
Hydrologic Functions - Indicators that the site functions to reduce flooding and erosion.	per box)
0 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland has no surface water outlet Wetland has an intermittently flowing outlet Wetland has a highly constricted permanently flowing outlet Wetland has a permanently flowing unconstricted surface outlet (If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")	4 8
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry). Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding points = Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent pondingpoints. The wetland is a headwater wetland points = Seasonal ponding: 1 ft - < 2 ft points = Seasonal ponding: 6 in - < 1 ft points = Seasonal ponding: < 6 in or wetland has only saturated soils points =	= 6 : 4 : 4 : 2
Total for D 4 Add the points in the boxes abo	ve 14
Rating of Site Potential If score is: ✓ 12-16 = H6-11 = M0-5 = L Record the rating of D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? fed by roadside ditch (Yes = 1) No =	0 1
D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff? $ 6\% $ Yes = 1 No =	:0 1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses? $(Yes = 1)No = (Yes = $:o I
Total for D 5 Add the points in the boxes abo	ve 3
D 6.0. Are the hydrologic functions provided by the site valuable to society?	n the first pag
D 6.1. The wetland is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland being rated. Do not add points. Choose the highest score if more than one condition is met. The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND Flooding occurs in sub-basin that is immediately down-gradient of wetland Surface flooding problems are in a sub-basin farther down-gradient The existing or potential outflow from the wetland is so constrained by human or natural conditions that the	= 2 = 1 = 0
water stored by the wetland cannot reach areas that flood. Explain why points: There are no problems with flooding downstream of the wetland points:	
water stored by the wetland cannot reach areas that flood. Explain why points	0 6

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These questions apply to wetlands of all HGM of		(only 1 score per
HABITAT FUNCTIONS - Indicators that site functions to provide impo		box)
H 1.0. Does the wetland have the potential to provide habitat for many spe	cies?	
H 1.1. Structure of the plant community: Check the Cowardin vegetation classes present and categories of emergent plants 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 >= Emergent plants >12-40 in (>30-100 cm) high are the highest layer with Emergent plants > 40 in (> 100 cm) high are the highest layer with >30% Scrub-shrub (areas where shrubs have >30% cover) Forested (areas where trees have >30% cover)	- 30% cover >30% cover	1
H 1.2. Is one of the vegetation types Aquatic Bed?	Yes = 1 No = 0	1
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (without emergent or some 10% of its area during the March to early June OR in August to the for Lake Fringe wetlands. H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetation or along one side, over at least ¼ ac or 10% of its area? Answer yes	end of September? Answer YES a go to H 1.4 No = go to H 1.3.2 ated stream within its boundaries,	3
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . species can be combined to meet the size threshold. You do not have to nan Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Russian thistle, yellow-flag iris, and saltcedar (Tamarisk) # of species	ne the species.	D
H 1.5. Interspersion of habitats		Figure_
All three diagrams in this row are High = 3 points	none. 1.1 and map of open water from	1
	haddad abaga at ann à 1	
Riparian	braided channels with 2 classes	

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.	1
Emergent or shrub vegetation in areas that are permanently inundated/ponded.	2
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) Total for H 1 Add the points in the boxes above	7
Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L Record the rating on the first page	•
H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is:	
Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = %	
$> \frac{1}{3}$ (33.3%) of 1 km Polygon points = 3	\bigcirc
20-33% of 1km Polygon points = 2	
10-19% of 1km Polygon points = 1	
<10% of 1km Polygon points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around wetland.	
Calculate: % undisturbed habitat $\frac{13}{15.5}$ + [(% moderate and low intensity land uses)/2] $\frac{15.5}{15.5}$ = $\frac{25.5}{15.5}$ %	
Undisturbed habitat > 50% of Polygon wholes points = 3	1
Undisturbed habitat 10 - 50% and in 1-3 patches $\frac{100}{13\%}$ $\frac{248}{3\%}$ points = 2	1
Undisturbed habitat 10 - 50% and in 1-3 patches Undisturbed habitat 10 - 50% and > 3 patches $790 = 13\%$ points = 2 points = 1	
Undisturbed habitat < 10% of Polygon points = 0	
H 2.3. Land use intensity in 1 km Polygon:	2
> 50% of Polygon is-high intensity land use 56% points = (-2)	-1
Does not meet criterion above points = 0	,
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	0
reclamation areas, irrigation districts, or reservoirs Yes = 3 No = 0	7
Total for H 2 Add the points in the boxes above	de
Rating of Landscape Potential If score is: 4-9 = H 1-3 = M 4-9 = H Record the rating on the first page	
H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose the highest score</i>	D-1311 (1851 18-18-18-18)
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)	0
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 mapped as a location for an individual WDFW species	
 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 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 	
 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 	
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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.

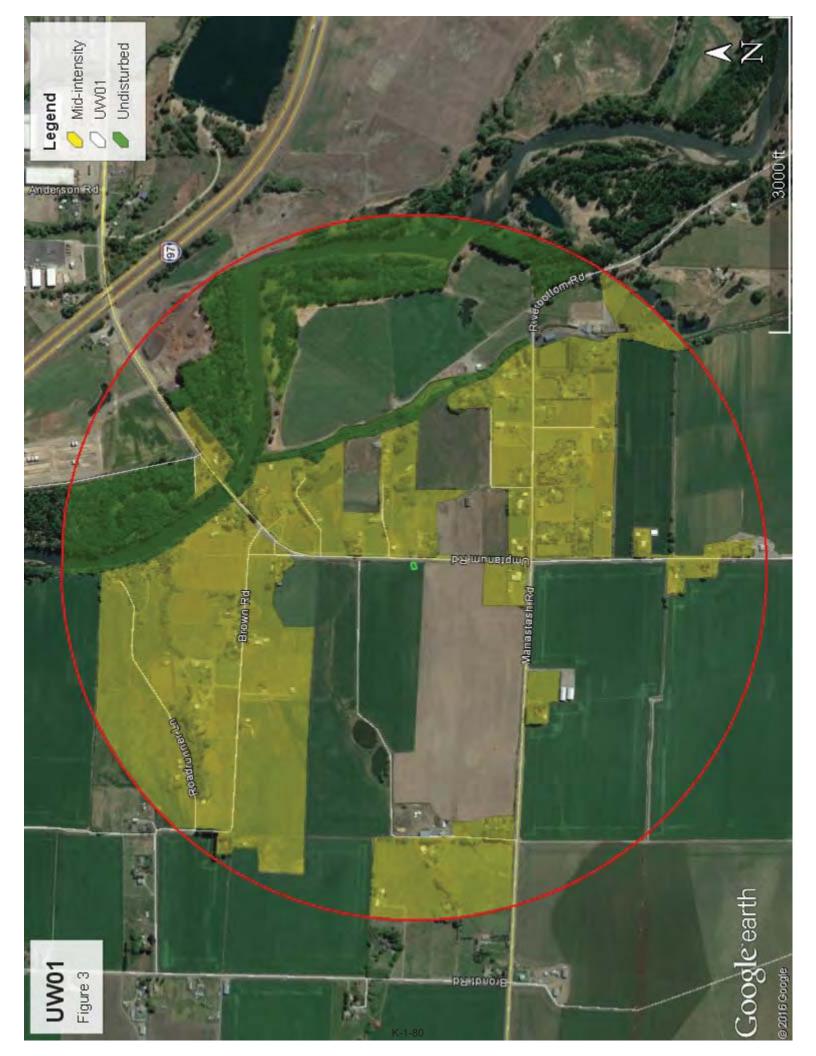
- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).
- Old-growth/Mature forests: Old-growth east of Cascade crest = 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.
- Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak
 component is important (full descriptions in WDFW PHS report p. 158 see web link above).
- Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial
 ecosystems which mutually influence each other.
- 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.
- Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus: Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 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.
- 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).
- 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.).
- 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.

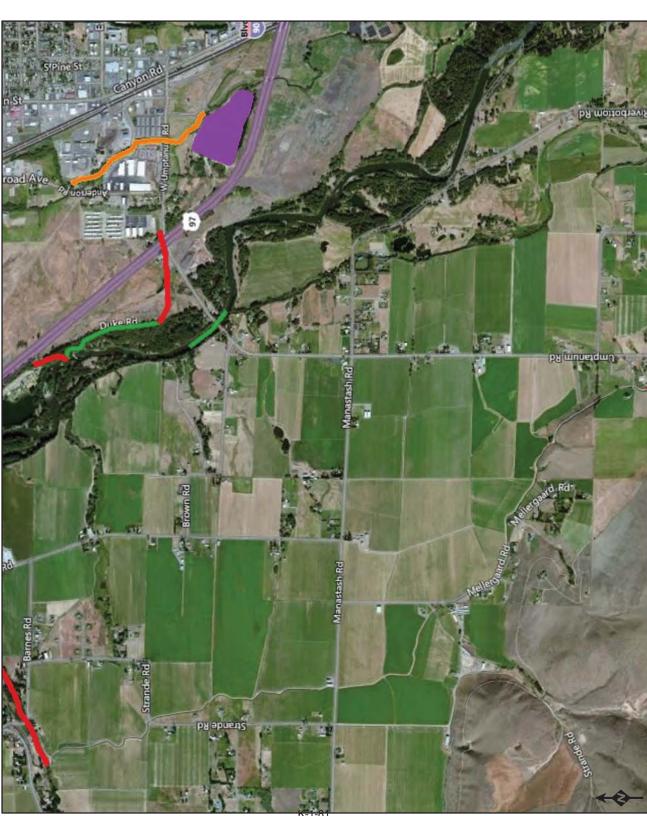
Wetland Rating System for Eastern WA: 2014 Update Effective January 1, 2015 Appendix B







UW01 - Figure 4



Waters/Sediment Assessed

Water

Category 5 - 303d Category 4C Category 4B

Category 4A Category 2

Category 1

ZZZ Category 5 - 303d Sediment

ZZZ Category 4C

ZZZ Category 4B ZZZ Category 4A

ZZZ Category 2

ZZZ Category 1



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Water Quality & Supply

Waste & Toxics

Air & Climate

Cleanup & Spills



Water Quality Improvement Projects (TMDLs)

Water Quality Improvement > Water Quality Improvement Projects by WRIA > WRIA 39: Upper Yakima

WATER QUALITY IMPROVEMENT PROJECTS (TMDLs)

Overview of the process

Project Catalog

by WRIA by County

Funding Opportunities

Project Development Priority Lists

Related Information

TMDL Contacts

RELATED ECOLOGY PROGRAMS

Water Quality

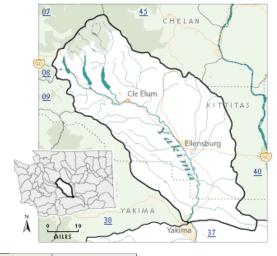
WRIA 39: Upper Yakima

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

Yakima River basin project index:

www.ecy.wa.gov/programs/wq/tmdl/yakima_wq/index.html Counties

- Kittitas
- Yakima



Project Name	Pollutants	Status**	TMDL Lead
Crystal Creek	Ammonia-N BOD (5-day) Chlorine Fecal Coliform	EPA approved	<u>Jane Creech</u> 509-454-7860
Selah Ditch	Fecal Coliform Temperature	EPA approved	Greg Bohn 509-454-4174
Teanaway River segments: Upper West Fork Teanaway River Upper Middle Fork Teanaway River Upper North Fork Teanaway River Stafford Creek Lower West Fork Teanaway River Lower Middle Fork Teanaway River Lower North Fork Teanaway River Lower North Fork Teanaway River Mainstem Teanaway River	Temperature	EPA approved	Jane Creech 509-454-7860
Wilson/Cooke Creek Tributaries: Badger Creek Bull Ditch Caribou Creek Cherry Creek CID Canal Coleman Creek Cook Creek EWC Canal Johnson Drain KRD Canal	Fecal Coliform	EPA approved Has an implementation plan Post-TMDL monitoring report	Jane Creech 509-454-7860 Greg Bohn 509-454-4174

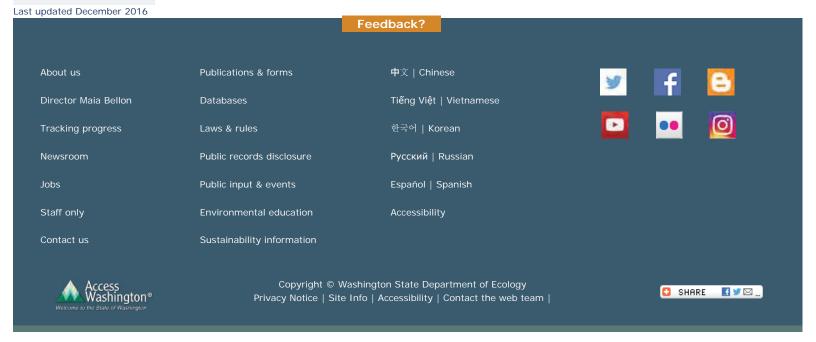
Mercer Creek Naneum Creek Parke Creek Whiskey Creek Wilson Creek Wipple Wasteway			
Yakima River, Upper	Dieldrin DDT Suspended Sediments Turbidity	EPA approved	Jane Creech 509-454-7860
	Temperature	EPA approved Has an implementation plan	<u>Jane Creech</u> 509-454-7860
Yakima River	Toxics	Under development	<u>Jane Creech</u> 509-454-7860

^{**} Status will be listed as one of the following: Approved by EPA, Under Development or Implementation. No status means project work has not yet started.

For more information about WRIA 39:

- Waterbodies in WRIA 39 using the Water Quality Assessment Query Tool
- Watershed Information for WRIA 39
- * The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

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RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): 44/02	Date of site visit: 4/7/17
Rated by N. Evan Dulih	Date of site visit: 4/7/17 _ Trained by Ecology? √Yes No Date of training 3/24/17
HGM Class used for rating Depressional	Wetland has multiple HGM classes?YN
NOTE: Form is not complete without Source of base aerial photo/map _	the figures requested (figures can be combined).
OVERALL WETLAND CATEGORY _	(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
 _Category IV - Total score = 9-15

FUNCTION	The state of the s	mprov iter Q	ing uality	Ну	/drolo	gic		Habit	at	
			Circle	the a	propr	iate r	atings	5]
Site Potential	Н	M	(L)	(H)	M	L	Н	M	L	1
Landscape Potential	Н	(M)	L	Н	(M)	L	Н	М	(1)	
Value	Н	M	L	Н	M	L	Н	(M)	L	TOTAL
Score Based on		ζ	nao		7			5		17
Ratings					1			255		0 1

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			

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	1
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	1
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	1
Map of the contributing basin	D 5.3	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	3
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	4
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	5

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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
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	S 4.1	
(can be added to figure above)		
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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
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)	\$ 3.3	

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.		n the water side of the Ordinary High Water Mark of a body y plants on the surface) that is at least 20 ac (8 ha) in size
(NO – go to 2	YES – The wetland class is Lake Fringe (Lacustrine Fringe)
2.	•	e very gradual), in one direction (unidirectional) and usually comes from etflow, or in a swale without distinct banks;
<		YES – The wetland class is Slope sese type of wetlands except occasionally in very small and s (depressions are usually <3 ft diameter and less than 1 foot
3.		nel, where it gets inundated by overbank flooding from that
	NO - go to 4 NOTE: The Riverine wetland can contain flooding.	YES – The wetland class is Riverine depressions that are filled with water when the river is not
4.		c depression in which water ponds, or is saturated to the nis means that any outlet, if present, is higher than the interior

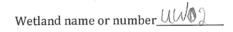
5. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH 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.

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of the wetland.

NO - go to 5

YES - The wetland class is **Depressional**



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.

<u>DEPRESSIONAL WETLANDS</u> Water Quality Functions - Indicators that the site functions to improve water quality	Points (only 1 score per box)
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland has no surface water outlet Wetland has an intermittently flowing outlet Wetland has a highly constricted permanently flowing outlet Wetland has a permanently flowing, unconstricted, surface outlet points = 3 Wetland has a permanently flowing, unconstricted, surface outlet	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions of soils) YES = 3 (NO = 0)	0
D 1.3. Characteristics of persistent vegetation (Emergent, Scrub-shrub, and/or Forested Cowardin classes) Wetland has persistent, ungrazed, vegetation for $> ^2/_3$ of area Wetland has persistent, ungrazed, vegetation from $^1/_3$ to $^2/_3$ of area Wetland has persistent, ungrazed vegetation from $^1/_{10}$ to $< ^1/_3$ of area Wetland has persistent, ungrazed vegetation $< ^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed vegetation $< ^1/_{10}$ of area	1
D 1.4. Characteristics of seasonal ponding or inundation: This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded. Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Points = 1 points = 0	0
Total for D 1 Add the points in the boxes above Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L Record the rating on the	ne first po
ating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L Record the rating on the	e first po
ating of Site Potential If score is:12-16 = H6-11 = M0-5 = L Record the rating on the D 2.0. Does the landscape have the potential to support the water quality function of the site?	e first po
D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? Yes = 1 (No = 0)	e first po
ating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L Record the rating on the D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? Yes = 1 (No = 0) D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	oe first po
ating of Site Potential If score is:12- 16 = H6- 11 = M0- 5 = L Record the rating on the D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? Yes = 1 (No = 0) D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 (No = 0) D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 (No = 0)	oe first po
D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? D 2.3. Are there septic systems within 250 ft of the wetland? D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source Yes = 1 (No = 0) Yes = 1 (No = 0)	oe first po
D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? D 2.3. Are there septic systems within 250 ft of the wetland? D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source Yes = 1 (No = 0) Add the points in the boxes above	0 1 0 0
D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? D 2.3. Are there septic systems within 250 ft of the wetland? D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source Yes = 1 (No = 0) Add the points in the boxes above	0 1 0 0
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D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? D 2.3. Are there septic systems within 250 ft of the wetland? D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source Total for D 2 Add the points in the boxes above sating of Landscape Potential If score is:3 or 4 = H1 or 2 = M0 = L D 3.0. Is the water quality improvement provided by the site valuable to society? D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	0 1 0 0
D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? D 2.3. Are there septic systems within 250 ft of the wetland? D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source Yes = 1 (No = 0) Total for D 2 Add the points in the boxes above lating of Landscape Potential Add the points in the boxes above lating of Landscape Potential D 3.0. Is the water quality improvement provided by the site valuable to society? D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list? Add the water quality improvement provided by the site valuable to society? D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list;	0 1 0 0

DEPRESSIONAL WETLANDS	Points (only 1 score
Hydrologic Functions - Indicators that the site functions to reduce flooding and erosion.	per box)
0 4.0. Does the site have the potential to reduce flooding and erosion?	
0 4.1. Characteristics of surface water outflows from the wetland: Wetland has no surface water outlet points = 8	
Wetland has an intermittently flowing outlet points = 4	2 1
— Wetland has a highly constricted permanently flowing outlet points = 4	
Wetland has a permanently flowing unconstricted surface outlet points = 0 (If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")	
 Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry). Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding points = 8 Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent pondingpoints = 6 The wetland is a headwater wetland points = 4 Seasonal ponding: 1 ft - < 2 ft points = 4 Seasonal ponding: 6 in - < 1 ft points = 2 Seasonal ponding: < 6 in or wetland has only saturated soils 	8
Total for D 4 Add the points in the boxes above	
Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L Record the rating on	
D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 (No = 0	0
D 5.2. Is $> 10\%$ of the area within 150 ft of the wetland in a land use that generates runoff? Yes = 1 No = 0) 0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses? (Yes = 1) No = 0	1
Total for D 5 Add the points in the boxes above	1
ating of Landscape Potential If score is:3 = H1 or 2 = M0 = L Record the rating on	the first pag
D 6.0. Are the hydrologic functions provided by the site valuable to society?	+
D 6.1. The wetland is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland being rated. Do not add points. Choose the highest score if more than one condition is met. The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND Flooding occurs in sub-basin that is immediately down-gradient of wetland points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	
	0
D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan? Total for D 6 Add the points in the boxes above)

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These questions apply to wetlan HABITAT FUNCTIONS - Indicators that site functions to		(only 1 score per box)
H 1.0. Does the wetland have the potential to provide hab	itat for many species?	
H 1.1. Structure of the plant community: Check the Cowardin vegetation classes present and category is >= ¼ ac or >= 10% of the wetland if wetland is Aquatic bed ~ 6¼ Emergent plants 0-12 in (0-30 cm) high are the higher Emergent plants >12-40 in (>30-100 cm) high are the higher Emergent plants > 40 in (> 100 cm) high are the higher Scrub-shrub (areas where shrubs have >30% cover) Forested (areas where trees have >30% cover)	< 2.5 ac. st layer and have > 30% cover highest layer with >30% cover	1
H 1.2. Is one of the vegetation types Aquatic Bed?	$\forall es = 1$ No = 0	1
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (with 10% of its area during the March to early June Of for Lake Fringe wetlands. H 1.3.2. Does the wetland have an intermittent or perman or along one side, over at least ¼ ac or 10% of its	R in August to the end of September? Answer YES Yes = 3 points & go to H 1.4 No = go to H 1.3.2 nent, and unvegetated stream within its boundaries,	3
H 1.4. Richness of plant species Count the number of plant species in the wetland that conspecies can be combined to meet the size threshold. You and Do not include Eurasian milfoil, reed canarygrass, purple in thistle, yellow-flag iris, and saltcedar (Tamarisk) # of species	do not have to name the species.	1
H 1.5. Interspersion of habitats		Figure_
Decide from the diagrams below whether interspersion a and unvegetated areas (open water or mudflats) is high, ruse map of Cowardin and emergent plant classes prepare H 1.3. If you have four or more plant classes or three class None = 0 points Low = 1 point All three diagrams in this row are High = 3 points	moderate, low, or none. Indicate the following of the following of the following in the fo	2
	Riparian braided channels with 2 classes	

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)	4
Total for H 1 Add the points in the boxes above	12
Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L Record the rating on the first page	
H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: Calculate: % undisturbed habitat	0
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. Calculate: % undisturbed habitat 3 + [(% moderate and low intensity land uses)/2] 15.5 = 18.5 % Undisturbed habitat > 50% of Polygon Undisturbed habitat 10 - 50% and in 1-3 patches Undisturbed habitat 10 - 50% and > 3 patches Undisturbed habitat < 10% of Polygon Disturbed habitat < 10% of Polygon Statches 26 750 at 267 850 at 30% points = 1 points = 0	1
H 2.3. Land use intensity in 1 km Polygon: > 50% of Polygon is high intensity land use $6%$ 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	-1
Rating of Landscape Potential If score is: 4-9 = H 1-3 = M <1 = L Record the rating on the first page	
H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose 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) — Site does not meet any of the criteria above	1
Rating of Value If score is: 2 = H 1 = M 0 = L Record the rating on the first page	

Wetland Rating System for Eastern WA: 2014 Update Rating Form – Effective January 1, 2015

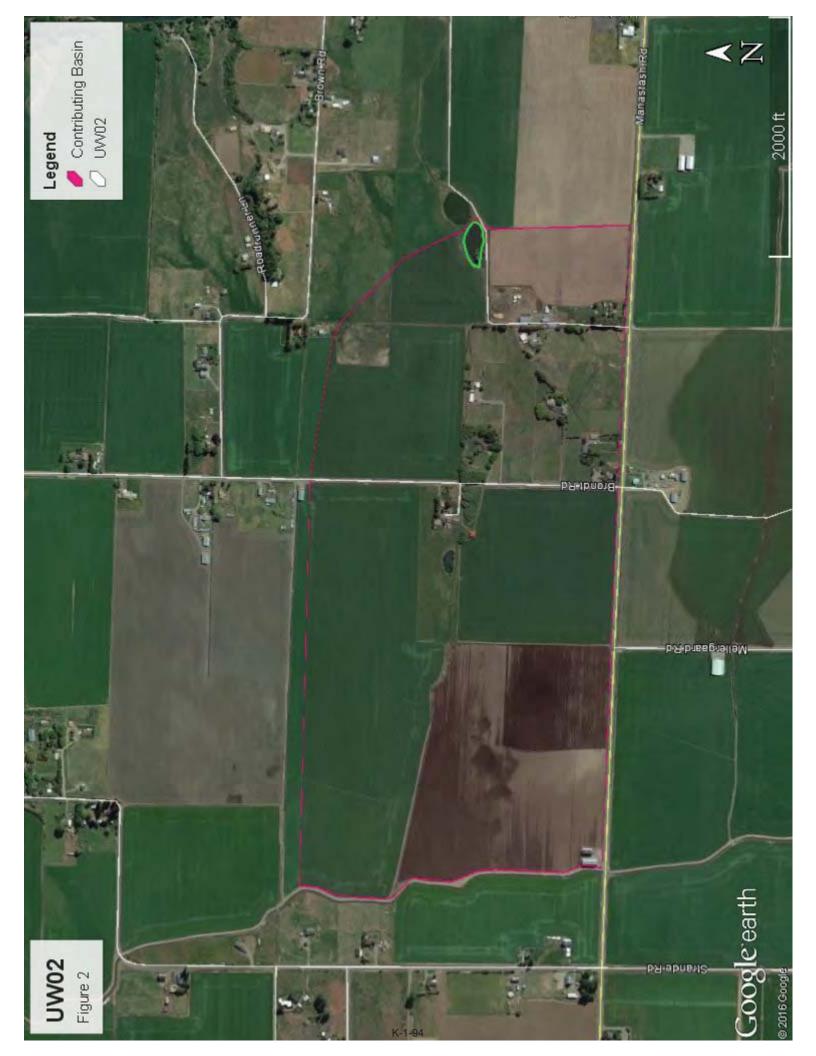
Appendix B: WDFW Priority Habitats in Eastern Washington

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 th	he land use between the wetland and the priority habitat. Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
-	Biodiversity Areas and Corridors : Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).
_	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.
-	Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).
/	Riparian : The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
_	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.
-	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
_	Cliffs: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
_	Talus: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
-	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 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.
_	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).
=	Eastside Steppe: Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>) is often the prevailing cover component along with Idaho fescue (<i>Festuca idahoensis</i>), Sandberg bluegrass (<i>Poa secunda</i>), rough fescue (<i>F. campestris</i>), or needlegrasses (<i>Achnatherum</i> spp.).
	Juniper Savannah: All juniper woodlands.
	te: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed ewhere.
We Effe	ective January 1, 2015 pendix B







UW02 - Figure 4



Waters/Sediment Assessed

Water

Category 5 - 303d Category 4C Category 4B

Category 4A

Category 2

Category 1

Sediment

ZZZ Category 5 - 303d

ZZZ Category 4C ZZZ Category 4B

ZZZ Category 4A

ZZZ Category 2

ZZZ Category 1

0.5 0.25 Miles

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Home

Water Quality & Supply

Waste & Toxics

Air & Climate

Cleanup & Spills

Water Quality Improvement Projects (TMDLs)

Water Quality Improvement > Water Quality Improvement Projects by WRIA > WRIA 39: Upper Yakima

WATER QUALITY **IMPROVEMENT** PROJECTS (TMDLs)

Overview of the process

Project Catalog by WRIA

by County

Funding Opportunities Project Development Priority Lists

Related Information

TMDL Contacts

RELATED ECOLOGY PROGRAMS

Water Quality

WRIA 39: Upper Yakima

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

Yakima River basin project index:

www.ecy.wa.gov/programs/wq/tmdl/yakima_wq/index.html Counties

- Kittitas
- Yakima



Project Name	Pollutants	Status**	TMDL Lead
Crystal Creek	Ammonia-N BOD (5-day) Chlorine Fecal Coliform	EPA approved	<u>Jane Creech</u> 509-454-7860
Selah Ditch	Fecal Coliform Temperature	EPA approved	<u>Greg Bohn</u> 509-454-4174
Teanaway River segments: • Upper West Fork Teanaway River • Upper Middle Fork Teanaway River • Upper North Fork Teanaway River • Stafford Creek • Lower West Fork Teanaway River • Lower Middle Fork Teanaway River • Lower North Fork Teanaway River • Lower North Fork Teanaway River • Mainstem Teanaway River	Temperature	EPA approved	Jane Creech 509-454-7860
Wilson/Cooke Creek Tributaries: Badger Creek Bull Ditch Caribou Creek Cherry Creek CID Canal Coleman Creek Cook Creek EWC Canal Johnson Drain	Fecal Coliform	EPA approved Has an implementation plan Post-TMDL monitoring report	Jane Creech 509-454-7860 Greg Bohn 509-454-4174

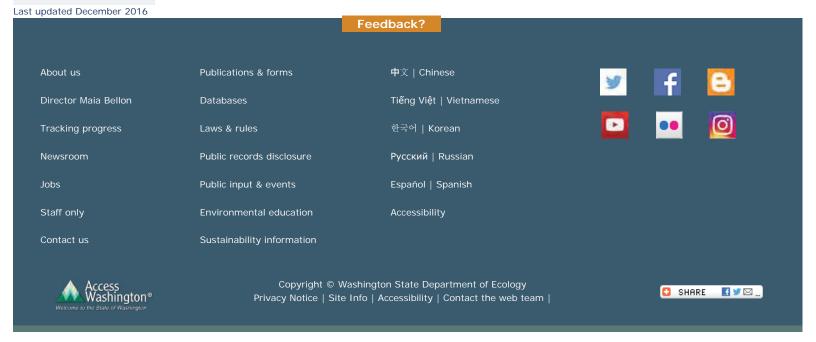
Mercer Creek Naneum Creek Parke Creek Whiskey Creek Wilson Creek Wipple Wasteway			
Yakima River, Upper	Dieldrin DDT Suspended Sediments Turbidity	EPA approved	Jane Creech 509-454-7860
	Temperature	EPA approved Has an implementation plan	Jane Creech 509-454-7860
Yakima River	Toxics	Under development	<u>Jane Creech</u> 509-454-7860

^{**} Status will be listed as one of the following: Approved by EPA, Under Development or Implementation. No status means project work has not yet started.

For more information about WRIA 39:

- Waterbodies in WRIA 39 using the Water Quality Assessment Query Tool
- Watershed Information for WRIA 39
- * The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

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RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): UW03 Rated by N. Evan Dulih	Date of site visit: 4/7/17
Rated by N. Evan Dulih	Trained by Ecology? Yes No Date of training 3/24/17
HGM Class used for rating Defressiona	Wetland has multiple HGM classes?YN
NOTE: Form is not complete without Source of base aerial photo/map _	the figures requested (figures can be combined).
OVERALL WETLAND CATEGORY	(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
Category IV – Total score = 9-15

FUNCTION	11 E251 VO 100 E155	mprov iter Qi	ing uality	14 (211115)	ydrolo	gic		Habita	at	
			Circle	the a	ppropi	iate r	ating	5		1
Site Potential	Н	M	(L)	(H)	М	L	Н	(M)	L	1
Landscape Potential	Н	M	L	Н	M	L	Н	M	(1)	
Value	Н	M	L	Н	M	L	Н	(M)	L	TOTAL
Score Based on Ratings		5			7	,-		5		17

Score for each function based on three ratings (order of ratings is not important) 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M, L, L3 = 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			

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	11
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	1
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	1
Map of the contributing basin	D 5.3	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	3
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	4
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	S

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	77 200-1-1
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)	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	

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 (<i>slope can be very gradual</i>), 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 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. <i>This means that any outlet, if present, is higher than the interior</i>

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.

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of the wetland.

NO - go to 5

YES - The wetland class is **Depressional**

Wetland name or number <u>MW03</u>

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.

DEPRESSIONAL WETLANDS Water Quality Functions - Indicators that the site functions to improve water quality	Points (only 1 score per box)
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland has no surface water outlet Wetland has an intermittently flowing outlet Wetland has a highly constricted permanently flowing outlet Wetland has a permanently flowing, unconstricted, surface outlet points = 3 Wetland has a permanently flowing, unconstricted, surface outlet	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions of soils) YES = 3 (NO = 0)	0
D 1.3. Characteristics of persistent vegetation (Emergent, Scrub-shrub, and/or Forested Cowardin classes) Wetland has persistent, ungrazed, vegetation for $> ^2/_3$ of area Wetland has persistent, ungrazed, vegetation from $^1/_3$ to $^2/_3$ of area Wetland has persistent, ungrazed vegetation from $^1/_{10}$ to $< ^1/_3$ of area Wetland has persistent, ungrazed vegetation $< ^1/_{10}$ of area points = 0 Wetland has persistent, ungrazed vegetation $< ^1/_{10}$ of area	1
D 1.4. Characteristics of seasonal ponding or inundation: This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded. Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is ¼ - ½ total area of wetland Area seasonally ponded is < ¼ total area of wetland Points = 0	0
Total for D 1 Add the points in the boxes above	1.
Add the points in the boxes above	4
	he first pag
Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L Record the rating on t	he first pag
Rating of Site Potential If score is:12- 16 = H6- 11 = M0-5 = L Record the rating on to D 2.0. Does the landscape have the potential to support the water quality function of the site?	he first pag
D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? Yes = 1 (No = 0)	
Rating of Site Potential If score is:12- 16 = H6- 11 = M0-5 = L Record the rating on to D 2.0. Does the landscape have the potential to support the water quality function of the site?	
Rating of Site Potential If score is:12- 16 = H6- 11 = M $_{\sim}$ 0- 5 = L Record the rating on to D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? Yes = 1 (No = 0) D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes = 1) No = 0	0
D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? D 2.3. Are there septic systems within 250 ft of the wetland? D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions	1 0
Rating of Site Potential If score is:12-16 = H6-11 = M0-5 = L	0 1 0 0 1
Rating of Site Potential If score is:12-16 = H6-11 = M0-5 = L	0 1 0 0 1
Rating of Site Potential If score is:12-16 = H6-11 = M0-5 = L	0 1 0 0 1
Pating of Site Potential If score is:12-16 = H6-11 = M0-5 = L	0 1 0 0 1 he first pag
Rating of Site Potential If score is:12-16 = H6-11 = M0-5 = L Record the rating on to D 2.0. Does the landscape have the potential to support the water quality function of the site? D 2.1. Does the wetland receive stormwater discharges? Yes = 1 (No = 0) D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 (No = 0) D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 (No = 0) D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source Yes = 1 (No = 0) Total for D 2 Add the points in the boxes above Rating of Landscape Potential If score is:3 or 4 = H1 or 2 = M0 = L Record the rating on the points in the boxes above of the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list? Yes = 1 (No = 0) D 3.0. Is the water quality improvement provided by the site valuable to society? D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list? Yes = 1 (No = 0) D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list,	1 0 0 0 1 1 he first pag

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DEPRESSIONAL WETLANDS	Points
Hydrologic Functions - Indicators that the site functions to reduce flooding and erosion.	(only 1 score per box)
D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland:	7
Wetland has no surface water outlet points = 8	
Wetland has an intermittently flowing outlet points = 4	L
—Wetland has a highly constricted permanently flowing outlet points = 4 Wetland has a permanently flowing unconstricted surface outlet points = 0 (If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")	1
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry). Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding points = 8 Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent pondingpoints = 6 The wetland is a headwater wetland points = 4 Seasonal ponding: 1 ft - < 2 ft points = 4 Seasonal ponding: 6 in - < 1 ft points = 2 Seasonal ponding: < 6 in or wetland has only saturated soils points = 0	8
Total for D 4 Add the points in the boxes above	12
Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L Record the rating on t	he first pag
D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = $1 (No = 0)$	0
D 5.2. Is $> 10\%$ of the area within 150 ft of the wetland in a land use that generates runoff? Yes = 1 (No = 0)	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses? (Yes = 1) No = 0	1
Total for D 5 Add the points in the boxes above	1
Rating of Landscape Potential If score is:3 = H1 or 2 = M0 = L Record the rating on the second se	the first pag
D 6.0. Are the hydrologic functions provided by the site valuable to society?	-48
D 6.1. The wetland is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland being rated. Do not add points. Choose the highest score if more than one condition is met. The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND Flooding occurs in sub-basin that is immediately down-gradient of wetland Surface flooding problems are in a sub-basin farther down-gradient points = 1	1
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why points = 0 There are no problems with flooding downstream of the wetland points = 0	
water stored by the wetland cannot reach areas that flood. Explain why points = 0 There are no problems with flooding downstream of the wetland points = 0 D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control	
water stored by the wetland cannot reach areas that flood. Explain why points = 0 There are no problems with flooding downstream of the wetland points = 0) 0

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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 >= ½ 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) 3 checks: points = 2 2 checks: points = 0	1
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 No = 0	1
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	3
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft². 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 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	Figure_
Rinarian braided channels with 2 classes	

etland name of number work of	
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,	4
herbaceous, moss/ground cover) Total for H 1 Add the points in the boxes above	11
Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L Record the rating on the first page	alle els.
The state of the s	
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	0
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. Calculate: % undisturbed habitat	1
H 2.3. Land use intensity in 1 km Polygon: > 50% of Polygon is high intensity land use 63% 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	-1
Rating of Landscape Potential If score is: 4-9 = H 1-3 = M < 1 = L Record the rating on the first page	ON the American State of the Section
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 	1
Site has 1 or 2 priority habitats within 100 m (see Appendix B) Site does not meet any of the criteria above points = 1 points = 0	
Rating of Value If score is: $_{2} = H$ $_{1} = M$ $_{0} = L$ Record the rating on the first page	

Wetland Rating System for Eastern WA: 2014 Update Rating Form – Effective January 1, 2015

Appendix B: WDFW Priority Habitats in Eastern Washington

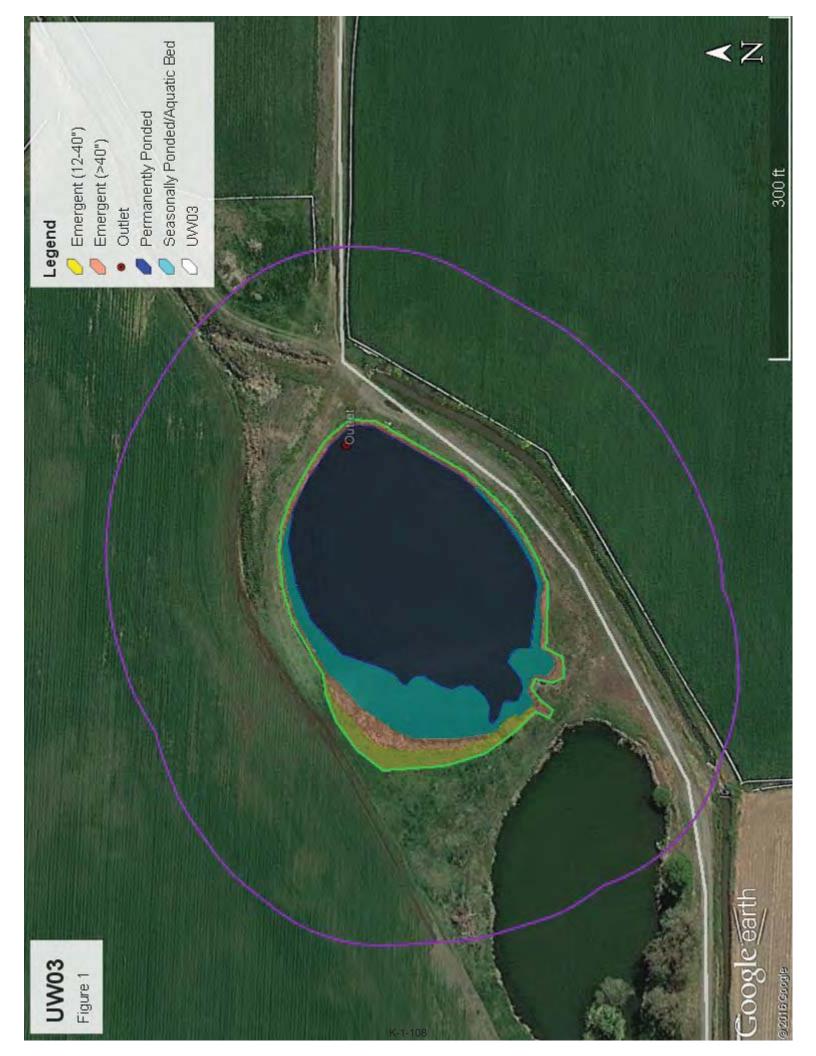
Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf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

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).
- 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.
- Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak
 component is important (full descriptions in WDFW PHS report p. 158 see web link above).
- Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial
 ecosystems which mutually influence each other.
- 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.
- Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or
 other geological formations and is large enough to contain a human.
- Cliffs: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus: Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 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.
- 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).
- 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.).
- 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.

Wetland Rating System for Eastern WA: 2014 Update Effective January 1, 2015 Appendix B







UW03 - Figure 4



Waters/Sediment Assessed

Water

Category 5 - 303d Category 4C Category 4B

Category 4A

Category 2

Category 1

Sediment

ZZZ Category 5 - 303d

ZZZ Category 4C ZZZ Category 4B

ZZZ Category 4A

ZZZ Category 2

ZZZ Category 1

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Home

Water Quality & Supply

Waste & Toxics

Air & Climate

Cleanup & Spills

Water Quality Improvement Projects (TMDLs)

Pollutants

Water Quality Improvement > Water Quality Improvement Projects by WRIA > WRIA 39: Upper Yakima

WATER QUALITY IMPROVEMENT PROJECTS (TMDLs)

Overview of the process

Project Catalog

by WRIA by County

Funding Opportunities

Project Development Priority Lists

Related Information

TMDL Contacts

RELATED ECOLOGY PROGRAMS

Water Quality

WRIA 39: Upper Yakima

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

Yakima River basin project index:

Project Name

www.ecy.wa.gov/programs/wq/tmdl/yakima_wq/index.html Counties

- Kittitas
- Yakima



<u>Crystal Creek</u>	Ammonia-N BOD (5-day) Chlorine Fecal Coliform	EPA approved	Jane Creech 509-454-7860
Selah Ditch	Fecal Coliform Temperature	EPA approved	Greg Bohn 509-454-4174
Teanaway River segments: Upper West Fork Teanaway River Upper Middle Fork Teanaway River Upper North Fork Teanaway River Stafford Creek Lower West Fork Teanaway River Lower Middle Fork Teanaway River Lower North Fork Teanaway River Lower North Fork Teanaway River Mainstem Teanaway River	Temperature	EPA approved	Jane Creech 509-454-7860
Wilson/Cooke Creek Tributaries: Badger Creek Bull Ditch Caribou Creek Cherry Creek CID Canal Coleman Creek Cook Creek EWC Canal Johnson Drain	Fecal Coliform	EPA approved Has an implementation plan Post-TMDL monitoring report	Jane Creech 509-454-7860 Greg Bohn 509-454-4174

Mercer Creek Naneum Creek Parke Creek Whiskey Creek Wilson Creek Wipple Wasteway			
Yakima River, Upper	Dieldrin DDT Suspended Sediments Turbidity	EPA approved	Jane Creech 509-454-7860
	Temperature	EPA approved Has an implementation plan	<u>Jane Creech</u> 509-454-7860
Yakima River	Toxics	Under development	<u>Jane Creech</u> 509-454-7860

^{**} Status will be listed as one of the following: Approved by EPA, Under Development or Implementation. No status means project work has not yet started.

For more information about WRIA 39:

- Waterbodies in WRIA 39 using the Water Quality Assessment Query Tool
- Watershed Information for WRIA 39
- * The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

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APPENDIX F: KITTITAS COUNTY WETLAND BUFFER GUIDANCE

Chapter 17A.04

CRITICAL AREAS DESIGNATION AND DEVELOPMENT STANDARDS

Sections

17A.04.010 Wetlands.

17A.04.015 No net loss of wetland areas.

17A.04.020 Buffer width requirements.

17A.04.025 Wetland buffer ranges.

17A.04.030 Wetland buffer averaging.

17A.04.035 Natural condition of wetland buffer.

17A.04.040 Allowed uses.

17A.04.045 Building setback lines from wetland buffers.

17A.04.050 Wetland replacement ratios.

17A.04.010 Wetlands.

Wetlands in Kittitas County are defined in <u>Section 17A.02.310</u> and classified in four categories: Category I (extreme high value), Category II (high value), Category III (average value), Category IV (less than average value). Critical area wetlands in Kittitas County are defined as Category I, Category II, Category III and Category IV wetlands as determined by the planning manager.

Category IV wetlands may be determined by the director to constitute a critical area based upon application of the criteria in this chapter. (Ord. 95-15 (part), 1995; Ord. 94-22 (part), 1994).

17A.04.015 No net loss of wetland areas.

Kittitas County shall require, to the extent practical, and except for Category IV wetlands, a zero net loss of natural wetlands functions and values together with, if reasonably possible through voluntary agreements or government incentives, a gain of wetlands in the long term. (Ord. 94-22 (part), 1994).

17A.04.020 Buffer width requirements.

Wetland buffer requirements apply to all nonexempt activities on regulated wetlands. All wetland buffers shall be measured from the wetland boundary.

Category Size of Wetland

Required Buffer

I		any size	50 - 200 feet
II		over 2,000 sq. ft.	25 - 100 feet
III	I	over 10,000 sq. ft.	20 - 80 feet
IV	/*	43,560 sq. ft. (1 acre)	Building setbacks will be determined by the zoning lot line setbacks, but shall not exceed 25 feet.

^{*}Includes only nonirrigation induced or enhanced Category IV wetlands. Irrigation water does influence ground water table elevations in Kittitas County.

(Ord. 96-14 (part), 1996; Ord. 95-15 (part), 1995; Ord. 94-22 (part), 1994).

17A.04.025 Wetland buffer ranges.

The wetland buffer ranges have been established to reflect the impact of certain intense land uses on wetland function and values. The director shall base the buffer size on the following criteria and shall establish the least restrictive width of buffer necessary to account for all of the following considerations:

- 1. The overall intensity of the proposed use;
- 2. The presence of threatened, endangered, or sensitive species;
- 3. The site's susceptibility to severe erosion;
- 4. The use of a buffer enhancement plan by the applicant which uses native vegetation or other measures which will enhance the functions and values of the wetland or buffer. (Ord. 94-22 (part), 1994).

17A.04.030 Wetland buffer averaging.

Wetland buffers may be modified by averaging buffer widths. Wetland buffer width averaging shall be allowed only where the applicant demonstrates that the following exists:

- 1. That averaging is necessary to avoid an extraordinary hardship to the applicant caused by circumstances peculiar to the property;
- 2. That the wetland contains variations in sensitivity due to existing physical characteristics;
- 3. That the proposed use would be located adjacent to areas where buffer width is reduced, and that such land uses are low in impact;
- 4. That width averaging will not adversely impact wetland function and values. (Ord. 9422 (part), 1994).

17A.04.035 Natural condition of wetland buffer.

Natural condition of wetland buffer. Wetland buffer areas shall be retained in their natural condition or may be improved to enhance buffer functions and values. Where buffer disturbance has occurred during construction, revegetation with native vegetation may be required. The Kittitas County noxious weed ordinance shall be adhered to. (Ord. 94-22 (part), 1994).

17A.04.040 Allowed uses.

In addition to exempt activities otherwise identified herein, the following activities are allowed to occur on wetland and wetland buffer areas: nonmotorized outdoor recreational activities including hunting and fishing; educational activities; existing and ongoing agricultural activities, silviculture and mining; and maintenance of existing facilities, structures, ditches, roads, bridges and other utility systems. Up to two acres of Class IV wetlands may be filled, drained or modified with no approval required from the planning manager. If more than two acres of Class IV wetlands are filled, drained or modified, approval of the planning manager is required. Such development activity shall provide mitigation in accordance with Section 17A.04.050 for that portion of the wetland fill or modification that exceeds two acres. Category IV wetlands may be used for secondary stormwater management facilities having no reasonable alternative on-site location, provided there is no significant adverse impact to the functions and values of those wetlands. (Ord. 95-15 (part), 1995; Ord. 94-22 (part), 1994).

17A.04.045 Building setback lines from wetland buffers.

A building setback line equal to the side yard setback requirement of the applicable zoning district is required from the edge of any wetland buffer. Minor intrusions into the area of the building setback may be allowed if the director determines that such intrusions will not negatively impact the wetland. The setbacks shall be shown on all site plans submitted with the application. (Ord. 94-22 (part), 1994).

17A.04.050 Wetland replacement ratios.

Wetland replacement ratios are expressed in gross area required for replacement. The actual replacement, enhancement or rehabilitation of wetlands shall be determined by the director and meet all applicable standards for such. Replacement areas shall be determined according to function, acreage, type, location, time factors, ability to be self sustaining and projected success. Wetland functions and values shall be calculated using the Kittitas County critical areas policy document and the professional judgment of the director.

Category of Wetland Replacement Ratio

I 3:1 II 2:1 III 1.5:1

IV 1:1 for the portion of a wetland fill or modification

(Ord. 96-14 (part), 1996; Ord. 95-15 (part), 1995; Ord. 94-22 (part), 1994).