Wetland and Waterbody Delineation Report

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High Top Solar, LLC (NWS-2021-741)

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Acronyms and Abbreviations

Notation	Definition
APN	Assessor's Parcel Number
CAO	Critical Areas Ordinance
CCR	Cypress Creek Renewables, LLC
CWA	Clean Water Act
^{o}F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
PEM	Palustrine Emergent Wetland
Project	High Top Solar, LLC, Project
SDAM	Streamflow Duration Assessment Form
SR	State Route
TRC	TRC Environmental Corporation/TRC Companies, Inc.
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WETS	Wetlands (Tables)
YCC	Yakima County Code

1.0 Introduction

TRC Environmental Corporation (TRC) was contracted by Cypress Creek Renewables, LLC (CCR) to conduct a wetland and waterbody delineation for the proposed High Top Solar, LLC Project (Project) located in Yakima County, Washington.

The objective of the wetland and waterbody delineation survey was to identify the spatial extent and arrangement of wetlands, streams, and other aquatic resources within the Project. Aquatic resources that are considered Waters of the U.S. are subject to regulation under Section 404 of the Clean Water Act (CWA). The wetland and waterbody delineation surveys were completed within a smaller Project area by Joel Shaich (Senior Wetland Biologist) and Casey Anderson (Environmental Scientist) on December 4 and 5, 2018; and within the larger Project area by Jay Lorenz (Senior Scientist) and Nathalie Denis (Senior Biologist) on July 1, 2020, and by Erin Bergquist (Wetland Delineator/Botanist) and Laura Giese (Wetland Delineator/Botanist) in May 2021.

1.1 Project Location and Description

The Project is located approximately 20 miles east of the town of Moxee in the Moxee Valley in Yakima County, Washington approximately 4 miles from the Yakima County/Benton County line (Figure 1). The Project is located north of Washington State Route (SR) 24 and south of the Yakima Training Center in Sections 7, 8, and 17, Township 12 North, Range 23 East (Figure 2). The Survey Area for the wetland and waterbody delineation surveys encompasses 1,722 acres of private land that is currently used for livestock grazing. The Survey Area for the wetland and waterbody delineation surveys includes the following three Assessor's Parcel Numbers (APNs): 231207-11001 (562.7 acres), 231208-11001 (516.4 acres), and 231217-11001 (643.3 acres). BLM and state lands are located adjacent to the Survey Area.

The Project will utilize solar photovoltaic panels to generate 80 megawatts of solar energy to be delivered to the electric power grid. A battery energy storage system may be required for the Project. The battery energy storage system, if required, would consist of individual battery modules organized in racks and housed in containers or cabinets with integrated thermal management systems and controls. Surface disturbance will be contained within the proposed project fence line (Figure 2). The proposed project area within the fence line is 698 acres. The Project will interconnect through a line tap to PacifiCorp's Union Gap-Midway 230 kilovolt (kV) line that runs through the southern part of the Project. PacifiCorp's Union Gap-Midway 230kV line connects to PacifiCorp's Midway substation, which is approximately 10.5 miles east of the Project site and to PacifiCorp's Union Gap substation, which is approximately 25 miles west of the Project site. The life of the Project is anticipated to be 40 years.

1.2 Landscape Setting

The Project is located in the Columbia Plateau Ecoregion. The landscape in this ecoregion includes expansive sagebrush covering plains and valleys with isolated mountain ranges and river systems (USEPA 2010). The Project is located in the valley between Yakima Ridge and the Rattlesnake Hills (Figure 1). An unnamed ephemeral channel parallels SR 24 flowing southeast. Surface water flow in the area is from the Yakima Ridge located north of the Project to the unnamed ephemeral channel that parallels SR 24.

Sagebrush is minimal in the Survey Area, associated grasslands are heavily grazed, and much of the site has historically been plowed. The Survey Area is located on a south-facing slope of an anticline. Numerous ravines and gullies are located across the south facing slope of the Survey Area. The ravines found on higher and steeper portions of the anticline are reduced to channels and upland draws on lower slopes. Much of the alluvium at the toe of the slope may have originated from mass wasting events that historically created the ravines high on the slope (Foxworthy 1962). Soils are derived from deposition of material resulting from erosion of the nearby McCullough Range. The soils within the Survey Area are predominantly mixed alluviums ranging from gravelly sandy loam to stony sandy loam. Elevations within the Survey Area range from 1,480 to 2,060 feet at mean sea level.

The climate in the surrounding region consists of cool dry summers and mild, wet, and cloudy winters with the wettest months being December and January. Average temperature ranges from 36.4 degrees Fahrenheit (^{o}F) in January to 84.6 ^{o}F in July (WRCC 2016). Average Precipitation ranges from 0.25 inches in July to 1.01 inches in December (WRCC 2016). Annual average precipitation is 7.87 inches (WRCC 2016).

2.0 Regulatory Background

Wetlands and other Waters of the U.S. are protected under Section 404 of the CWA. Any activity that involves discharge of dredged or fill material into Waters of the U.S. is subject to regulation by the U.S. Army Corps of Engineers (USACE). Waters of the U.S. are defined to encompass navigable waterways; interstate waters; all other waters where their use, degradation, or destruction could affect interstate or foreign commerce; tributaries of any of these waters; and wetlands that meet any of these criteria or are adjacent to any of these waters or their tributaries. As of August 30, 2021, the 2015 Navigable Waters Protection Rule has been remanded. Per the USACE direction in an email from David Moore, USACE Biologist/Soil Scientist, Tuesday September 7, 2021, the 2008 Rapanos Waters of the U.S. guidance is being used to evaluate jurisdiction of wetlands and waterbodies.

Section 404 or Section 10 permits issued by the USACE under the authority of the CWA as well as all wetlands and waters identified as “waters of the State”, are subject to the Section 401 permitting program administered by the State of Washington. For discharges into waters of the state, a water quality certification is required. A separate application is required if there is no corresponding Section 404 permit.

The State of Washington have developed the Eastern Washington State Wetland Rating System to categorize wetlands “based on specific attributes such as rarity, sensitivity to disturbance, and the functions they provide.” The rating system is used to provide a basis for developing standards for protecting and managing the wetlands including buffer distances, permitted uses in the wetland, and the amount of mitigation needed to compensate for impacts to the wetland. Wetlands are grouped into four categories based on their rarity, functions, importance in maintaining biodiversity, sensitive to nearby disturbance and how easy they are to replace (Table 2-1).

The Eastern Washington State Wetland Rating System classifies wetlands based on their hydrologic and geomorphic conditions (e.g., Lake Fringe Wetlands, Slope Wetlands, Riverine Wetlands, Depressional Wetlands) and their Cowardin Classification (forested class, scrub-shrub class, emergent class, or aquatic bed class).

Table 2-1 State of Washington Wetland Categories

Wetland Category	Description	Examples
Category I	Unique or rare wetland type, are more sensitive to disturbance than most wetlands, are relatively undisturbed and contain ecological attributes that are impossible or too difficult to replace within a human lifetime and provide a high level of functions. Generally, these wetlands are not common and make up a small percentage of the wetlands within Yakima County	• Alkali wetlands, • Wetlands of high conservation value, • Bogs and calcareous fens, Mature and old-growth forested wetlands with native slow growing trees, Forested wetlands with stands of aspen, • A functions rating score of 22 points or more in the Eastern Washington Wetland Rating System
Category II	Wetlands that are difficult, though not impossible, to replace, and provide high levels of some functions. These wetlands occur more commonly than Category I wetlands, but still need a relatively high level of protection.	• Forested wetlands in the floodplains of rivers • Mature and old-growth forested wetlands with fast growing native trees, which include alders, cottonwoods, willows, quaking Aspen, or water birch • Vernal pools • A functions rating score between 19 to 21 points in the Eastern Washington Wetland Rating System
Category III	Wetlands that are with a moderate level of functions and can often be adequately replaced with a well-planned mitigation project	• Vernal pools • A functions rating score between 16 to 18 points in the Eastern Washington Wetland Rating System
Category IV	Wetlands that have the lowest level of functions are often heavily disturbed. These are wetlands that should be able to be replaced, and in some cases be improved	

Source: Eastern Washington State Wetland Rating System

The State of Washington 1990 State Growth Management Act defines critical areas as “(a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas. "Fish and wildlife habitat conservation areas" does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company” (RCW 36.70A.030). Per the Growth Management Act, each county designates critical areas and adopts development regulations conserving and protecting the designated critical areas.

Yakima County’s Critical Areas Ordinance (CAO) defines Hydrologically related Critical Area Features as (1) any floodway and floodplain identified as a special flood hazard area; (2) perennial and intermittent streams, excluding ephemeral streams, including the stream main channel and all secondary channels within the Ordinary High Water Mark (OHWM); (3) Naturally occurring ponds under twenty acres and their submerged aquatic beds; and man-made lakes and ponds created within a stream channel; (4) Wetlands; (5) flood-prone areas not included in

a designated floodway and floodplain, but indicated as flood-prone (i.e. specific flood frequency, stream channel migration), by information observable in the field such as soils or geological evidence, or by materials such as flood studies, topographic surveys, photographic evidence or other data; and (6) set distance vegetative buffers from wetland and waterbodies as defined in the Yakima County CAO (CAO 16C.06.03). Vegetative buffer distances are set by the type of wetland or waterbody as shown in Table 2-2.

Table 2-2. Yakima County Critical Area Ordinance Vegetative Buffer Distances

Wetland/Stream Type	Buffer Width
Type 1 Shoreline streams, lakes, and ponds [Note Type 1 waterbodies are regulated by the Shoreline Master Program (YCC Title 16C)]	100’
Type 2 Streams, lakes, and ponds	100’
Type 3 Streams (Perennial), lakes and ponds	50’
Type 4 Streams (Intermittent), lakes and ponds	25’
Type 5 Streams (Ephemeral)	No buffer standards. Activities such as clearing, grading, dumping, filling, or activities that restrict or block flow, redirect flow to a point other than the original exit point from the property or result in the potential to deliver sediment to a drainage way/channel, are regulated under clearing and grading regulations. These drainages may also be protected under geologically hazardous area, floodplain, stormwater, building and construction, or other development regulations.
Type 1 Wetlands[a]	200’
Type 2 Wetlands[a]	100’
Type 3 Wetlands[a]	75’
Type 4 Wetlands[a]	50’

Source: Yakima County CAO (CAO 16C.06.16).
[a] Wetland type corresponds to State of Washington Wetland Rating categories.
YCC=Yakima County Code

Wetlands are ranked by their functions, values, uniqueness, and ability to be replaced or replicated. The Eastern Washington Wetland Rating System described above is used to provide a point based ranking system to assist in determining each wetlands categorization.

As part of the Yakima County permitting process, Yakima County will analyze if a critical area is likely to be present and whether a development proposal would impact the critical area. The decision on impacts may result in the following: a decision of 1) no critical areas present; 2) critical areas present, but no impact; 3) critical areas may be affected by the proposal but would not require a more detailed critical area report; or 4) a more detailed critical area report is required.

3.0 Methods

3.1 Desktop Review

Prior to conducting the wetland delineation, TRC reviewed maps and data from the following sources:

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) digital wetland mapping (USFWS 2020),
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) digital waterway mapping (USGS 2020),
- U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) digital soil survey mapping (USDA NRCS 2020),
- USGS digital 7.5' quadrangle maps (USGS 1978, 1979), and
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels for Yakima County (FEMA 2020).

In addition, TRC reviewed precipitation data from approximately 90 days prior to the field investigation using data obtained from a nearby weather station (Yakima Airport). Antecedent precipitation data were compared with the 30-year average precipitation data from the same location to determine if hydrologic conditions at the time of the 2020 and 2021 surveys were normal, wetter, or drier than normal (NOAA 2020). Historic aerial imagery of the Survey Area, ranging from 1996-2020, was also reviewed for areas exhibiting visible wetness signatures (Google Earth Pro 1996, 2003, 2004, 2005, 2006, 2009, 2011, 2013, 2015, and 2017).

3.2 Field Survey Methods

Surveys were conducted on APNs 231207-31001, 231208-11001, and part of 231207-11001 by Joel Shaich (Senior Wetland Biologist) and Casey Anderson (Survey Technician/Environmental Scientist) on December 4 and 5, 2018. The survey area was expanded to include all three APNs in 2020. Surveys were conducted on the entirety of the three APN parcels by Jay Lorenz (Senior Scientist) and Nathalie Denis (Survey Technician/Senior Biologist) on July 1, 2020. Follow-up surveys to complete Streamflow Duration Assessment Forms (SDAMs) for each delineated waterbody per the USACE guidance were conducted in May 2021 by Erin Bergquist (Wetland Delineator/Botanist) and Laura Giese (Wetland Delineator/Botanist). Statements of qualifications for of each wetland delineator are provided below in Section 3.2.3.

3.2.1 Wetlands

The wetland delineation was conducted in accordance with the Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region Version 2.0 (USACE 2008), USACE Wetlands Delineation Manual Technical Report Y-87-1 (USACE 1987), and subsequent guidance documents (USACE 1991a,b; 1992).

On-site wetland determinations were made using the three-criteria (vegetation, soil, and hydrology) and technical approach defined in the Regional Supplement to the USACE Wetland Delineation Manual: Arid Region Version 2.0 (USACE 2008). According to procedures described therein areas that under normal circumstances reflect a predominance of hydrophytic

vegetation, hydric soils, and wetland hydrology (e.g., inundated or saturated soils) are considered wetlands. Wetland features were assigned a unique feature identification number with a “W” prefix. A Wetland Determination Data Form was completed for each wetland and its associated upland data point. Upland data points were assigned a unique feature ID number with a “U” prefix.

The geospatial boundary of each wetland was captured utilizing tablets paired with external Global Navigation Satellite System receiver with submeter accuracy (Juniper Geode SBAS <30cm with real-time correction).

The USACE criteria to identify jurisdictional determinations for wetlands includes its physical proximity to a jurisdictional stream or a significant nexus to a jurisdictional stream, which is either physical, biological, or chemical. Wetlands identified as having no downstream connection, are not in physical proximity to a stream, or do not appear to have a significant nexus with a stream are deemed non-jurisdictional. Aerial imagery was used to supplement field observations for the determination of downstream connectivity where land access was not available outside the Survey Area.

3.2.2 Waterbodies

Based on USACE guidance, and A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States (Lichvar and McColley 2008), delineated waterbodies were identified by the presence of bed and bank or other OHWM indicators. Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; disturbance to, or lack of, terrestrial vegetation; presence of litter and debris; and watermarks indicative of inundation during high water conditions. The OHWM typically represents the potential limits of USACE jurisdiction.

All waterbody features were assigned a unique feature ID number with a “S” prefix. Per the USACE guidance (D. Moore 2021, personal communication 7 April), a SDAM was completed for each delineated waterbody feature. Methodology for completing the SDAM forms followed the Streamflow Duration Assessment Method for the Pacific Northwest manual (Nadeau 2015).

For NWI/NHD stream features where OHWM indicators were absent, photo points and a representative photo was taken. These areas were classified as uplands.

The geospatial boundary of each waterbody was captured utilizing tablets paired with external Global Navigation Satellite System receiver with submeter accuracy (Juniper Geode SBAS <30cm with real-time correction).

The USACE criteria to identify jurisdictional determinations for waterbodies includes the continuous presence of OHWM indicators and downstream connectivity to jurisdictional waterbodies. Downstream connectivity for delineated waterbodies in the field was determined based on the continuous presence of an OHWM and connection to downstream waterbodies. Downstream connectivity was identified in the field to the boundary of the Survey Area. Outside the Survey Area where land access was not available, aerial imagery was used to supplement field observations in determining downstream connectivity. For delineated features that did not have continuous bed bank or continuous evidence of an OHWM were determined not to have downstream connectivity.

For features with periodic OHWM indicators but no downstream connectivity, the geospatial boundary of the waterbody was mapped where the OHWM indicators were present.

3.2.3 Statement of Qualifications

Erin Bergquist is a wetland delineator with 18 years of experience in Section 404 permitting, wetland delineations, biological field surveys, and database management. Erin has worked with the USACE Regulatory Offices throughout the Midwest and Western U.S. to acquire the necessary Section 404 permits including individual permits and Section 10 permits. She has conducted vegetation and wetland delineation field surveys throughout the Midwest and Western U.S.

Laura Giese, PWS, CF, CSE, is a Senior Field Biologist at TRC with over 26 years of professional experience working in natural resources throughout the East and Midwest. Dr. Giese's experience includes wetland delineation and functional analyses, threatened and endangered species habitat assessments and surveys, vegetation surveys, stream assessment and restoration, wetland mitigation monitoring, forest management, and biomonitoring. She has authored numerous wetland, botanical, and forestry technical reports, and natural resources impact analyses. Delineation and biological habitat assessment work has been conducted in WI, IL, MI, OH, MD, PA, NC, DC, MD, WV, FL, GA and OK.

Jay Lorenz, PhD has over 40 years of experience in consulting, Extension Service education, teaching, and research. He provides senior level biology/ecology leadership, strategic advising, and review to projects in multiple market segments: pipeline, renewable energy, communication towers, transportation, transmission, water, and mine closure. He has conducted hundreds of wetland delineations in Oregon and Washington and was a co-principal for conducting local wetland inventories for the Salem-Keizer, Oregon urban growth boundary (45,000 acres) and Warm Springs Indian Reservation (640,000 acres). He is a long-time member of the Society of Wetland Scientists.

Joel Shaich has over 15 years of experience and progressive responsibility in environmental and civil engineering consulting in the western United States. His qualifications include extensive hands-on planning, field investigation, design, permitting, and compliance monitoring. Mr. Shaich's background includes extensive service to public and private-sector clientele including railroads, utilities, energy companies, and transportation departments. Prior to his consulting career Mr. Shaich served as a wetland specialist for the USEPA and the Oregon Department of State Lands.

4.0 Results

Desktop and field survey results are presented in the following discussion. SDAM forms are included in Appendix A. Wetland delineation forms are included in Appendix B. Representative photographs are included in Appendix C.

4.1 Precipitation Data and Analysis

The National Oceanic and Atmospheric Administration (NOAA) Agricultural Applied Climate Information System was used to obtain historical and antecedent rainfall data for the NRCS Climate Analyst for Wetlands (WETS) Tables and NOAA Regional Climate Centers. Historical rainfall records from the Yakima Airport NRCS WETS weather station was used to determine

the normality of rainfall using Direct Antecedent Rainfall Evaluation Method (NOAA 2020). Precipitation data from the Yakima Airport weather station was used to determine the measured rainfall for the three months prior and during the delineations. Table 4-1 presents a rainfall summary for eastern Yakima County.

Based on review of antecedent precipitation and comparison with the previous average precipitation data for 2014 to 2020, conditions were determined to be average at the time of the 2018 and 2020 survey and to be drier during the 2021 survey (NOAA 2020). Drier than normal conditions could affect the features exhibiting wetland indicators (i.e., hydrophytic vegetation or hydric soils) that were identified within the Survey Area.

Table 4-1. Rainfall Summary for Yakima County, Washington

Prior Month		WETS Rainfall Percentile (in)		Evaluation Month: Varies			
		30th	70th	Measured Rainfall	Condition[a]	Month Weight[b]	Score[c]
Three months prior to December 2018 Survey Date							
1st	Nov	0.22	0.62	0.42	2	3	6
2nd	Oct	0.25	0.51	1.07	3	2	6
3rd	Sept	0.19	0.53	0.01	1	1	1
Sum						13	
Description [d]						Normal	
Three months prior to July 2020 Survey Date							
1st	June	0.22	0.62	0.24	2	3	6
2nd	May	0.25	0.51	0.88	3	2	6
3rd	Apr	0.19	0.53	0.07	1	1	1
Sum						13	
Description [d]						Normal	
Three months prior to May 2021 Survey Date							
1st	Nov	0.19	0.62	0.04	1	3	3
2nd	Oct	0.31	0.85	0.08	1	2	2
3rd	Sept	0.49	0.96	0.94	2	1	2
Sum						7	
Description [d]						Dryer than normal	

[a] Condition values are 1 for < 30th percentile, 2 for between 30th and 70th percentiles, and 3 for > 70th percentile.
[b] Month Weight is 3 for the most recent month, 2 for the prior month, and so on.
[c] Score is the product of the Condition and Month Weight values.
[d] Drier than normal (sum = 6-9), normal (sum = 10-14), wetter than normal (sum = 15-18).
Source: NOAA 2020.

4.2 Hydric Soils

Soils within the Survey Area were identified using the soil survey from the NRCS (USDA NRCS 2020). The National Technical Committee for Hydric Soils defines hydric soils as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." The major and minor components of a soil map unit are classified as to how likely they are to be hydric and are rated on a range from hydric to nonhydric.

There are 17 soil map units within the Survey Area (Table 4-2). Of these, one soil map unit (83, Moxee silt loam, 2 to 15 percent slopes) is classified as containing a hydric soils component (Figure 3). In total, approximately, 134.4 acres (8 percent) of the Survey Area are classified as containing a hydric soils component.

Table 4-2. Soils Map Units with the Survey Area

Map Unit Symbol	Map Unit Name	Hydric Soil	Acres	Percent of Project Area
3	Bakeoven very cobbly silt loam, 0 to 30 percent slopes	No	19	1
36	Finley cobbly fine sandy loam, 0 to 5 percent slopes	No	14	1
55	Harwood-Burke-Wiehl very stony silt loams, 15 to 30 percent slopes	No	23	1
65	Kiona stony silt loam, 15 to 45 percent slopes	No	188	11
68	Lickskillet very stony silt loam, 5 to 45 percent slopes	No	140	8
83	Moxee silt loam, 2 to 15 percent slopes	Yes	134	8
85	Moxee cobbly silt loam, 0 to 30 percent slopes	No	363	21
102	Ritzville silt loam, 15 to 30 percent slopes	No	24	1
104	Ritzville silt loam, basalt substratum, 0 to 5 percent slopes	No	41	2
105	Ritzville silt loam, basalt substratum, 5 to 15 percent slopes	No	99	6
130	Selah silt loam, 8 to 15 percent slopes	No	62	4
177	Warden silt loam, 2 to 5 percent slopes	No	8	1
187	Willis silt loam, 2 to 5 percent slopes	No	22	1
189	Willis silt loam, 8 to 15 percent slopes	No	583	34
144	Selah silt loam, 10 to 15 percent slopes	No	<1	<1
208	Kiona stony silt loam, 15 to 45 percent slopes	No	1	<1
209	Lickskillet very stony silt loam, 5 to 45 percent slopes	No	1	<1
		Total	1,722	100

4.3 Vegetation and Land Use

The Survey Area is currently active rangeland with cattle observed on-site during the three survey events. Historically, the majority of the Survey Area has been plowed for agriculture. Three vegetation communities were identified within the Survey Area: invaded grassland, shrub-steppe, and disturbed/reclaimed.

The invaded grassland vegetation community is located in areas that based on field conditions appear to have been previously agricultural fields. The ground surface is uneven and has the appearance of fallow fields that have been plowed. The soil is loose and appears to have little to no soil structure. These areas are predominantly flat with slopes of 1 to 5 percent. The dominant vegetation includes weedy invasive forb and grass species such as cheatgrass (*Bromus tectorum*), flixweed (*Descurainia sophia*), tumblemustard (*Sisymbrium altissimum*), and Russian thistle (*Salsola tragus*).

The shrub-steppe vegetation community is located in the northern portion of the Survey Area, outside the areas that have been historically plowed. These areas have higher cover of native grass, forb and shrub species including Indian ricegrass (*Oryzopsis hymenoides*), needle and thread (*Hesperostipa comata*), Sandberg bluegrass (*Poa secunda*), green rabbitbrush (*Chrysothamnus viscidiflorus*), big sagebrush (*Artemisia tridentata*), longleaf phlox (*Phlox longifolia*), Carey's balsamroot (*Balsamorrhiza careyana*), and slender hawksbeard (*Crepis atribarba*). This community is grazed and has a high cover of non-native invasive and weedy species including cheatgrass, blue mustard (*Chorispora tenella*), and bindweed (*Convolvulus arvensis*).

The disturbed/reclaimed vegetation community is located along the transmission line route and its associated access road. This area is dominated by non-native invasive species including crested wheatgrass (*Agropyron cristatum)*, cheatgrass, flixweed, and bulbous blue grass (*Poa bulbosa*). This area appears to have been reclaimed after installation of the transmission line.

4.4 Site Alterations

The Survey Area is crossed by various two-track dirt roads, trails created by cattle, and an existing high voltage transmission line right-of-way (Figure 2). In two locations in the Survey Area are groupings of abandoned equipment, vehicles, empty containers, and miscellaneous materials and trash. These locations are located in upland areas and are outside the Project fence line. In the southwest area of APN Grazing occurs in the Survey Area for part of the year. The majority of the site has been plowed historically.

4.5 Floodplains

Based on review of FEMA FIRM Panels 53077C1175D (effective November 18, 2009), the Survey Area is within Zone X (Areas of Minimal Flood Hazard). A Zone A (100-year flood zone) was identified south of the Survey Area parallel to Washington SR 24 (Figure 3).

4.6 Wetlands

No NWI-identified wetlands were identified in the Survey Area (Figure 3). Field surveys identified one seep wetland (W-01) in the northwest portion of the Survey Area (Figure 4). W-01 is characterized as a freshwater palustrine emergent wetland (PEM) dominated by reed canary

grass (*Phalaris arundinacea*), common reed (*Phragmites australis*), broadleaf cattail (*Typha latifolia*), and stinging nettle (*Urtica dioica*). The percent cover of bare ground is 40 percent. The wetland is located in an ephemeral channel (S-6). S-6 continues downstream to S-5. S-5 has been heavily manipulated at the Survey Area and does not have continuous bed and bank or channelization at this location. Table 4-3 includes acreages, downstream connectivity and state and county jurisdiction related to the wetland. Representative photos are in Appendix C and on Figure 4 (P-1 and P-2)

The hydrogeomorphic classification is slope wetland and its score in the Eastern Washington Wetland Rating System is 6 (out of a total possible score of 27). Based on its characteristics and the score in the Eastern Washington Rating System, the wetland is classified as a Type 4 under the Yakima County CAO and would require a 50-foot buffer.

Table 4-3. Delineated Wetland and Waterbodies and Recommended Respective Jurisdiction

Feature ID	Type	Acres	Downstream Connection	State and County Jurisdiction (Yakima County CAO)	Statutory Setbacks
W-01	PEM	0.2	No	Type 4 Wetland	50’

PEM = palustrine emergent wetland

4.7 Waterbodies

Based on the NWI, 18 riverine intermittent features are identified within the Survey Area (Figure 3) (USFWS 2020). The USGS NHD identified the same 18 features as intermittent flowlines (USGS 2020).

Based on field observations, of the 18 features identified by NWI/NHD, nine were identified as ephemeral channels within the Survey Area (Figure 4, Table 4-4). One roadside metal culvert (approximately 18 inches in diameter) was identified at the intersection of Washington SR 24 and Channel S-4 at the Survey Area boundary (Figure 4). Additional culverts under SR 24 are located outside of the Survey Area. Of the nine ephemeral channels with OHWM indicators, five had downstream connectivity to downstream jurisdictional waterbodies. The other nine NWI/NHD features did not have OHWM indicators and were observed to be uplands swales or flat upland areas. Photo points and representative photos (P-14 to P-19) for these areas are shown on Figure 4 and in Appendix C, respectively.

Lack of recent signs of scouring or erosion, and the lack of restrictive layers suggested that surface flow is rare in the Survey Area and most likely occurring following large precipitation events. The substrate in the delineated ephemeral channels was gravelly loam interspersed with cobbles. Upland vegetation was observed along the channels and in some areas was found in the channels. The ephemeral channels vary in width from 0.5 foot wide at their headwaters to 3 to 5 feet wide at the southern (downstream) end of the Survey Area. OHWM indicators include changes in vegetation, drainage patterns, and scour lines.

Large patches of dried “tumbleweed” species (include tumble mustard, kochia, knapweed, and Russian thistle) were found along and in deep piles in many of the channels limiting flow in those areas. The piles of tumbleweed varied in thickness from 0.5 foot to several feet deep in places and in width from 1 foot to over 10 feet wide. The tumbleweed was matted, and vegetation was not observed growing underneath. Where channels crossed barbed wire fences the tumbleweed was stacked up along the fence. The culverts were also filled with tumbleweed.

Tumbleweeds in the delineated ephemeral channels are shown in Photos P-6, P-8, P-9, P-11, and P-12.

The delineated ephemeral channels identified as having downstream connectivity in Table 4-4 (S-1, S-2, S-3, and S-4) flow south from the Survey Area, through culverts under SR 24, and into an ephemeral channel located south of the Survey Area that parallels SR 24. This unnamed channel is a 4th order tributary to the Columbia River via Dry Creek, Cold Creek, and the Yakima River.

The delineated ephemeral channels are rated Type 5 streams (Section 2.0, Table 2-2) by the Yakima County CAO. As noted in Table 2-2, Type 5 streams do not have a defined vegetation buffer but are regulated by other Yakima County development regulations for activities in the channel including clearing and grading regulations, geologically hazardous areas, floodplain, stormwater, building and construction, or other development regulations.

Table 4-4. Delineated Wetland and Waterbodies

Feature ID	Waterbody Name	Classification	Average Width OHWM (Feet)	Crossing Length Temp/Perm (Linear Feet)[a]	Downstream Connection [a]	Notes
S-1	Unnamed	Ephemeral	1	0/0	Yes	Channel starts in the Survey Area, along the transmission line road and flows generally southeast. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 10 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. Photo Point P-3.
S-2	Unnamed	Ephemeral	3	0/0	Yes	Channel starts north of the Survey Area and flows generally southeast. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 5 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. Photo Point P-4 and P-5.
S-3	Unnamed	Ephemeral	1.5	0/0	Yes	Tributary of S-2. Channel starts north of the Survey Area and flows southeast. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 4 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. Photo Point P-6.
S-4	Unnamed	Ephemeral	3	0/0	Yes	Channel flows into the Survey Area from the Northwest. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 2 percent. OHWM field indicators

Feature ID	Waterbody Name	Classification	Average Width OHWM (Feet)	Crossing Length Temp/Perm (Linear Feet)[a]	Downstream Connection [a]	Notes
						included changes in vegetation, drainage patterns, and scour lines Photo Point P-7 and P-8.
S-5	Unnamed	Ephemeral	1.5	0/0	No	Channel starts north of the Survey Area and flows generally south. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 3 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. At the boundary of the Survey Area, the area has been modified, various ditches and low areas dug out, and the channel disappears for large sections becoming upland in those areas. There is no continuous flow past this point. Photo Point P-9.
S-6	Unnamed	Ephemeral	1.5	0/0	No	Channel starts north of the Survey Area and flows generally southeast into S-5. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 2 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. Photo Point P-10.
S-7	Unnamed	Ephemeral	1.25	0/0	No	Channel starts west of the Survey Area and flows generally east into S-5. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 5 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. Photo Point P-11.

Feature ID	Waterbody Name	Classification	Average Width OHWM (Feet)	Crossing Length Temp/Perm (Linear Feet)[a]	Downstream Connection [a]	Notes
S-8	Unnamed	Ephemeral	0.5	0/0	No	Channel starts in the Survey Area and flows southeast into S-7. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 8 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. Photo Point P-12.
S-9	Unnamed	Ephemeral	0.5	0/0	No	Channel starts in the north of the Survey Area and flows generally south into S-7. No riparian or submerged aquatic vegetation was observed. There were no observed macroinvertebrates. The slope was 6 percent. OHWM field indicators included changes in vegetation, drainage patterns, and scour lines. Photo Point P-13.

[a] The USACE has the final authority on the jurisdictional status and connectivity of a wetland or waterbody.

5.0 Conclusions and Recommendations

Surveys were conducted December 4 and 5, 2018, July 1, 2020, and May 2021 in the proposed High Top Solar Project Survey Area. Based on field observations, one wetland and nine ephemeral channels were identified within the Survey Area. Based on the 2008 Rapanos Guidance, four ephemeral channels have a downstream connection and would be considered jurisdictional. One culvert was identified at the intersection of Washington SR 24 and Channel S-4 in the Survey Area and additional culverts under SR 24 are located outside of the Survey Area.

Based on the Project footprint, no Project-related impacts are proposed to occur in the delineated ephemeral channels or wetland. Based on a review of desktop resources and on-site determination and the proposed Project footprint, TRC concludes that no jurisdictional aquatic resources will be impacted as a result of Project implementation, and therefore, the Project is not anticipated to be subject to regulation pursuant to Section 404 of the CWA. Likewise, Water Quality Certification in accordance with Section 401 of the CWA also is not expected to be required for the Project.

However, the ultimate authority to determine federal wetland and waterway boundaries and jurisdiction rests with the USACE. Decisions made by USACE may result in modifications to the conclusions stated in this report. The delineated ephemeral channels are rated Type 5 streams. Type 5 streams do not have a defined vegetation buffer but are regulated by other Yakima County development regulations for activities in the channel including clearing and grading regulations, geologically hazardous areas, floodplain, stormwater, building and construction, or other development regulations.

6.0 References

David E. Pater (Dynamac Corporation), Sandra A. Bryce (Dynamac Corporation), Thor D. Thorson (NRCS), Jimmy Kagan (Oregon Natural Heritage Program), Chris Chappell (Washington DNR), James M. Omernik (USEPA), Sandra H. Azevedo (OAO Corporation), and Alan J. Woods (Dynamac Corporation). (n.d.). Ecoregions of Washington (color poster with map, descriptive text, summary tables, and photographs): U.S. Geological Survey (map scale 1:1,200,000).

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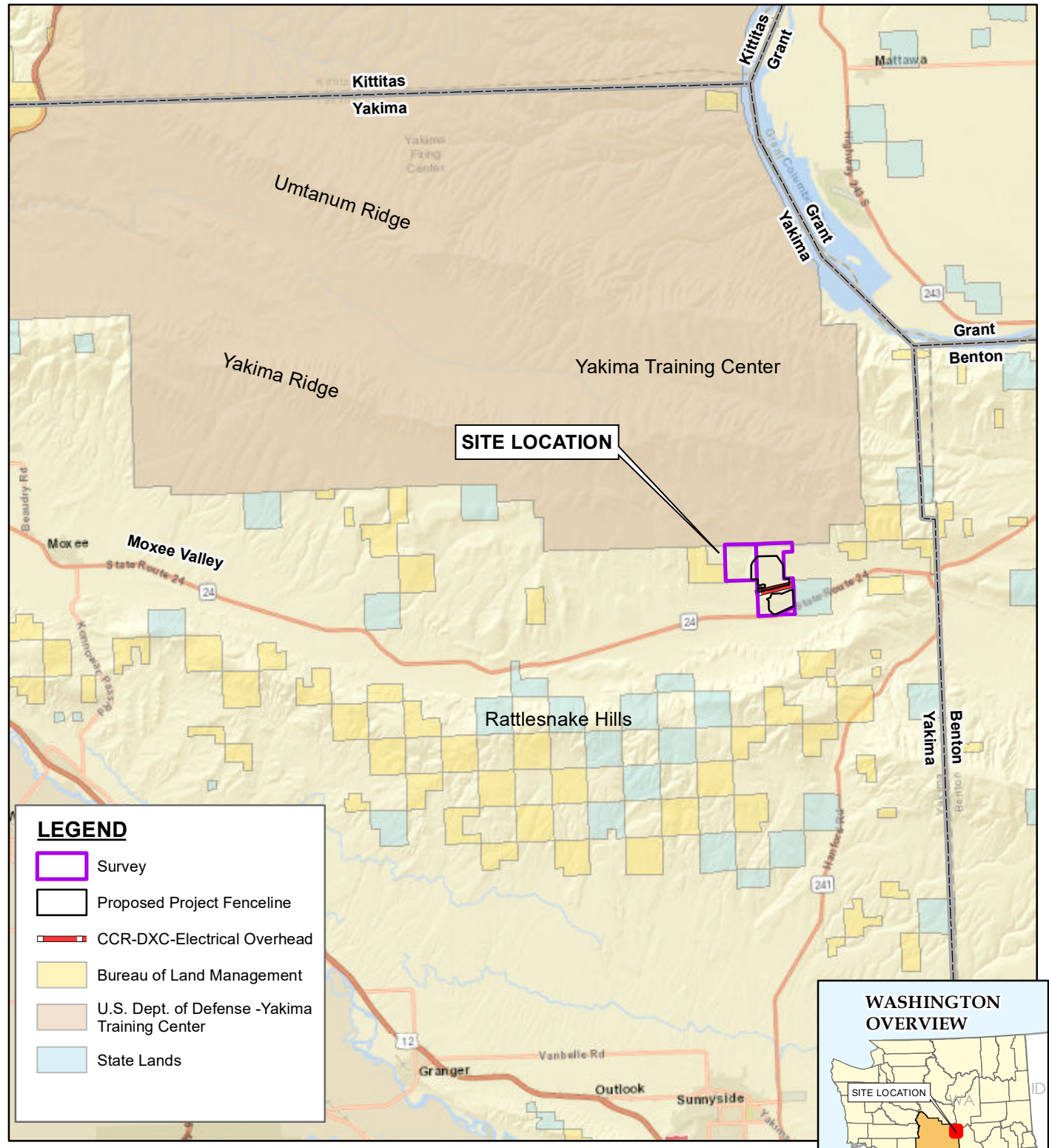
Figures



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Issaquah, WA 98027
425-395-0010
www.trccompanies.com
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PROJECT:

CYPRESS CREEK RENEWABLES, LLC
HIGH TOP SOLAR, LLC
YAKIMA COUNTY, WASHINGTON

TITLE:

PROJECT OVERVIEW

DRAWN BY:	R. BLAKE
CHECKED BY:	
APPROVED BY:	
DATE:	OCTOBER 2021
PROJ. NO.:	422984
FILE	Fig1_WDR High Top_SLM_8x11_03292021.mxd

FIGURE 1

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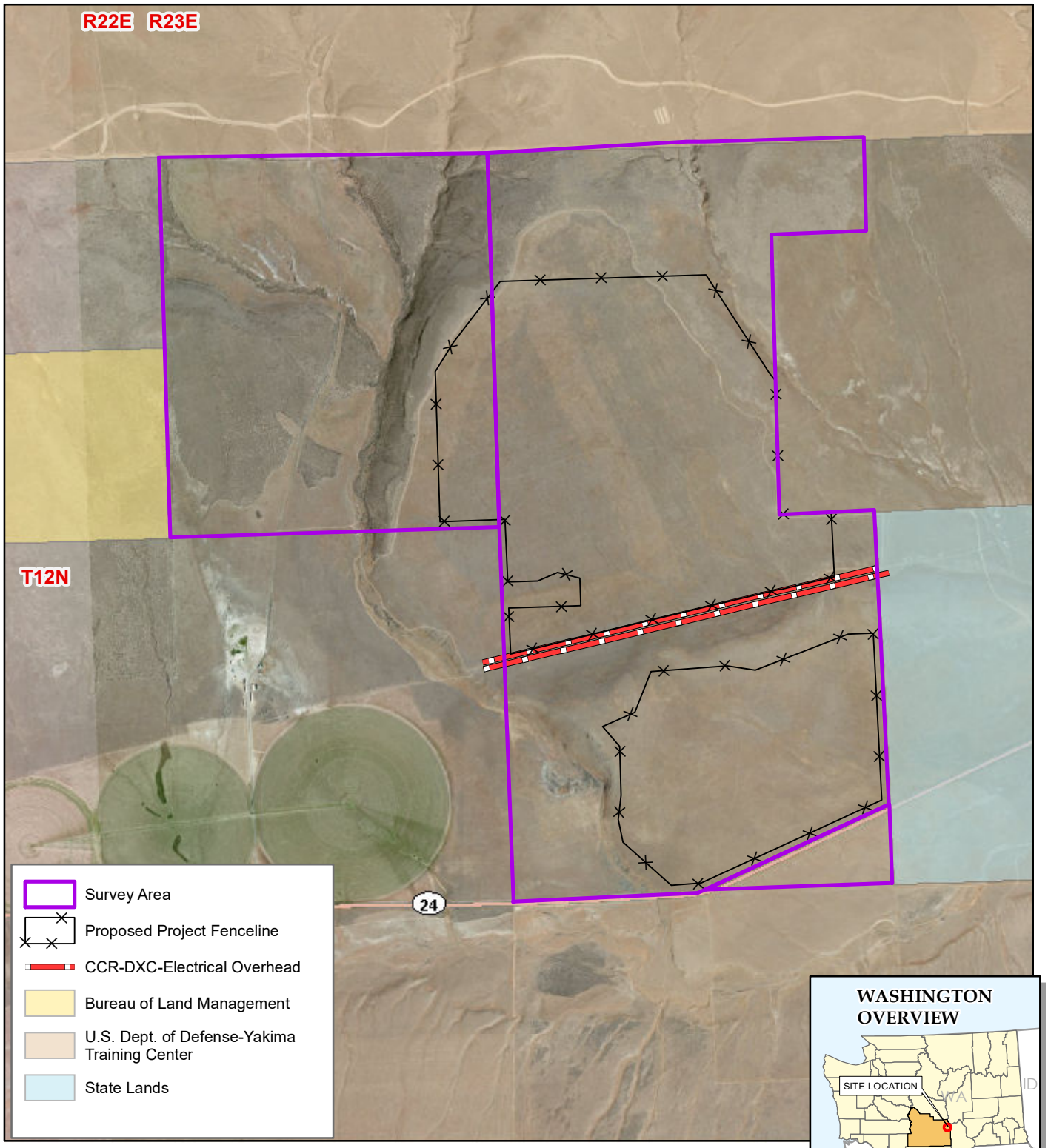

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PROJECT:

CYPRESS CREEK RENEWABLES, LLC
HIGH TOP SOLAR, LLC
YAKIMA COUNTY, WASHINGTON

TITLE:

SURVEY AREA

DRAWN BY:	R. BLAKE
CHECKED BY:	
APPROVED BY:	
DATE:	OCTOBER 2021
PROJ. NO.:	422984
FILE:	Fig2_WDR High Top_SLM_TOPO_NEPA_8x11 03292021.mxd

FIGURE 2

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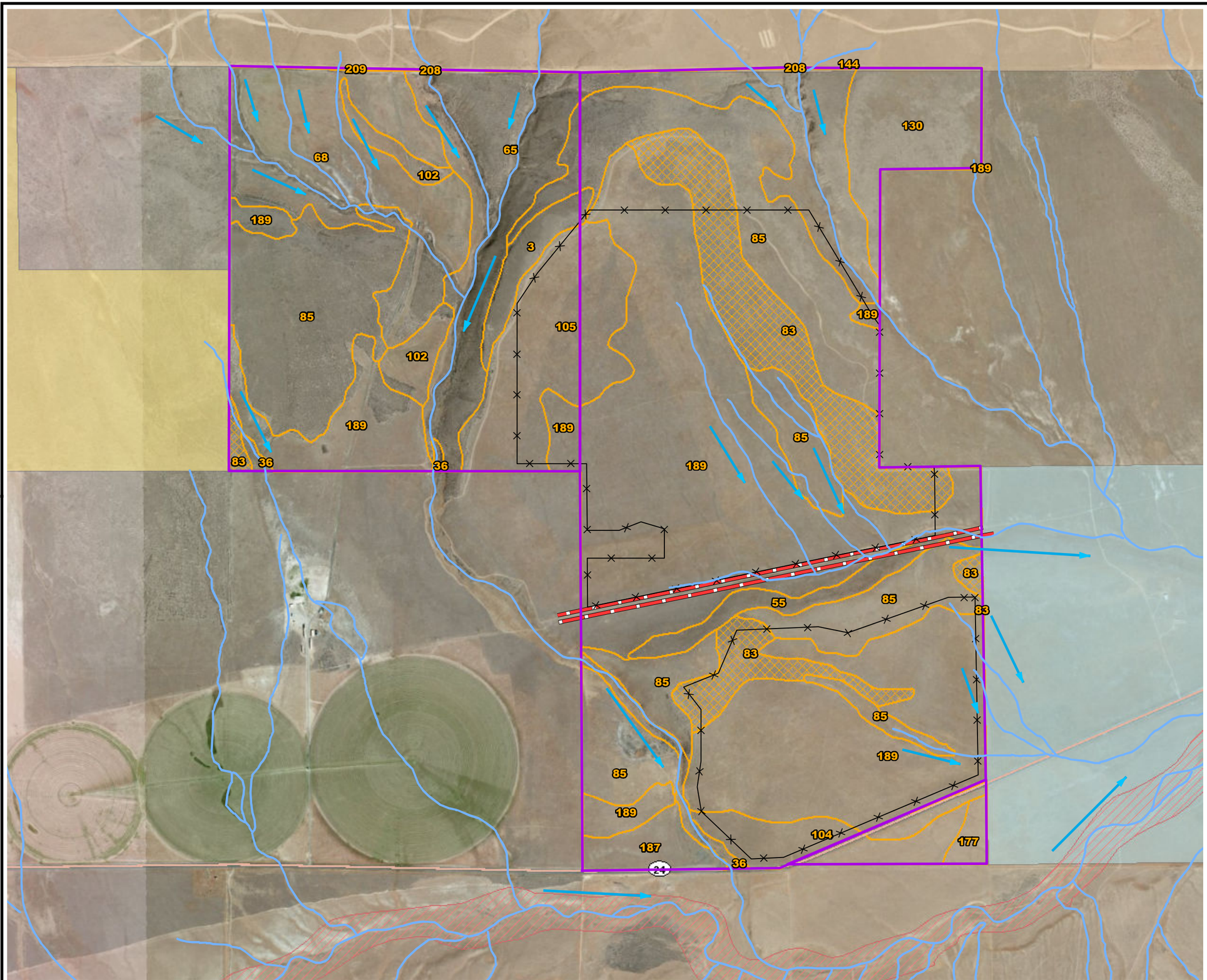

LEGEND

- Survey Area
- Proposed Project Fenceline
- CCR-DXC-Electrical Overhead
- NWI Wetland/NHD Flowline [5]
- FEMA 100-Year Flood Zone
- USDA-NRCS Web Soil Survey Soils
- Hydric Soils
- Bureau of Land Management
- U.S. Dept. of Defense-Yakima Training Center
- State Lands
- Flow Direction
- 85 Soil Map Unit No

NOTES

1. BASE MAP IMAGERY FROM ESRI/MAXAR 2019.
2. NWI DATA ACQUIRED FROM USFW WETLANDS MAPPER.
3. NHD FLOW LINE ACQUIRED FROM USGS.GOV.
4. SOILS DATA ACQUIRED FROM USDA/NRCS SSURGO SOILS DATABASE.
5. NWI WETLAND AND NHD FLOWLINE LAYERS COVER THE SAME FOOTPRINT IN THE STUDY AREA.
6. NO NHD WATERBODY IN MAP EXTENT.
7. FLOODPLAIN DATA FROM FEMA.

0 1,000 2,000 Feet

1 " = 1,250 '
1:15,000

PROJECT:
CYPRESS CREEK RENEWABLES, LLC
HIGH TOP SOLAR, LLC
YAKIMA COUNTY, WASHINGTON

TITLE:
HYDRIC SOILS, NWI/NHD DATA, AND FEMA FLOODPLAIN

DRAWN BY:	R. BLAKE	PROJ. NO.:	422984
CHECKED BY:			
APPROVED BY:			**FIGURE 3**
DATE:	OCTOBER 2021		

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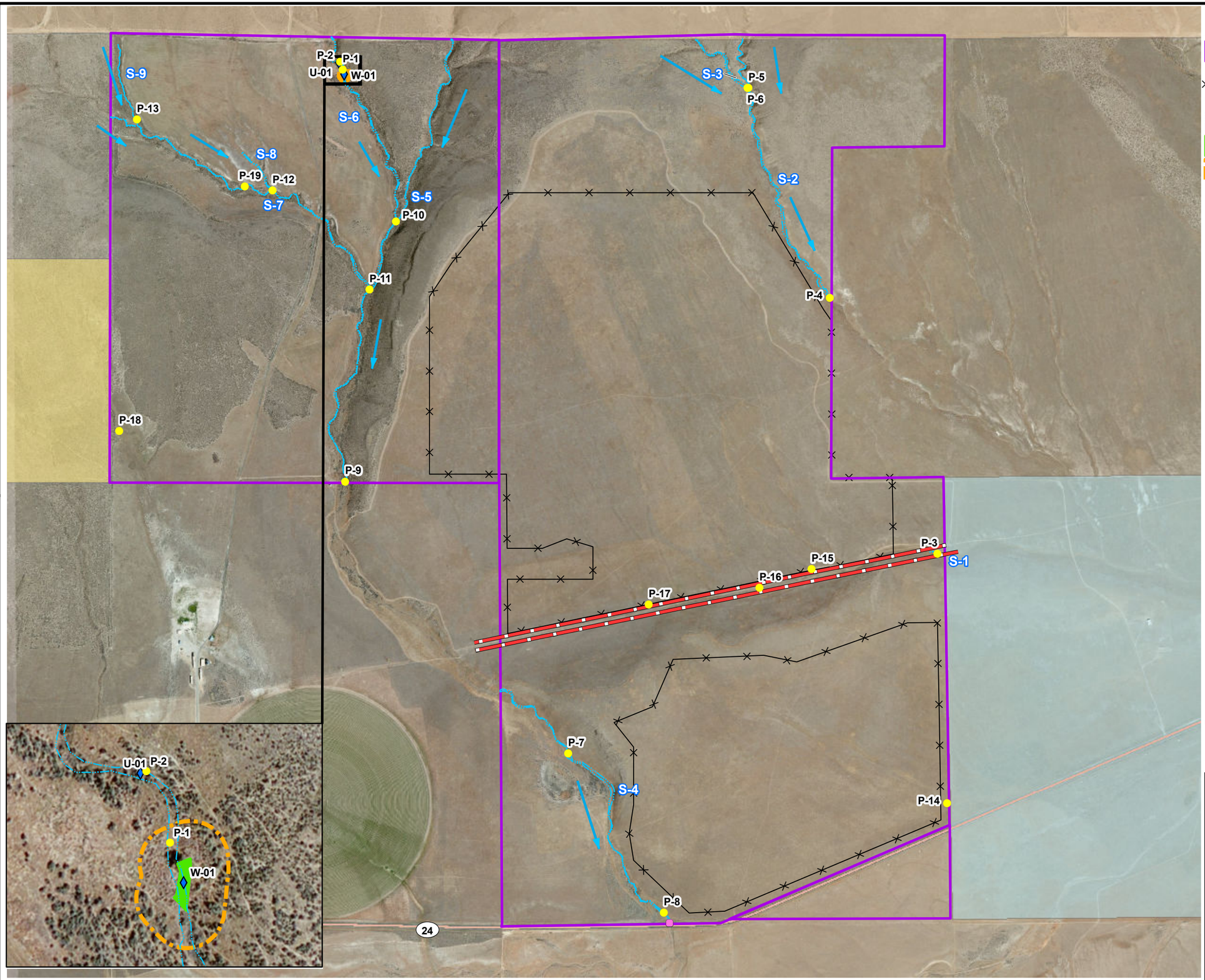
Map Rotation: 0
TRC - GIS



LEGEND

- Survey Area
- Proposed Project Fenceline
- CCR-DXC-Electrical Overhead
- Surveyed Stream
- Delineated Wetland
- Wetland 50ft Buffer
- Soil Pit
- Photo Point
- Culvert
- Bureau of Land Management
- U.S. Dept. of Defense-Yakima Training Center
- State Lands
- Flow Direction

NOTES

1. BASE MAP IMAGERY FROM ESRI/MAXAR 2019.
2. P - PHOTOGRAPH POINT
3. S – STREAM
4. W – WETLAND
5. U - UPLAND

PRIVILEGED AND CONFIDENTIAL

0 1,000 2,000 Feet

1 " = 1,125 '

1:13,500

PROJECT:

CYPRESS CREEK RENEWABLES, LLC
HIGH TOP SOLAR, LLC
YAKIMA COUNTY, WASHINGTON

TITLE:

SURVEY RESULTS

DRAWN BY:	R. BLAKE	PROJ. NO.:	422984
CHECKED BY:	FILE→MDP: CREDITS		
APPROVED BY:	FILE→MDP: TAGS		
DATE:	OCTOBER 2021		

FIGURE 4

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Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet (Foot US)
Map Rotation: 0

TRC - GIS

Appendix A. SDAM Forms

Streamflow Duration Field Assessment Form

Project # / Name	High Top Solar	Assessor	EB
Address	See Figure 4	Date	5/6/2021
Waterway Name	S-1	Coordinates at downstream end (ddd.mm.ss)	Lat. 46º31'53.54" N
Reach Boundaries	See Figure 4		Long. 119º57'30.63" W
Precipitation w/in 48 hours (cm)	0	Channel Width (m)	1
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

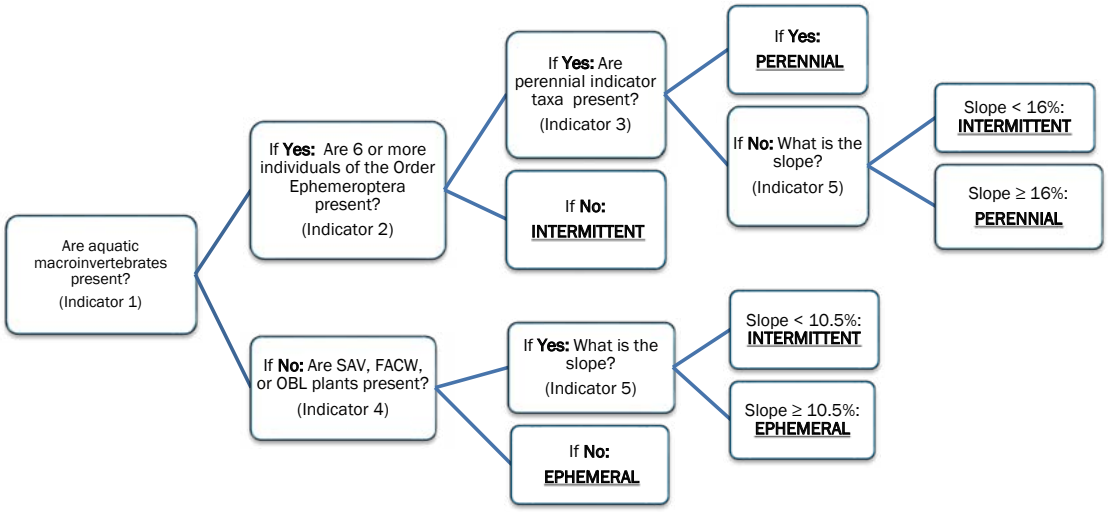
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__10__ %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☒ Natural or Anthropogenic Disturbance Channel is located parallel to a two track road and transmission line. Russian thistle and other under dried vegetation block the channel at the fenceline of the Project Area.

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from start of stream 270 feet upstream to fence at Project Area boundary.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name	High Top Solar	Assessor	EB
Address	See Figure 4	Date	5/7/2021
Waterway Name	S-2	Coordinates at downstream end (ddd.mm.ss)	Lat. 46º32'23.69" N
Reach Boundaries	See Figure 4		Long. 119º57'50.4" W
Precipitation w/in 48 hours (cm)	0	Channel Width (m)	1.5
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

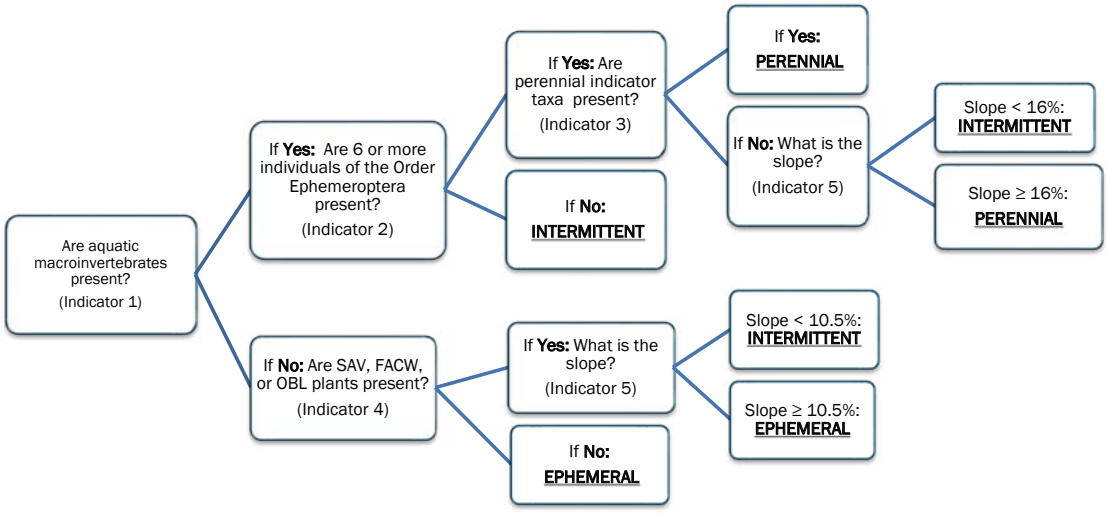
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__5_ %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☒ Natural or Anthropogenic Disturbance Russian thistle and other under dried vegetation is found in the bulk of the channel and block the channel at the fenceline of the Project Area boundary.

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from 150 feet upstream from fence at Project Area boundary.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name	High Top Solar	Assessor	EB
Address	See Figure 4	Date	5/7/2021
Waterway Name	S-3	Coordinates at downstream end (ddd.mm.ss)	Lat. 46°32'48.79" N
Reach Boundaries	See Figure 4		Long. 119°58'4.12" W
Precipitation w/in 48 hours (cm)	0	Channel Width (m)	0.25
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

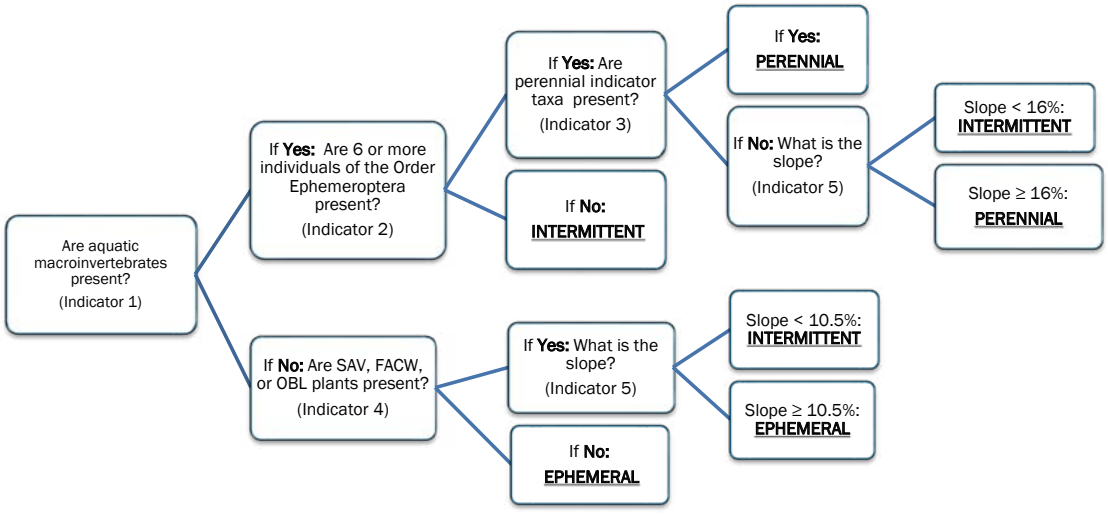
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__4 %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from confluence 100 feet upstream.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name High Top Solar		Assessor EB	
Address See Figure 4			Date5/9/2021
Waterway Name S-4		Coordinates at downstream end (ddd.mm.ss)	Lat. 46°31'11.08" N
Reach Boundaries See Figure 4			Long. 119°58'18.71" W
Precipitation w/in 48 hours (cm) 0	Channel Width (m) 1.5	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

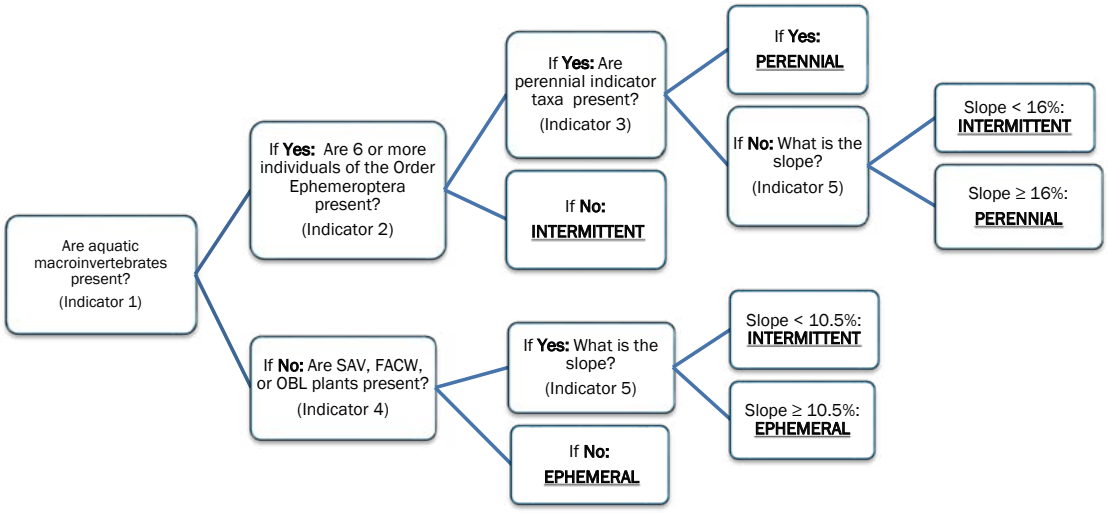
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__2 %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

Russian thistle and other under dried vegetation is found in the bulk of the channel

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from confluence 100 feet upstream.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name	High Top Solar	Assessor	EB
Address	See Figure 4	Date	5/8/2021
Waterway Name	S-5	Coordinates at downstream end (ddd.mm.ss)	Lat. 46°32'2.76" N
Reach Boundaries	See Figure 4		Long. 119°59'13.09" W
Precipitation w/in 48 hours (cm)	0	Channel Width (m)	0.5
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

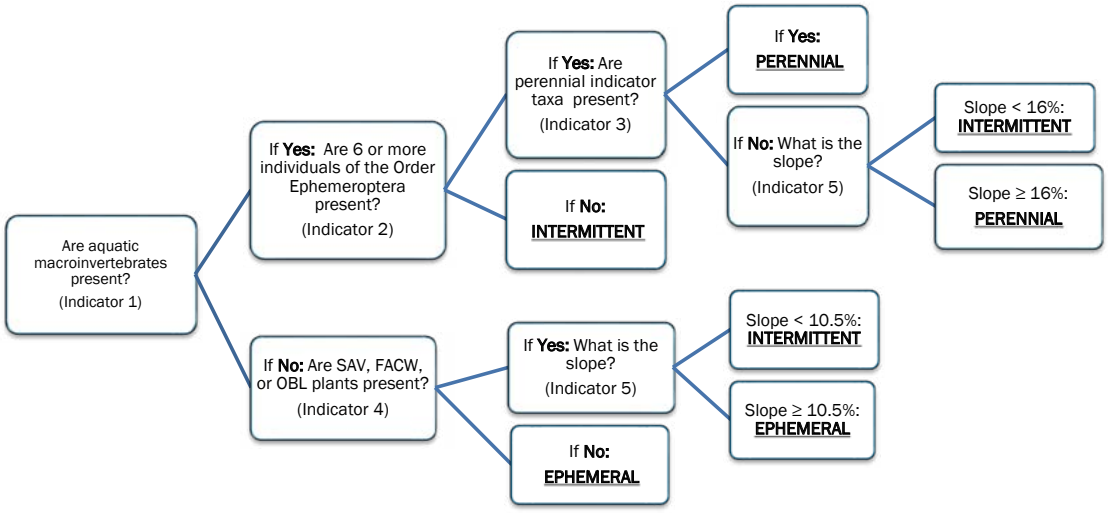
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__3 %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

Russian thistle and other under dried vegetation is found in the bulk of the channel. The channel path has been altered, has multiple discontinous channels, and several broken cement barriers

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from minor conflucence 100 feet upstream.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name High Top Solar		Assessor EB	
Address See Figure 4			Date5/6/2021
Waterway Name S-6		Coordinates at downstream end (ddd.mm.ss)	Lat. 46°32'33.31" N
Reach Boundaries See Figure 4			Long. 119°59'3.96" W
Precipitation w/in 48 hours (cm) 0	Channel Width (m) 0.5	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

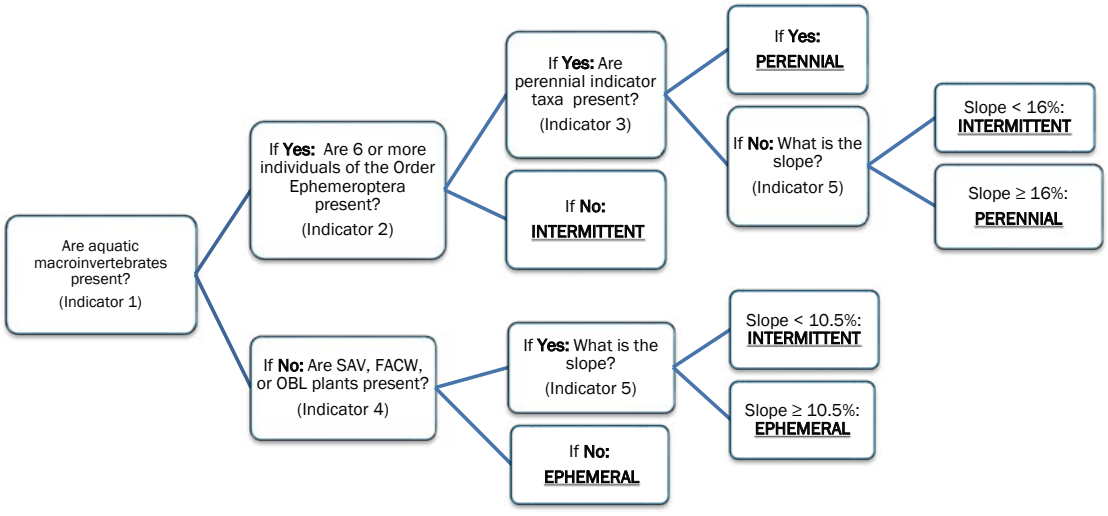
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__2%	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from 20 feet upslope of confluence to 100 feet upslope.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name High Top Solar		Assessor EB	
Address See Figure 4			Date5/6/2021
Waterway Name S-7		Coordinates at downstream end (ddd.mm.ss)	Lat. 46°32'25.26" N
Reach Boundaries See Figure 4			Long. 119°59'8.74" W
Precipitation w/in 48 hours (cm) 0	Channel Width (m) 1.5	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

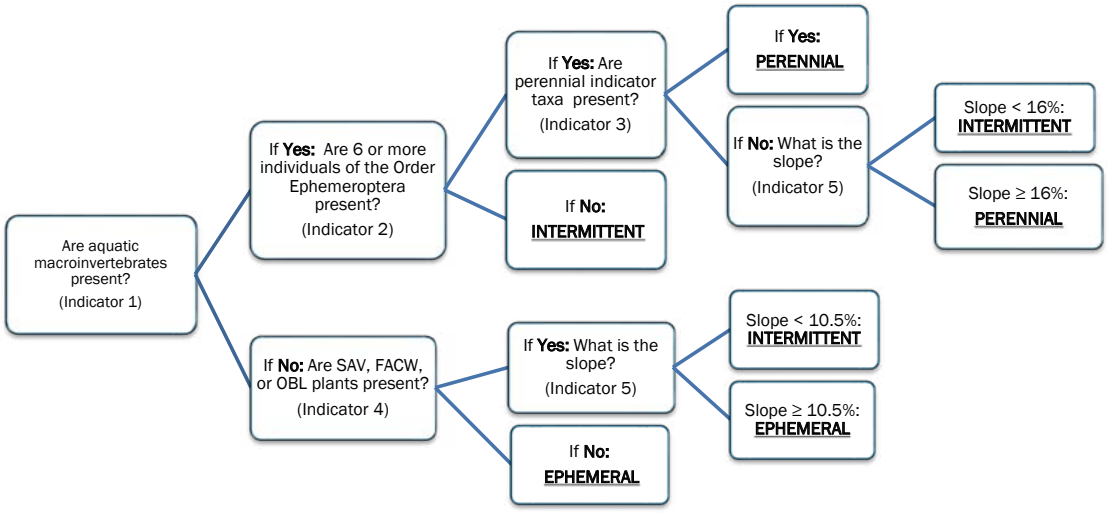
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__5%	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance Russian thistle and other under dried vegetation is found in the bulk of the channel.

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from confluence downstream to road crossing.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name High Top Solar		Assessor EB	
Address See Figure 4			Date5/6/2021
Waterway Name S-8		Coordinates at downstream end (ddd.mm.ss)	Lat. 46°32'36.83" N
Reach Boundaries See Figure 4			Long. 119°59'25.27" W
Precipitation w/in 48 hours (cm) 0	Channel Width (m) 0.5	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

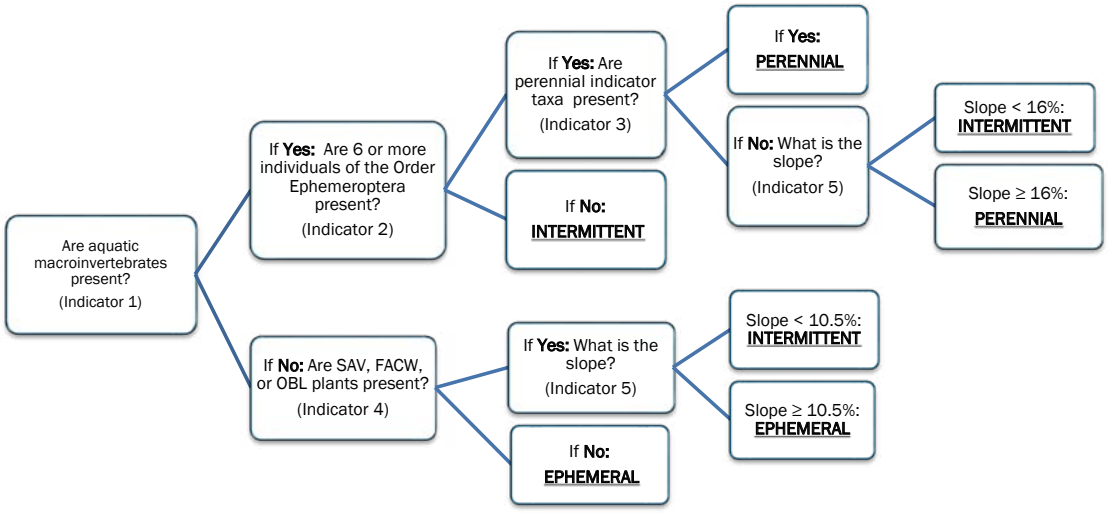
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__8%	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance Russian thistle and other under dried vegetation is found in the bulk of the channel.

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from confluence downstream to project boundary.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name High Top Solar		Assessor EB	
Address See Figure 4			Date5/13/2021
Waterway Name S-9		Coordinates at downstream end (ddd.mm.ss)	Lat. 46°32'44.67" N
Reach Boundaries See Figure 4			Long. 119°59'48.04" W
Precipitation w/in 48 hours (cm) 0	Channel Width (m) 0.3	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow_0_____

% of reach w/any flow (surface or hyporheic) __0___

# of pools observed__0_____

Observations

Observed Wetland Plants (and indicator status):

None

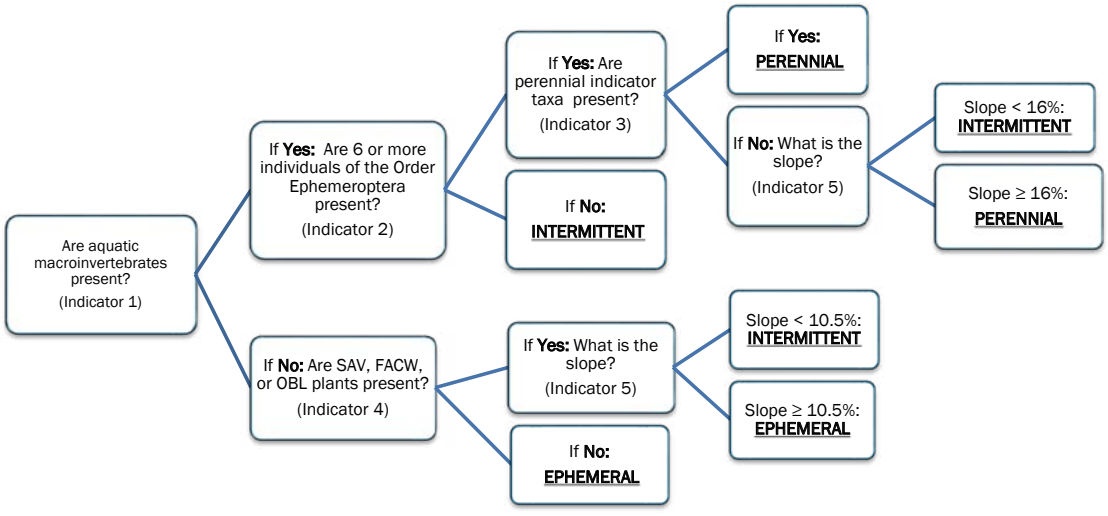
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	__6%	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Figure 4, Attachment C Photo Log. Reach is from confluence downstream to project boundary.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Appendix B. Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: High Top **City/County:** Yakima, Yakima **Sampling Date:** 2020-07-01
Applicant/Owner: CCR **State:** WA **Sampling Point:** W-01
Investigator(s): Nathalie Denis, Jay Lorenz **Section, Township, Range:** Sec 7 T12N R23E
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** Hillside seepage **Slope (%):** 5 to 10
Subregion (LRR): LRR C **Lat:** 46.5473735 **Long:** -119.9868921 **Datum:** WGS84
Soil Map Unit Name: Kiona stony silt loam, 15 to 45 percent slopes **NWI classification:** None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Covertype is PEM. part of area was excavated in the past.

VEGETATION -- Use scientific names of plants.

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

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

Herb Stratum (Plot size: 5 feet)			
1. *Phalaris arundinacea*	5	Yes	FACW
2. *Phragmites australis*	5	Yes	FACW
3. *Typha latifolia*	5	Yes	OBL
4. *Urtica dioica*	5	Yes	FAC
5. *Setaria parviflora*	2	No	FAC
6. *Veronica beccabunga*	1	No	OBL
7. *Rorippa columbiae*	1	No	OBL
8. *Rumex crispus*	1	No	FAC
	25	= Total Cover	

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

% Bare Ground in Herb Stratum 40 **% Cover of Biotic Crust** ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	7	x 1 =	7
FACW species	10	x 2 =	20
FAC species	8	x 3 =	24
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	25	(A)	51 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤ 3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

Sampling Point: W-01

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	5Y 3/1		5Y 3/1				Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR C)**
- ____ 1 cm Muck (A9) **(LRR D)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- __✓__ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Bedrock

Depth (inches): 3

Hydric Soil Present? Yes __✓__ No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) **(Nonriverine)**
- ____ Sediment Deposits (B2) **(Nonriverine)**
- ____ Drift Deposits (B3) **(Nonriverine)**
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No __✓__ Depth (inches): ____

Water Table Present? Yes ____ No __✓__ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No __✓__ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No __✓__

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

moist soil but no water present

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: High Top **City/County:** Yakima, Yakima **Sampling Date:** 2020-07-01
Applicant/Owner: CCR **State:** WA **Sampling Point:** U-01
Investigator(s): Nathalie Denis, Jay Lorenz **Section, Township, Range:** Sec 7 T12N R23E
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** Concave **Slope (%):** 2 to 5
Subregion (LRR): LRR C **Lat:** 46.5477705 **Long:** -119.9871155 **Datum:** WGS84
Soil Map Unit Name: Kiona stony silt loam, 15 to 45 percent slopes **NWI classification:** Herbaceous Upland
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. South of area was excavated in the past.

VEGETATION -- Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)			
1. *Artemisia ludoviciana*	1	No	FACU
2.			
3.			
4.			
5.			
	1	= Total Cover	

Herb Stratum (Plot size: 5 feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	

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

% Bare Ground in Herb Stratum 99 **% Cover of Biotic Crust** ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **0** (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤ 3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

Sampling Point: U-01

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 12	10YR 3/4						Gravelly Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) **(LRR C)**
- ____ 1 cm Muck (A9) **(LRR D)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes ____ No ___ ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) **(Nonriverine)**
- ____ Sediment Deposits (B2) **(Nonriverine)**
- ____ Drift Deposits (B3) **(Nonriverine)**
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

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

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

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

No positive indication of wetland hydrology was observed.

Appendix C. Representative Photographs

Appendix C
Representative Photographs

Photo ID: P-1 Date Taken: 7/1/20 Photo Direction: Southeast Description: Wetland W-01 wetland soil pit	
Photo ID: P-2 Date Taken: 7/1/20 Photo Direction: North Description: Wetland W-01 upland soil pit (U-01).	

Appendix C
Representative Photographs

Photo ID: P-3 Date Taken: 7/1/20 Photo Direction: West Description: Channel S-1, looking upstream	
Photo ID: P-4 Date Taken: 5/7/2021 Photo Direction: North Description: Channel S-2, looking upstream. Dried tumbleweeds are found along portions of the channel.	

Appendix C
Representative Photographs

Photo ID: P-5 Date Taken: 5/7/2021 Photo Direction: North Description: Channel S-2, looking upstream	
Photo ID: P-6 Date Taken: 5/7/2021 Photo Direction: Northwest Description: Channel S-3, looking upstream. Dried tumbleweeds are found along portions of the channel.	

Appendix C
Representative Photographs

Photo ID: P-7 Date Taken: 7/2/2021 Photo Direction: Northwest Description: Channel S-4, looking upstream.	
Photo ID: P-8 Date Taken: 5/9/2021 Photo Direction: Northwest Description: Channel S-4, looking upstream. Dried tumbleweeds are found along portions of the channel.	

Appendix C
Representative Photographs

Photo ID: P-9 Date Taken: 5/8/2021 Photo Direction: North Description: Channel S-5, looking upstream. Dried tumbleweeds are found along portions of the channel.	
Photo ID: P-10 Date Taken: 5/6/2021 Photo Direction: North Description: Channel S-6, looking upstream	

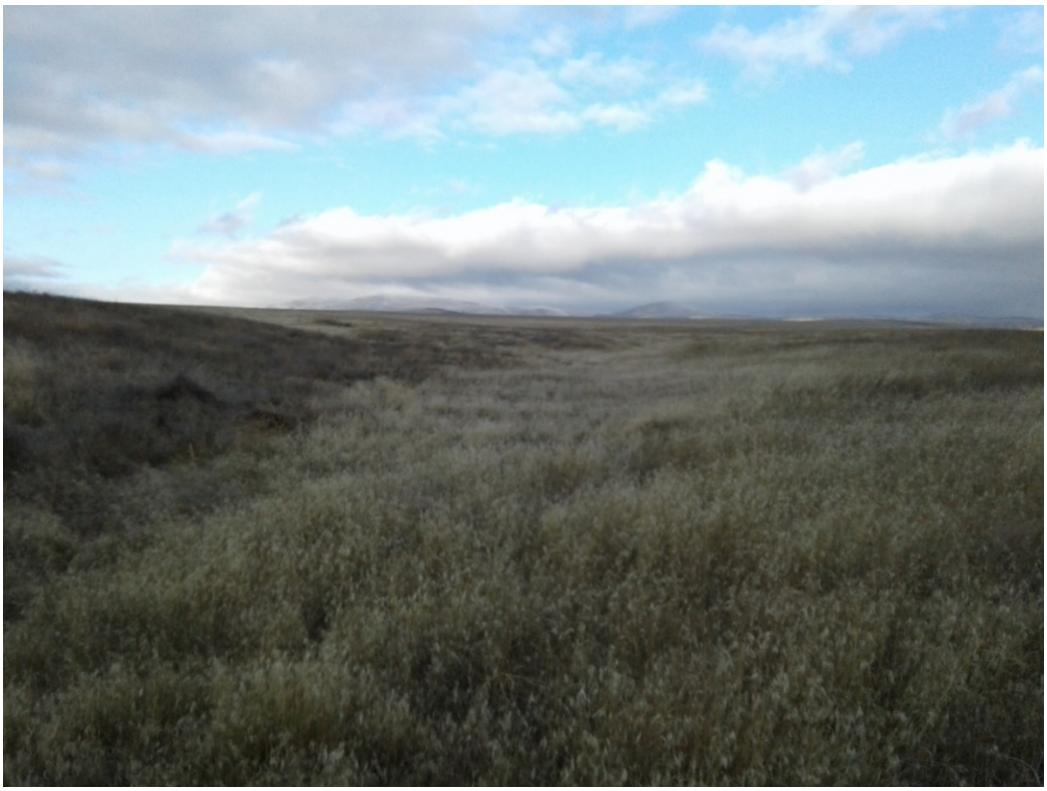
Appendix C
Representative Photographs

Photo ID: P-11 Date Taken: 5/6/2021 Photo Direction: West Description: Channel S-7, looking upstream. Dried tumbleweeds are found along portions of the channel.	
Photo ID: P-12 Date Taken: 7/11/2021 Photo Direction: North Description: Channel S-8, looking upstream. Dried tumbleweeds are found along portions of the channel.	

Appendix C
Representative Photographs

Photo ID: P-13 Date Taken: 7/11/2021 Photo Direction: North Description: Channel S-9, looking upstream	
Photo ID: P-14 Date Taken: 7/1/2021 Photo Direction: North Description: NWI/NHD feature. No OHWM indicators observed in the field.	

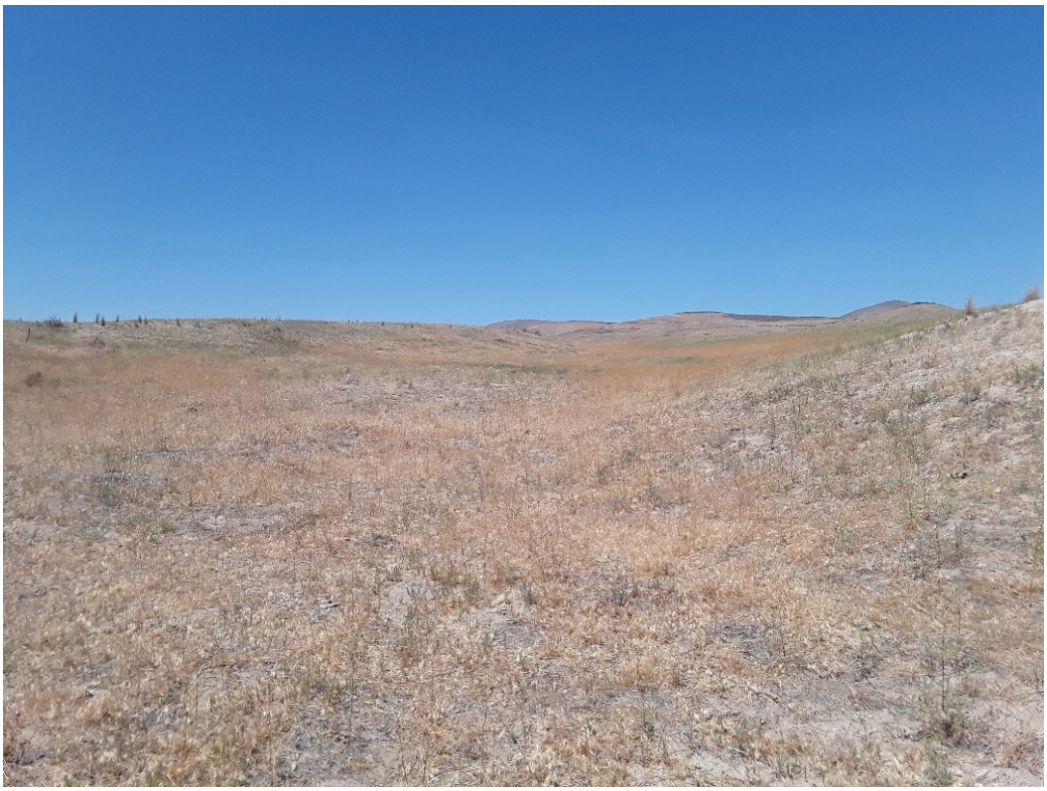
Appendix C
Representative Photographs

Photo ID: P-15 Date Taken: 7/1/2021 Photo Direction: North Description: NWI/NHD feature. No OHWM indicators observed in the field.	
Photo ID: P-16 Date Taken: 7/1/20 Photo Direction: Northwest Description: NWI/NHD feature. No OHWM indicators observed in the field.	

Appendix C
Representative Photographs

Photo ID: P-17 Date Taken: 7/1/20 Photo Direction: West Description: NWI/NHD feature. No OHWM indicators observed in the field.	
Photo ID: P-18 Date Taken: 7/1/20 Photo Direction: North Description: NWI/NHD feature. No OHWM indicators observed in the field.	

Appendix C
Representative Photographs

Photo ID: P-19	
Date Taken: 7/11/2021	
Photo Direction: Northwest	
Description: NWI/NHD feature. No OHWM indicators observed in the field.	