

Critical Areas Assessment

Rocky Coulee Recreation Area
Kittitas County, Washington

for

Public Utility District No. 2 of Grant County

June 8, 2012

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File No. 2164-045-00

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1.0 INTRODUCTION

On March 16, 2012 GeoEngineers, Inc. (GeoEngineers) was contracted by Project Groundwork, LLC/Coast & Harbor Engineering, Inc. (a Joint Venture) to conduct a critical areas assessment at the Rocky Coulee Recreation Area in Kittitas County, a public recreation area owned and operated by Public Utility District No. 2 of Grant County (Grant PUD) (Figure 1 – Vicinity Map). The critical areas assessment work was conducted under an existing subconsultant agreement between Project Groundwork LLC/Coast & Harbor Engineering, Inc. (a Joint Venture) and GeoEngineers, dated September 29, 2011.

Grant PUD has conceptual plans for improvements at the Rocky Coulee Recreation Area as presented in their Recreation Resources Management Plan (RRMP) (Grant PUD 2003) (Figure 2 – Concept Site Plan). Proposed improvements at the Rocky Coulee Recreation Area include new site amenities such as a new hand boat launch, ten new walk-in camping sites, five new picnic sites, a kiosk/interpretive sign, a double-vault toilet and single-vault toilet. The project would also include a trail connecting the drop-off location with the walk-in camp sites and project area trail linkage (Figure 2). The information collected for the critical areas assessment is intended to be used in the design, planning and permitting of the proposed improvements at the site. The critical area determinations will be used for mitigation sequencing during the design by employing avoidance, minimization and mitigation measures. If critical area impacts from proposed enhancement actions are unavoidable, the delineation will make it possible to quantify impacts and will provide a baseline for mitigation design.

2.0 SITE AND VICINITY DESCRIPTION

The site is located on the west bank of the Columbia River (Wanapum Lake) approximately 5½ miles upstream of Wanapum Dam near the town of Vantage, Washington in Kittitas County (Figure 1). It is located on parcel number 820933 in Sections 18 and 19 of Township 17 North, Range 23 East of the Willamette Meridian, and within Water Resources Inventory Area (WRIA) 40 (Alkali/Squilchuck). The parcel is zoned Rural/Flooded and surrounding parcels are zoned Forest and Range, Residential (Vantage), General Commercial (Vantage) and Flooded (Columbia River/Wanapum Lake). The primary land uses in the project area are recreation, rural and commercial agriculture. Elevations at the site range from approximately 573 to 592 feet (NAVD 88) (Appendix A – Rocky Coulee Survey).

The Rocky Coulee Recreation Area is approximately 4 acres with approximately 1,400 feet of shoreline. There are no NWI wetlands at the site. Apart from an access road that extends all the way to the Columbia River (Recreation Drive) the site is undeveloped. There is sparse scrub vegetation in the uplands and an approximate 50 to 100-foot strip of forested riparian vegetation adjacent to the Columbia River. In the upland area where the 10 walk-in camp sites are proposed, there are existing areas of disturbance from vehicles driving and parking.

3.0 CRITICAL AREAS ASSESSMENT

3.1. Paper Inventory

3.1.1. Paper Inventory: Methods

GeoEngineers researched existing information on wetlands, streams, salmonids, vegetation, and priority and listed plant and wildlife species documented within the vicinity of the site. The search for pertinent and applicable data and maps consisted of a review of mapped data and additional data provided by Grant PUD.

Research from mapped sources included: the United States Geological Survey (USGS) topographic map, the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data (USFWS 1987) and the Natural Resources Conservation Service (NRCS) Soil Survey (USDA-NRCS 2010a). Additional information was obtained from the Washington State Department of Natural Resources (DNR) Forest Practices Application Review System (FPARS) (DNR 2008), the Washington State Department of Fish and Wildlife (WDFW) SalmonScape mapping application (WDFW 2012) and the Washington State Department of Natural Resources (DNR) Natural Heritage Program (DNR 2012). The Kittitas County Code (KCC) was reviewed for information on fish and wildlife habitat conservation areas and stream, lake and wetland buffer requirements (KCC 17A), while the Shoreline Master Program for Kittitas County (Kittitas County 1975) was also reviewed to determine shoreline jurisdictional limits, shoreline designations and shoreline setbacks.

Topography derived from LiDAR imagery, a high-resolution aerial photograph and WDFW Priority Habitats and Species digital data (WDFW 2011) were provided to GeoEngineers by Grant PUD. These data were overlain in a Geographic Information System (GIS) to produce field maps upon which to base OHWM determinations and help identify wetland areas.

3.1.2. Paper Inventory: Results

3.1.2.1. WETLANDS, STREAMS AND SOILS

Other than the Columbia River (Lacustrine unconsolidated bottom), the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data did not identify any wetlands at the site or in the vicinity of the site (USFWS 1987) (Figure 3 – Soils and NWI). The closest NWI wetlands are two freshwater Palustrine emergent wetlands approximately 2 miles to the south along the edge of the Columbia River (USFWS 1987). These noted NWI wetlands, located at the southern tip of the large peninsula immediately south of Interstate 90, are some distance away from the project site and thus are not shown on the Soils and NWI map. The NRCS Soil Survey identifies Weirman complex, drained (0 to 5 percent slopes) and a Rubble Land-Rock Outcrop Forty day complex (40 to 90 percent slopes) at the site (USDA-NRCS 2012a) (Figure 3). Weirman complex soils are not listed as hydric soils and do not contain hydric inclusions (USDA-NRCS 2012c).

The site is adjacent to the Columbia River, a Type S stream. The Columbia River originates in the Rocky Mountains of British Columbia, Canada and is fed from streams along the Cascade Crest and eastern Washington plain. The reach of the Columbia River adjacent to the site has been converted into a lake/reservoir (Wanapum Lake), backed up behind the Wanapum Dam. Wanapum Dam is approximately 5½ miles downstream of the site. The site is located within the Alkali/Squilchuck Water Resource Inventory Area (WRIA) 40.

According to DNR's FPARS mapping application (DNR 2008) and WDFW's SalmonScape mapping application (WDFW 2012), a seasonal (intermittently flowing) stream, Rocky Coulee, is mapped running through the site and draining into the Columbia River (Figure 4). Rocky Coulee Creek runs along the southern side of Recreation Drive, the road that accesses the site. DNR does not have adequate information about the stream to designate a Stream Type for it and therefore DNR maps the stream as unknown (labeled as a "U" on Figure 4) (DNR 2008). WDFW's SalmonScape (WDFW 2012) does not map the stream as supporting salmonids (Figure 4).

3.1.2.2. PRIORITY HABITATS AND SPECIES (PHS) DATA

GeoEngineers received digital data in a GIS format from Grant PUD containing site-specific information from the WDFW PHS Program (WDFW 2011).

There are no records of species occurrence points at the site. There is a record of a biotic detection, from August 2000, of a racer (*Coluber constrictor*), a non-venomous Colubrid snake in the vicinity of the site in Ginkgo State Park. This racer is a state monitored species¹ and is not a listed priority species.

Several priority habitat areas are mapped at the site (WDFW 2011):

- The Wanapum pool (Wanapum Lake) is generally considered to be a winter waterfowl area with up to 100,000 ducks and 10,000 geese occurring seasonally. Common species in this waterfowl area include redhead (*Aythya americana*), canvasback (*Aythya valisineria*) and mallard ducks (*Anas platyrhynchos*).
- The Wanapum pool is also considered a common loon (*Gavia immer*) use area at relatively low densities. The common loon is a Washington State Sensitive species.
- Ginkgo cliff habitat is present in the northern portion of the parcel. This habitat has the potential to support numerous species of birds, mammals and reptiles year-round for resting, hibernation, breeding, and rearing young.

No developments are proposed within the cliff habitat or below the OHWM of the Wanapum pool. Any indirect impacts to the Wanapum pool winter waterfowl or loon habitat will be assessed through local, state and federal permitting.

Three priority habitats areas are mapped adjacent to the site (WDFW 2011):

- The Quilomene Deer Winter Range habitat area is considered a mule deer (*Odocoileus hemionus hemionus*) winter range use area, providing over-winter habitat for 700-800 deer.
- The Quilomene Elk Winter Range habitat area is considered an elk (*Cervus elaphus*) winter range use area, providing over-winter habitat for 1500-2000 elk.
- The Ginkgo Park Deer Concentration Area is considered a mule deer winter range area in Ginkgo State Park, providing over-winter habitat for 75-100 deer.

¹ State Monitor species are not considered Species of Concern, but are monitored for status and distribution. They are managed by WDFW, as needed, to prevent them from becoming endangered, threatened, or sensitive.

No developments are proposed within the priority habitats mapped adjacent to the site or within Ginkgo State Park (location of racer biotic detection). Any potential indirect impacts of the project on these habitats and species will be assessed through local and state permitting.

3.1.2.3. DNR NATURAL HERITAGE PROGRAM DATA

The site is located within two land sections (Sections 18 and 19 of Township 17 North, Range 23 East) neither of which are listed in the “List of surveyed land sections in Washington identified by the Natural Heritage Program as reported to contain Natural Heritage Features” or the “List of surveyed land sections in Washington identified by the Natural Heritage Program as reported to contain Natural Heritage Features associated with wetlands” (DNR 2011a, 2011b).

3.1.2.4. FREQUENTLY FLOODED AREAS

The Columbia River channel is generally confined within the historic floodplain of the river between the prominent rocky cliffs to the east and west, however at Rocky Coulee the 100-year floodplain extends across the site (Appendix C – FEMA FIRM Map). Kittitas County code requires that “A no net loss of floodplain storage concept shall be incorporated in all new construction on existing lots and all future development on the following rivers, streams and lakes, which are designated as “shorelines of the state” under 90.58 RCW and listed under 173-18-230 WAC (KCC 17A.05.020).” KCC 17A.05.020 provides a legal description of the portions of the Columbia River within Kittitas County that are designated as a shoreline of the state “...from Chelan County line on the Columbia River downstream along the Douglas and Kittitas County line to Yakima County”.

3.1.2.5. GEOLOGIC HAZARD AREAS

The scope of services for this assessment did not include a formal inventory or field assessment of geologic hazards, however it was apparent from review of available maps (NRCS Soil Survey [USDA-NRCS 2010a] and LiDAR topographic maps provided by Grant PUD) and the site survey (Appendix A) that there are steep (40 to 90 percent) basalt cliffs in the northern portion of the site that Kittitas County may consider a geologic hazard. The cliffs are located immediately north of Recreation Drive and adjacent to the Columbia River. Grant PUD's Concept Site Plan (Figure 2) shows a proposed parking area and double vault toilet at the base of this cliff.

KCC 17A.02.150 defines “Geologically Hazardous Areas” as “...areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of major commercial, residential, or industrial development consistent with public health or safety concerns without proper engineering consideration and design. The term commercial should not be construed to include natural resource activities.” and defines “Landslide Hazard Areas” as “...geologically hazardous areas subject to severe risk of landslide based on a combination of geologic, topographic, and hydrologic factors, including bedrock, soil, slope gradient, slope aspect, geologic structure, groundwater, or other factors.”

Kittitas County may require setbacks from these cliffs and “...areas identified as high risk erosion/landslide geologic hazard areas including cliff or talus slopes, may require specialized engineering to ascertain the property is suitable for development purposes. The director is authorized to require such engineering (KCC 17A.06.015).”

3.2. Field Assessment

3.2.1. Field Assessment: Methods

GeoEngineers' biologists (two Professional Wetland Scientists) conducted a field assessment on March 22, 2012 to characterize and delineate any potential wetlands, the OHWM of the Columbia River and other stream features and any other fish and wildlife habitat areas. The assessment covered the portion of Grant PUD property outlined in orange on Figure 2. Delineation of wetlands and the OHWM was conducted in accordance with guidelines presented in the KCC 17A.03.025 which includes the use of "...the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1987 revised edition)" (Environmental Laboratory 1987). In addition, the USACE Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE, 2008) was used for wetland determinations.

Potential wetland areas were evaluated based upon three criteria: 1) hydrophytic vegetation (Reed 1988 and 1993; USDA-NRCS 2010b), 2) hydric soils (USACE 1987 and 2008) and 3) wetland hydrology (Ecology 1997, USACE 1987 and 2008). The presence of all three wetland parameters may result in a jurisdictional wetland. To evaluate presence or absence of these three wetland parameters, formal sample plots were established in the field (see Figure 5) to make wetland determinations. In addition to these formal sample plots, repeated informal sampling of one or more of the three wetland parameters was conducted throughout potential wetland and adjacent habitats to determine the wetland boundary and document habitat conditions. The boundaries of wetlands identified on-site were marked in the field using flagging tape which was recorded by survey (by others) within two days. The extent of any mosaic wetlands below the OHWM were established through a combination of field assessment and interpretation of the extent of vegetation using aerial photographs.

The OHWM of the Columbia River/Wanapum pool was evaluated and delineated by examining breaks in topography, drift lines, shifts in vegetation and signs of water marks, according to USACE protocol as referenced from Regulatory Guidance Letter (No. 05-05), "Ordinary High Water Mark Identification," December 7, 2005 and using the methods described in the Ecology manual "Determining the Ordinary High Water Mark on Streams in Washington State" (Olson and Stockdale 2010). In addition, topographic data based on LiDAR imagery were reviewed to confirm the approximate location of the OHWM in reference to the normal full-pool elevation (University of Washington 2008).

Current operations of Wanapum Dam can result in 11½ feet elevation variation (560 feet to 571½ feet). The reservoirs are usually operated in the upper range of those allowable river elevations. The greatest fluctuations occur from mid-October to late November in aid of salmon spawning down river from Priest Rapids Dam." (Grant PUD 2012).

The centerline of any small streams was identified in the field and mapped using topographic maps and aerial photographs.

Identified waterbodies were typed (Type 1 - 5 Waters) according to the Interim Water Typing System (Washington Administrative Code [WAC] 222-16-031 and KCC 17A.02.300). KCC 17A.07.010 (Riparian Habitat) specifies performance standards buffers to be applied to regulated waterbodies.

A photographic record was collected to document existing site conditions at the time of the field assessment and is found in Appendix B.

3.2.2. Field Assessment: Results

3.2.2.1. STREAMS, RIVERS AND RESERVOIRS

The Columbia River/Wanapum Lake is located immediately east of the site. Table 1 below presents a summary of information and observations for the Columbia River/Wanapum Lake.

TABLE 1. COLUMBIA RIVER SUMMARY

Columbia River – Summary Information	
Location	5½ miles upstream (north) of Wanapum dam and ½ mile upstream of Vantage, Washington
Local Jurisdiction	Kittitas County
WRIA	40 – Alkali/Squilchuck
DNR ¹ Stream Type	Shoreline (S)
Kittitas County Stream Type ¹	Type I
Kittitas County Buffer Width ²	40-200 feet
Shoreline Structural Setback	200 feet
Channel Width	4,000 – 5,000 feet
Gradient	Negligible (reservoir)
Flow Duration	Perennial
Description Summary	
Documented Fish Use	Spring Chinook salmon (<i>Oncorhynchus tshawytscha</i>) ^{3,4} (Endangered) Summer and Fall Chinook salmon ^{3,4} (<i>Oncorhynchus tshawytscha</i>) Summer Steelhead (<i>O. mykiss</i>) ^{3,4} (Threatened) Coho (<i>O. kisutch</i>) ^{3,4} Sockeye salmon (<i>O. nerka</i>) ^{3,4} Dolly Varden/Bull trout (<i>Salvelinus confluentus</i>) ^{3,4} (Threatened) Largemouth bass (<i>Micropterus salmoides</i>) ⁴ Smallmouth bass (<i>Micropterus dolmieu</i>) ⁴ Mountain whitefish (<i>Prosopium williamsoni</i>) ⁴ Kokanee (<i>O. nerka</i>) ⁴ Rainbow trout (<i>O. mykiss</i>) ⁴ Walleye (<i>Sander vitreus</i>) ⁴ White sturgeon (<i>Acipenser transmontanus</i>) ⁴



Columbia River and Rocky Coulee Recreation Area looking northeast (upstream) from the Ginkgo State Park Interpretive Center.

Connectivity The Columbia River drainage area includes portions of the Washington Cascades, portions of eastern Washington and extends into eastern British Columbia. The Columbia River eventually drains into the Pacific Ocean.

Description Summary

Channel Description The channel for this portion of the river has been significantly altered into the present condition with the construction of the Wanapum Dam. At the location of the site, the Columbia River now exhibits the lake-like characteristics that typify reservoirs, rather than a free-flowing natural river system. The river channel is generally confined within the historic floodplain of the river between the prominent rocky cliffs to the east and west, however at Rocky Coulee the 100-year floodplain extends across the site (Appendix C – FEMA FIRM Map). Channel substrate consists of mud, sand, gravel, cobbles and rock.

Riparian/ Buffer Condition The northern portion of the site (north of Recreation Drive) has a 25- to 50-foot strip of forested riparian buffer. Vegetation within this forested buffer consists primarily of black locust (*Robinia pseudoacacia*) with some Siberian elm (*Ulmus pumila*) and Russian olive (*Elaeagnus angustifolia*), all non-native trees. South of the jetty, the forested riparian buffer is wider (100 to 150 feet) with vegetation consisting of the same tree species and shrubs species such as sweetbriar rose (*Rosa eglanteria*) and smooth sumac (*Rhus glabra*) predominating. Upland of the forested riparian buffer and throughout the rest of the site sagebrush habitat dominates with vegetation consisting of big sagebrush (*Artemisia tridentata*), rabbit-brush (*Chrysothamnus nauseosus*), antelope-bush (*Purshia tridentata*) and various upland grasses. The sagebrush and forested buffer areas are crisscrossed with informal trails. Some human debris and garbage was observed scattered throughout the buffer and along the shoreline.

Notes:

¹Washington State Department of Natural Resources (DNR) Forest Practices Application Review System (FPARS) (DNR 2008), WAC 222-16-031, WAC 173-18-080, and KCC 17A.02.300.

²Buffer size is based on KCC 17A.07 (Habitat), the Kittitas County Shoreline Master Program (SMP) (Kittitas County 1975) and on communications with Kittitas County (Kittitas County 2012). KCC 17A.07 (Habitat) specifies a range of buffers (40 to 200 ft) established to reflect the impact of certain intense land uses on riparian habitat functions and values. Within the Natural Environment, the SMP shoreline structural setback is 200 feet. All structures and parking facilities shall be set back a minimum of 200 feet from the OHWM.

³Washington State Department of Fish and Wildlife (WDFW) SalmonScape mapping application (WDFW 2012).

⁴WDFW Priority Habitats and Species data (WDFW 2011).

Rocky Coulee Creek, a seasonal stream, mapped by WDFW and DNR (WDFW 2012, DNR 2008) as flowing east along the southern edge of Recreation Drive was observed during the site visit on March 22, 2012. During the site visit, there were no flows in Rocky Coulee Creek and the creek bed was dry with sagebrush and various grasses growing along the banks.

Table 2 below presents a summary of information and observations for Rocky Coulee Creek.

TABLE 2. ROCKY COULEE CREEK SUMMARY

Rocky Coulee Creek – Summary Information	
Location	Immediately south of Recreation Drive, draining into the Columbia River just north of the jetty.
Local Jurisdiction	Kittitas County
WRIA	40 – Alkali/Squilchuck
DNR ¹ Stream Type	Unknown
Kittitas County Stream Type ²	Type 5
Kittitas County Buffer Width ²	None, buffering provided by the buffer for the Columbia River
Structural Setback	15 feet
Channel Width	15-20 feet
Gradient	Approximately 4 percent. Vertical drop of 15 feet across the site, a distance of 350 feet.
Flow Duration	Seasonal/Intermittent



Rocky Coulee Creek looking west (upstream) from the edge of the forested riparian buffer area.

Description Summary

Documented Fish Use	None ^{3,4}
Connectivity	Rocky Coulee drains an approximate 70-acre area between the City of Ellensburg and the Columbia River. It is located north of the Schnebly Coulee drainage area and south of the Whiskey Dick and Spring Cayuse Creek drainage areas.
Channel Description	The channel bottom of Rocky Coulee Creek was dry during the site visit in March of 2012. Sagebrush and grasses were growing up the sides of the bank. Channel substrate consisted of silt, sand, and some limited gravel.
Riparian/Buffer Condition	Near the mouth of Rocky Coulee Creek there is a 15-foot strip of forested riparian buffer. Vegetation within this forested buffer consists of black locust (<i>Robinia pseudoacacia</i>) and Siberian elm (<i>Ulmus pumila</i>), both non-native trees. Upstream of the forested riparian buffer sagebrush habitat dominates with vegetation consisting of big sagebrush (<i>Artemisia tridentata</i>), rabbit-brush (<i>Chrysothamnus nauseosus</i>), antelope-bush (<i>Purshia tridentata</i>) and various upland grasses. The sagebrush and forested buffer areas are crisscrossed with informal trails. Some human debris and garbage was observed scattered throughout the buffer and along the shoreline.

Notes:

¹Washington State Department of Natural Resources (DNR) Forest Practices Application Review System (FPARS) (DNR 2008), WAC 222-16-031, and WAC 173-18-080.

²Stream Type and buffer size are based on KCC 17A.02.300 (Waters/water typing system), KCC 17A.07 (Habitat) and on communications with Kittitas County (Kittitas County 2012). KCC 17A.07 (Habitat) specifies a range of buffers (10 to 200 ft) for Type 1 to Type 4 waters, established to reflect the impact of certain intense land uses on riparian habitat functions and

values, however for Type 5 waters, Kittitas County does not require a buffer (buffering will be provided by the Type 1, 2 or 3 waters' buffers). Note: Building setbacks from a Type 5 water will be 15 feet, unless a buffer greater than or equal to the 15-foot setback is in place. Type 5 waters shall be designated a critical area where it is located within the buffers for Types 1, 2 or 3 waters, as determined by the planning manager.

³Washington State Department of Fish and Wildlife (WDFW) SalmonScape mapping application (WDFW 2012).

⁴WDFW Priority Habitats and Species data (WDFW 2011).

3.2.2.2. WETLANDS

Three lake-fringe wetlands were identified at the site. Wetlands A and C occur immediately below the OHWM of the Columbia River/Wanapum Lake, while Wetland B is located immediately landward of the OHWM.

Wetland A is a small (1,385 sq ft) Category III palustrine scrub shrub wetland located immediately waterward of the OHWM approximately 300 feet south of the jetty (Figure 5). The landward (western) boundary of this wetland coincides with the OHWM. One sample plot (SP-1) was recorded to document wetland conditions within Wetland A (Appendix D). Table 3 below presents a summary of information and observations for Wetland A.

TABLE 3. WETLAND A SUMMARY

Wetland A – Summary Information	
Location	Scrub-shrub wetland located waterward of the OHWM approximately 300 feet south of the jetty.
WRIA	40 – Alkali/Squilchuck
Local Jurisdiction	Kittitas County
Ecology Rating ¹	Category III (35 points)
Kittitas County Buffer Width ²	20 feet
Size	1,385 square feet (sq ft) (0.03 acres)
Cowardin Class	Palustrine scrub-shrub
HGM Class	Lake-fringe
Data Forms	Appendix D; SP-1



Wetland A – Looking east from Sample Plot 1.

Description Summary

Vegetation³

Herbaceous: Reed canarygrass (*Phalaris arundinacea*, FACW), Indianhemp (*Apocynum cannabinum*, FAC+), and common mullein (*Verbascum thapsus*, NI).

Shrub: Sweetbriar rose (*Rosa eglanteria*, FACW) and smooth sumac (*Rhus glabra*, NI).

Trees: Black Locust (*Robinia pseudoacacia*, FACU).

SP-1
 Soils^{4,5} 0 to 3 inches: soil color 10YR 2/2 (very dark brown) silt loam.
 3 to 14 inches: soil color 10YR 4/2 (dark grayish brown) with concentrations in the matrix (7.5YR 6/8). Meets criteria for hydric soil indicator Depleted Matrix (F3).

Description Summary

Hydrology Primary Indicators: High water table and saturation. Secondary Indicators: Water-stained leaves, water marks, FAC-neutral test.
Source: High groundwater and surface inundation during the maximum operating level of the Wanapum pool.

Eastern Washington Wetland Rating Functions Summary (Appendix E - 35 points total)

Water Quality 18 points: Potential to trap sediments and other pollutants because vegetation is between 16 and 33 feet wide within the wetland, including herbaceous cover over more than 1/3 of the vegetated area. Opportunity to improve water quality because wetland is adjacent to a reservoir regularly used by power boats.
Hydrologic 6 points: Potential to reduce shoreline erosion because vegetation is at least 33 feet wide. Little opportunity to reduce impacts from erosion due to lack of human and/or natural resources along the shore at this location.

Eastern Washington Wetland Rating Functions Summary (Appendix E - 35 points total) – (cont.)

Habitat 11 points: One vegetation type, areas of open water, moderate species richness and low interspersion of habitats, no special habitat features, moderate buffer condition, not within 330 feet of any priority habitats, and adjacent to at least one other wetland.
Buffer Condition Buffer to the southeast is open water. Buffer to the north, west and southwest consists of mixed deciduous forest of primarily invasive trees and shrubs. Approximately 100 feet west of Wetland A, the buffer transitions from riparian forest to sagebrush prairie. The buffer is located within the Grant PUD recreation area that experiences daily human use, especially during the camping season. The sagebrush prairie and riparian forest areas are crisscrossed with trails. Some human debris and garbage was observed scattered throughout the buffer and along the shoreline.

Notes:
¹Wetland rating in accordance with Washington State Wetland Rating System for Eastern Washington (Hruby 2004) and KCC 17A.03.025.
²Buffer size is based on KCC 17A.04.020 (Buffer Width Requirements) and on communications with Kittitas County (Kittitas County 2012).
³Wetland indicator status of plants taken from The National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (Reed 1988) and Supplement to the National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (Reed et al. 1993) using the following categories: obligate wetland (OBL); facultative wetland (FACW); facultative (FAC); facultative upland (FACU); or obligate upland (UPL).
⁴These are summaries of wetland data. See Appendix D for details on the Wetland Determination Data Forms.
⁵Reported soil colors are based on Munsell soil color charts (GretagMacbeth 2000).
 HGM – Hydrogeomorphic Classification: groups wetlands into categories based on the geomorphic and hydrologic characteristics that control many functions.

3.2.2.3. WETLAND B

Wetland B is a small (775 sq ft) Category III palustrine emergent wetland located immediately landward of the OHWM at the southern end of the site (Figure 5). The waterward (eastern) boundary of this wetland coincides with the OHWM and the landward boundary was delineated using five wetland flags. Two sample plots (SP-2 and SP-3) were recorded to document wetland and upland conditions within and adjacent to Wetland B (Appendix D). Table 4 presents a summary of information and observations for Wetland B.

TABLE 4. WETLAND B SUMMARY

Wetland B – Summary Information	
Location	Emergent wetland located immediately landward of the OHWM at the southern end of the site.
WRIA	40– Alkali/Squilchuck
Local Jurisdiction	Kittitas County
Ecology Rating ¹	Category III (35 points)
Kittitas County Buffer Width ²	20 feet
Size	775 square feet (sq ft) (0.02 acres)
Cowardin Class	Palustrine emergent
HGM Class	Lake-fringe
Data Forms	Appendix D; SP-2 and SP-3



Wetland B – Looking east from Sample Plot 2.

Description Summary

Vegetation ³	<p>Herbaceous: Reed canarygrass (<i>Phalaris arundinacea</i>, FACW).</p> <p>Shrub: Sweetbriar rose (<i>Rosa eglantheria</i>, FACW).</p> <p>Tree: Siberian elm (<i>Ulmus pumila</i>, NI) – one tree rooted in wetland.</p>
Soils ^{4,5}	<p>SP-2 (wetland sample plot) 0 to 3 inches: soil color 10YR 2/2 (very dark brown) silt loam. 3 to 16 inches: soil color 10YR 4/2 (dark grayish brown) with redoximorphic concentrations in the matrix (7.5YR 6/8). Meets criteria for hydric soil indicator Depleted Matrix (F3).</p> <p>SP-3 (upland sample plot) 0 to 14 inches: soil color 10YR 3/3 (dark brown) sandy loam. Does not meet the criteria for a hydric soil.</p>

SP-2

Hydrology Primary Indicators: Surface water, high water table, saturation, and water stained leaves.
Secondary Indicators: Saturation visible on aerial photography and FAC-neutral test.
Source: High groundwater and surface inundation during the normal maximum operating level of the Wanapum pool.

Eastern Washington Wetland Rating Functions Summary (Appendix E - 35 points total)

Water Quality 24 points: Potential to trap sediments in vegetated areas more than 33 feet wide, including herbaceous plants covering more than 90 percent of the vegetated area. Opportunity to improve water quality because it abuts a reservoir used by power boats.

Hydrologic 2 points: Potential to reduce shoreline erosion because vegetation is at least 6 feet wide. Little opportunity to reduce impacts from erosion due to lack of human and/or natural resources along the shore at this location.

Eastern Washington Wetland Rating Functions Summary (Appendix E - 35 points total)

Habitat 9 points: One vegetation class, presence of an open water component, low species richness and no interspersion of habitats, no special habitat features, moderate buffer condition, not within 330 feet of any priority habitats, and adjacent to at least one other wetland with disturbed connections.

Eastern Washington Wetland Rating Functions Summary (Appendix E - 35 points total) – (cont.)

Buffer Condition Buffer to the east is open water. Buffer to the north, west and south consists of mixed deciduous forest of primarily invasive trees and shrubs. Approximately 70 feet northwest of Wetland B, the buffer transitions from riparian forest to sagebrush prairie. The buffer is located within the Grant PUD recreation area that experiences daily human use, especially during the camping season. The sagebrush prairie and riparian forest areas are crisscrossed with trails. Some human debris and garbage was observed scattered throughout the buffer and along the shoreline.

- Notes:
- ¹Wetland rating in accordance with Washington State Wetland Rating System for Eastern Washington (Hruby 2004) and KCC 17A.03.025.
 - ²Buffer size is based on KCC 17A.04.020 (Buffer Width Requirements) and on communications with Kittitas County (Kittitas County 2012).
 - ³Wetland indicator status of plants taken from The National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (Reed 1988) and Supplement to the National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (Reed et al. 1993) using the following categories: obligate wetland (OBL); facultative wetland (FACW); facultative (FAC); facultative upland (FACU); or obligate upland (UPL).
 - ⁴These are summaries of wetland data. See Appendix D for details on the Wetland Determination Data Forms.
 - ⁵Reported soil colors are based on Munsell soil color charts (GretagMacbeth 2000).
- HGM – Hydrogeomorphic Classification: groups wetlands into categories based on the geomorphic and hydrologic characteristics that control many functions.

3.2.2.4. WETLAND C

Wetland C is a large (0.6 acres) Category III palustrine emergent mosaic wetland located south of the jetty below the OHWM of the Columbia River/Wanapum Lake (Figure 5). The landward boundary of this wetland coincides with the OHWM. During the field efforts, the full extent of

vegetated areas within the mosaic wetland were not represented because wetland vegetation was in the early phases of growth (early spring). Therefore, the waterward boundary of this system was not delineated with flags, but instead approximate boundaries were sketched onto field maps and the waterward boundary was drawn using aerial photograph interpretation. One sample plot (SP-4) was recorded to document wetland conditions within Wetland C (Appendix D). Table 5 presents a summary of information and observations for Wetland C.

TABLE 5. WETLAND C SUMMARY

Wetland C (3)– Summary Information	
Location	Mosaic wetland located below the OHWM and south of the jetty within the channel of the Columbia River/Wanapum Lake.
WRIA	40– Alkali/Squilchuck
Local Jurisdiction	Kittitas County
Ecology Rating ¹	Category III (36 points)
Kittitas County Buffer Width ²	60 feet
Ecology Recommended Buffer Width ³	60 feet
Size	26,175 sq ft (0.6 acres)
Cowardin Class	Palustrine Emergent
HGM Class	Lake-fringe
Data Forms	Appendix D; SP-4



Wetland C as shown on a Bing Maps image. Areas of vegetation east of the bank of Wanapum Lake are the mosaic wetland.

Description Summary	
Vegetation ³	Herbaceous: Slender rush (<i>Juncus tenuis</i> , FACW-) and reed canarygrass (<i>Phalaris arundinacea</i> , FACW).
Soils ^{4,5}	SP-4 0 to 6 inches: soil color 10YR 4/2 (dark grayish brown) silt loam with concentrations in the matrix (7YR 6/8). Meets criteria for hydric soil indicator Depleted Matrix (F3). 6 to 16 inches: soil color 10YR 4/2 (dark grayish brown) with streaks of stripped color and black-stained areas, sand. Meets criteria for hydric soil indicator <u>Stripped Matrix</u> (S6).
Hydrology	Primary Indicators: Surface water, high water table and saturation. Secondary Indicators: Water-stained leaves, water marks, FAC-neutral test. Source: Surface inundation during the normal maximum operating level of the Wanapum pool and high groundwater.

Eastern Washington Wetland Rating Functions Summary (Appendix E - 36 points total)

Water Quality	<u>20 points</u> : Potential to trap sediments in vegetated areas more than 33 feet wide, including herbaceous plants over more than 2/3 of the vegetated area. Opportunity to improve water quality resulting from the use of Wanapum Lake by power boats.
Hydrologic	<u>2 points</u> : Potential to reduce shoreline erosion because vegetation is at least 6 feet wide. Little opportunity to reduce impacts from erosion due to lack of human and/or natural resources along the shore at this location.
Habitat	<u>14 points</u> : Two vegetation classes, an open-water component, low species richness and interspersed habitats, no special habitat features, moderate buffer condition, within 330 feet of two priority habitats (Riparian and Cliffs), and adjacent to at least one other wetland with disturbed connections.

Eastern Washington Wetland Rating Functions Summary (Appendix E - 36 points total)

Buffer Condition	Buffer to the east is open water. Buffer to the north, west and south consists of mixed deciduous forest of primarily invasive trees and shrubs. Approximately 100 feet west of Wetland C, the buffer transitions from riparian forest to sagebrush prairie. The buffer is located within the Grant PUD recreation area that experiences daily human use, especially during the camping season. The sagebrush prairie and riparian forest areas are crisscrossed with trails. Some human debris and garbage was observed scattered throughout the buffer and along the shoreline.
------------------	---

Notes:

¹Wetland rating in accordance with Washington State Wetland Rating System for Eastern Washington (Hruby 2004) and KCC 17A.03.025.

²Buffer size is based on KCC 17A.04.020 (Buffer Width Requirements) and on communications with Kittitas County (Kittitas County 2012).

³Wetland indicator status of plants taken from The National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (Reed 1988) and Supplement to the National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (Reed et al. 1993) using the following categories: obligate wetland (OBL); facultative wetland (FACW); facultative (FAC); facultative upland (FACU); or obligate upland (UPL).

⁴These are summaries of wetland data. See Appendix D for details on the Wetland Determination Data Forms.

⁵Reported soil colors are based on Munsell soil color charts (GretagMacbeth 2000).

HGM – Hydrogeomorphic Classification: groups wetlands into categories based on the geomorphic and hydrologic characteristics that control many functions.

3.2.2.5. WILDLIFE HABITATS OR SPECIES OBSERVATIONS

Wildlife observed during the site visit on March 22, 2012 included the following:

- A prairie falcon (*Falco mexicanus*) was observed flying near the cliffs at the northern end of the site;
- A downy woodpecker (*Picoides pubescens*) was observed foraging in a black locust tree near Wetland A; and
- Several harvester ant (*Pogonomyrmex occidentalis*) colonies (conical nest mounds) were observed along the shoreline within the forested riparian buffer.

4.0 SUMMARY AND CONCLUSIONS

GeoEngineers performed a critical areas assessment and OHWM delineation at the Rocky Coulee Recreation Area site to identify the extent and condition of aquatic critical areas (wetlands and streams) and their regulated buffers. This information is intended to guide the design of various improvements at the site using avoidance, minimization and mitigation measures.

The OHWM for the Columbia River was delineated during the field assessment. The Columbia River is classified as a Type-S (1) stream (KCC 17A.02.300). The site is located within an area designated as a Natural Environmental, and therefore all structures and parking facilities shall be set back a minimum of 200 feet from the OHWM of the Columbia River. Water/Shoreline dependent structures shall not be subject to these setback requirements. All proposed developments within this setback area are subject to review by Kittitas County under their Shoreline Master Program.

Three lake-fringe wetlands were identified at the site. Wetlands A and B are small Category III wetlands with regulated 20-foot buffers. Wetland C is a large (0.6 acres) mosaic wetland located immediately below the OHWM of the Columbia River with a regulated 60-foot buffer. Kittitas County requires, to the extent practical, and except for Category IV wetlands, a zero net loss of natural wetlands functions and values (KCC 17A.04.015). Impacts to Category III Wetlands shall be mitigated at a 1.5:1 replacement ratio (KCC 17A.04.050 - Wetland replacement ratios). Areas of temporary buffer impact shall be restored and revegetated with native vegetation while controlling noxious weeds (KCC 17A.04.035). Buffer averaging and buffer enhancement may be allowed as mitigation for permanent buffer impacts (KCC 17A.04.030).

WDFW has identified and documented three priority habitats at the site including a winter waterfowl and common loon use area within the Wanapum Pool and Ginkgo cliff habitat in the northern portion of the site (WDFW 2011). No developments are proposed within the cliff habitat or below the OHWM of the Wanapum pool. Any indirect impacts to the Wanapum pool winter waterfowl or loon habitat will be assessed through local, state and federal permitting. In the vicinity of the site, WDFW has identified and documented three priority habitats including the Quilomene deer winter range habitat area, Quilomene elk winter range habitat area, and the Ginkgo Park deer concentration area (WDFW 2011). In addition, WDFW has identified and documented one biotic detection of a state monitored species, a non-venomous Colubrid snake called a racer (*Coluber constrictor*), in the vicinity of the site in Ginkgo State Park (WDFW 2011). No developments are proposed within these priority habitats or within Ginkgo State Park. Any potential indirect impacts of the project on these habitats and species will be assessed through local and state permitting.

The 100-year floodplain of the Columbia River/Wanapum Lake extends across the site (Appendix C). Kittitas County code requires that "A no net loss of floodplain storage concept shall be incorporated in all new construction on existing lots and all future development (KCC 17A.05.020)."

Steep basalt cliffs (40 to 90 percent) are present in the northern portion of the site. Kittitas County may consider these a geologic hazard. Grant PUD's Concept Site Plan (Figure 2) shows a proposed parking area and double vault toilet at the base of this cliff. Kittitas County may require setbacks

from these cliffs and "...areas identified as high risk erosion/landslide geologic hazard areas including cliff or talus slopes, may require specialized engineering to ascertain the property is suitable for development purposes. The director is authorized to require such engineering (KCC 17A.06.015)."

Once permit-level project designs are complete, impacts of the project on the Columbia River or its riparian/shoreline buffer, site wetlands or their buffers, and/or other fish and wildlife habitats will need to be assessed as part of the local critical areas/shoreline permitting process. Any work conducted below the OHWM of the Columbia River will need to be reviewed and approved by WDFW (Hydraulic Permit Approval) and the USACE (Section 10 and Section 404 review). Any work conducted within wetlands will need to be reviewed and approved by the USACE (Section 404 review). Potential river, shoreline, wetland and/or buffer impacts should be assessed and mitigation options for potential impacts evaluated. If impacts are unavoidable, additional permitting and documentation will be required.

5.0 LIMITATIONS

GeoEngineers has prepared this Critical Areas Assessment in general accordance with the scope and limitations of our proposal. Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices for wetland and stream delineation in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

This report has been prepared for the exclusive use of Grant PUD, Project Groundwork, LLC / Coast & Harbor Engineering, Inc., authorized agents and regulatory agencies following the described methods and information available at the time of the work. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. The information contained herein should not be applied for any purpose or project except the one originally contemplated.

The applicant is advised to contact all appropriate regulatory agencies (local, state and federal) prior to design or construction of any development to obtain necessary permits and approvals.

6.0 REFERENCES

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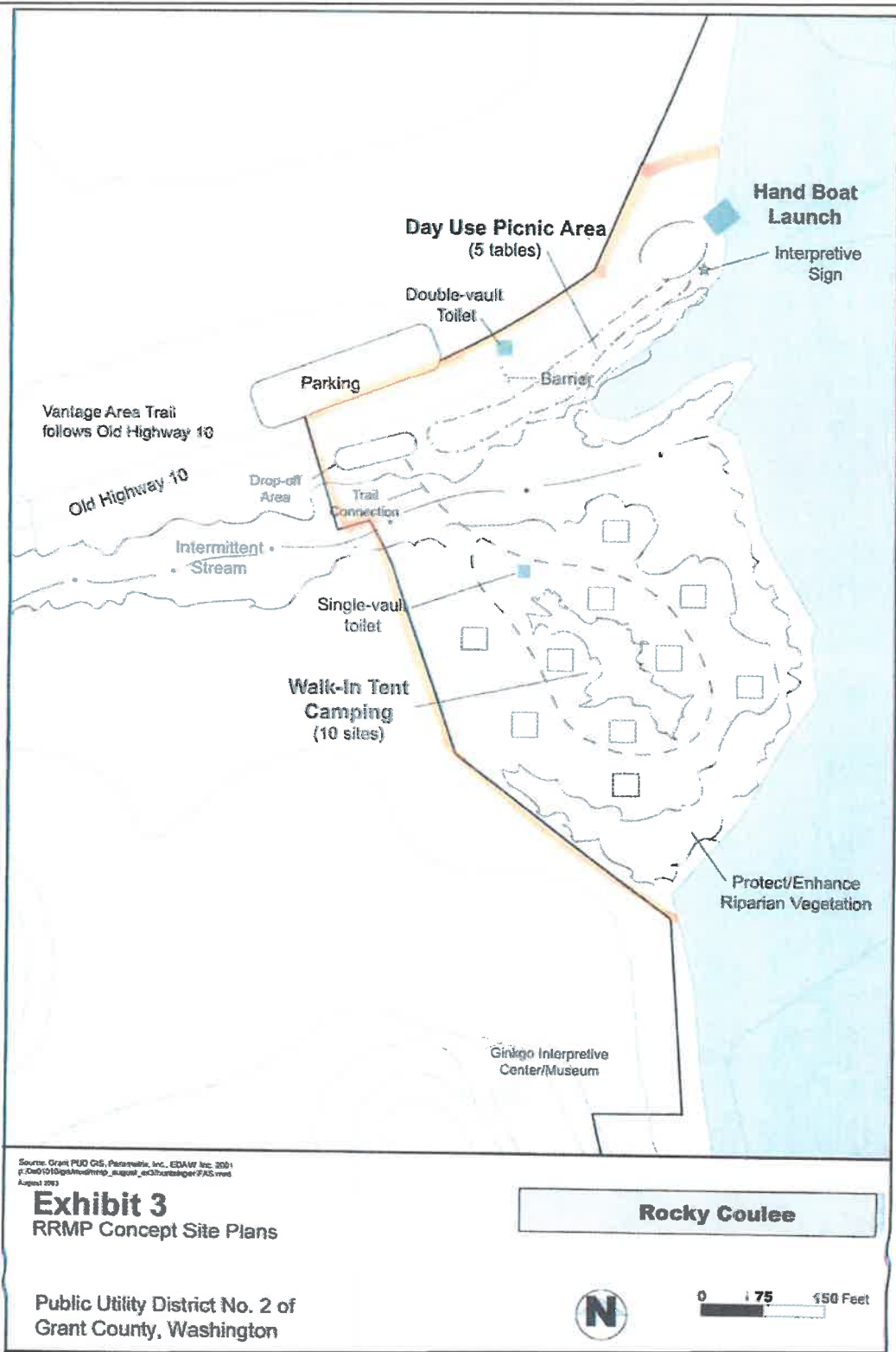
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Vicinity Map	
Rocky Coulee Grant County P.U.D. No. 2 Kittitas County, WA	
GEOENGINEERS 	Figure 1

Office: BAM | Path: P:\12\164045\GIS\MXD\Vicinity.mxd | Last Revised: 4/18/2012 | mtrrost

Notes:
 1. The locations of all features shown are approximate. 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication. 3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.
 Data Sources: Hillshade - ESRI online services. Parks and Water - ESRI.
 State Plane Washington South FIPS 4601 (Feet).
 North American Datum 1983. North arrow oriented to grid north.

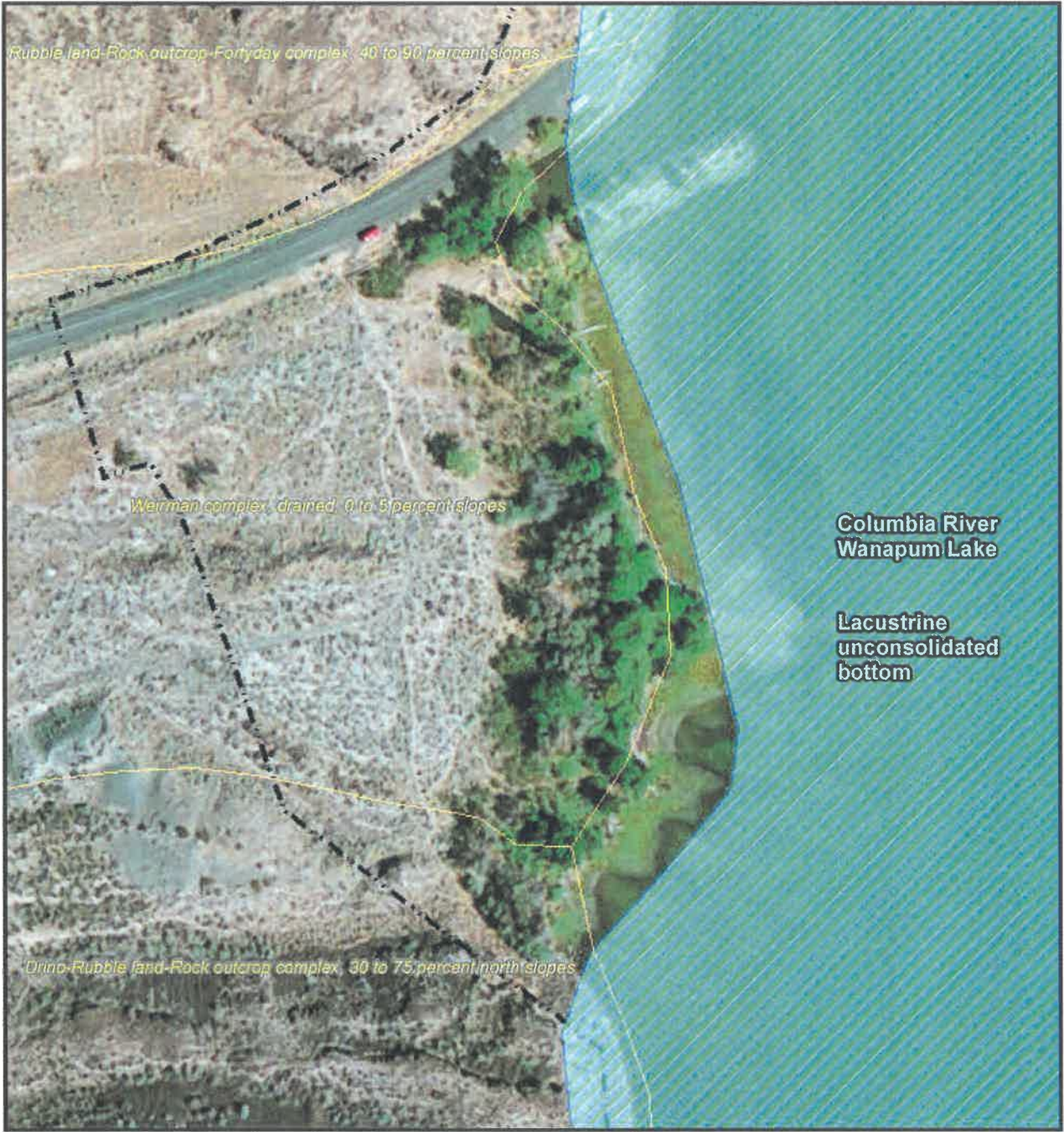


Notes:

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Reference: Grant PUD 2003 - RRMP

Concept Site Plan	
Recreation Resources Management Plan	
Rocky Coulee Recreation Area	
Kittitas County, WA	
	Figure 2

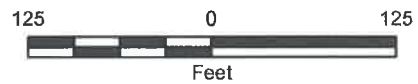



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Legend

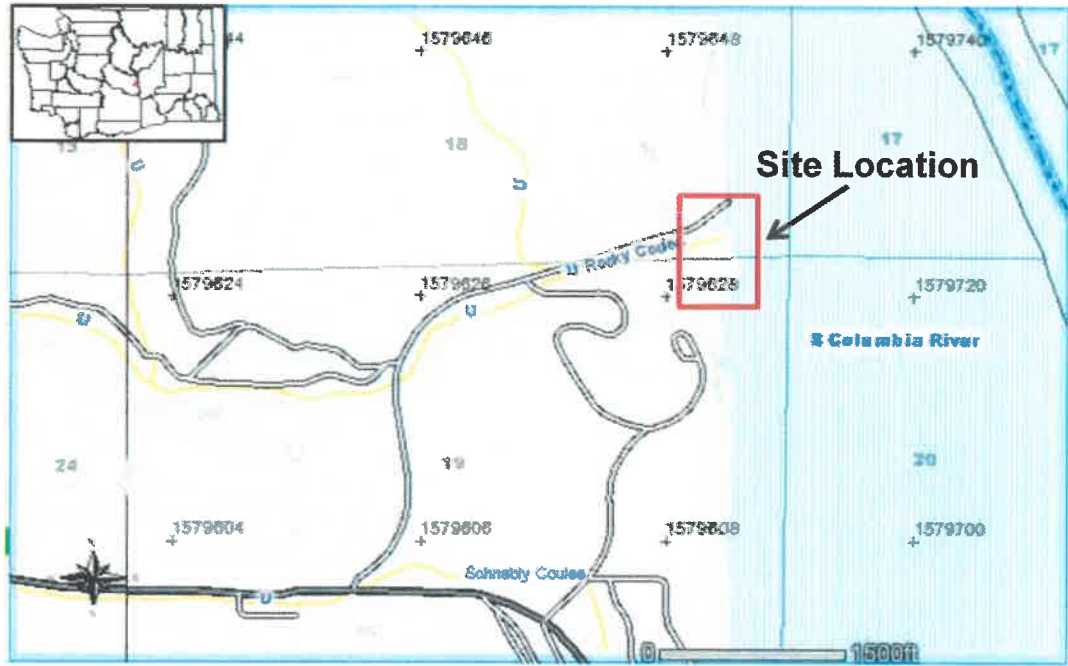
-  Project Boundary
-  National Wetlands Inventory
-  NRCS Soil Survey

Notes:
 1. The locations of all features shown are approximate. 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication. 3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.
 Data Sources: Wetlands - National Wetlands Inventory-USFWS; Soils - Natural Resource Conservation Service. Aerial Image, Bing Maps. State Plane Washington South FIPS 4601 (Feet), North American Datum 1983. North arrow oriented to grid north.



Soils and NWI	
Rocky Coulee P.U.D. No. 2 of Grant County Kittitas County, WA	
	Figure 3

BELL\p\0216404\500\working\Figures\Figure 4_DNR FPARS and WDFW SalmonScape Maps.ppt FMM 04/19/12



DNR FPARS ARCIMS Mapping Application <http://fortress.wa.gov/dnr/app1/fpars/viewer.htm>

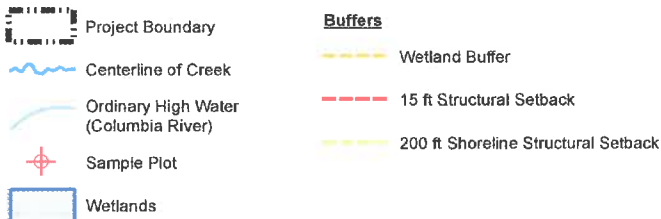
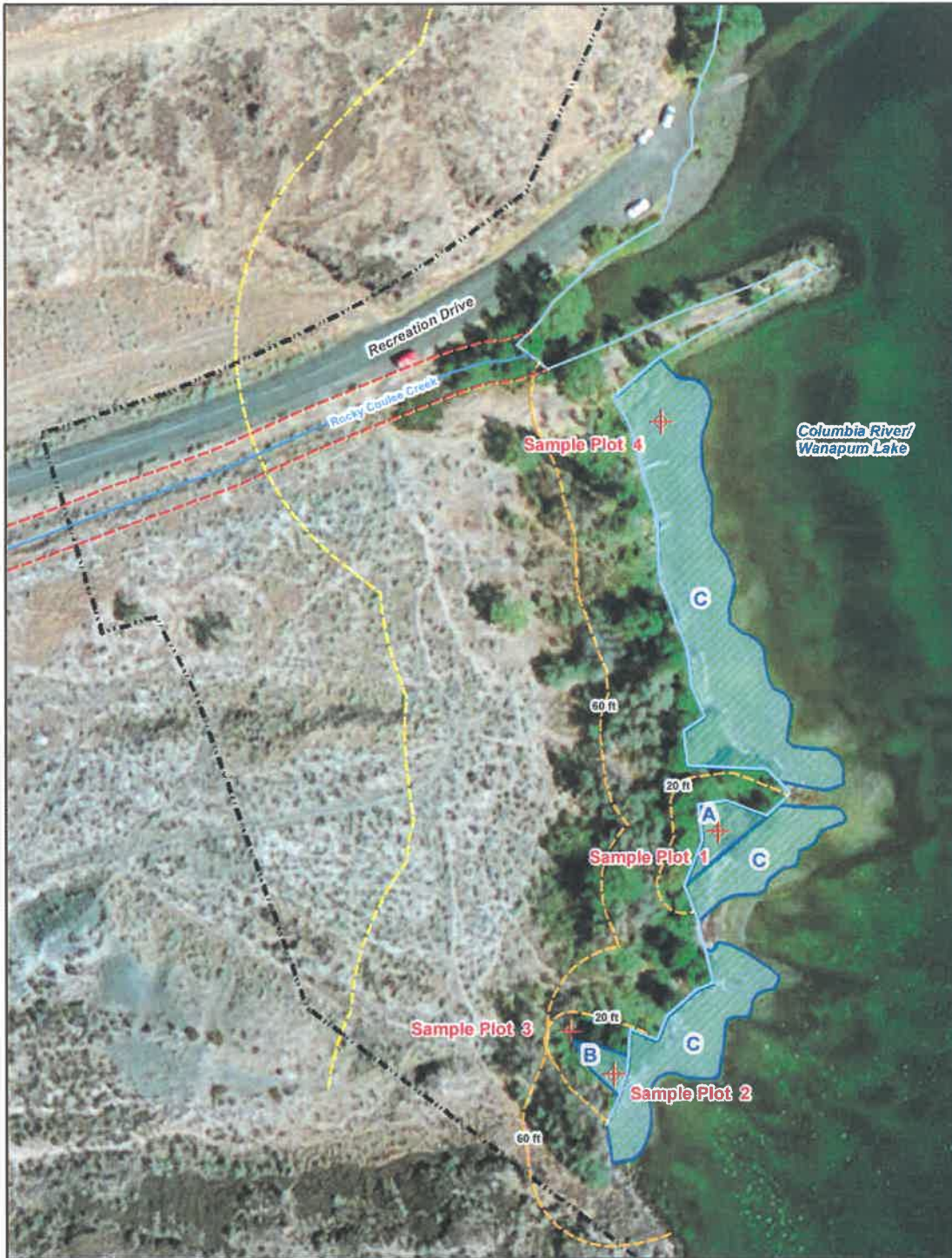


WDFW SalmonScape Mapping Application <http://fortress.wa.gov/dfw/gispublic/apps/salmonscape/default.htm>


Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

DNR FPARS and WDFW SalmonScape Maps	
Rocky Coulee Recreation Area Kittitas County, WA	
	Figure 4

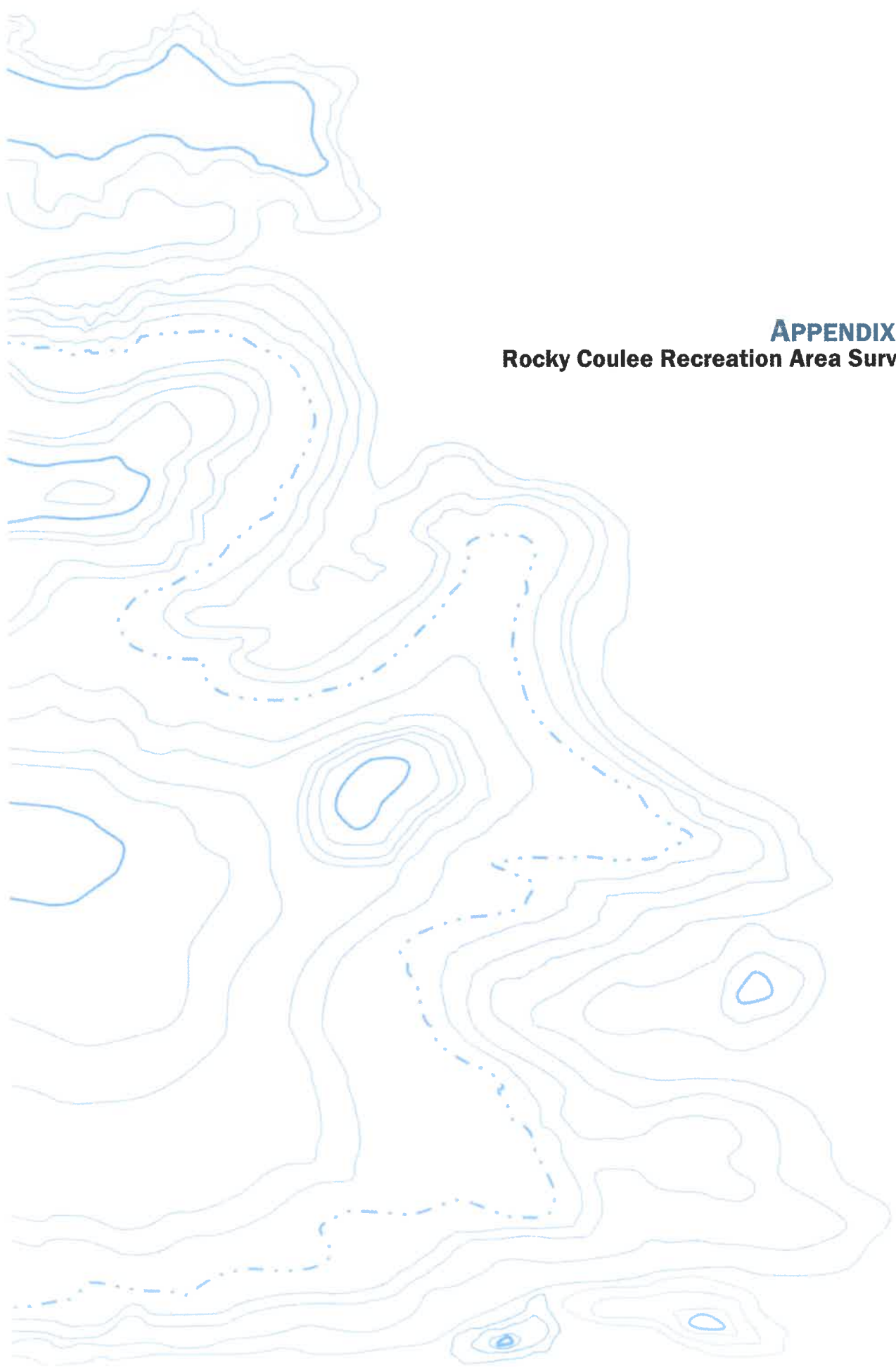


Notes:
 1. The locations of all features shown are approximate. 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication. 3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.
 Data Sources: Aerial Image - Bing Maps.
 State Plane Washington South FIPS 4801 (Feet), North American Datum 1983.
 North arrow oriented to grid north.

Aquatic Critical Areas and Buffers	
Rocky Coulee Grant County P.U.D. No. 2 Kittitas County, WA	
	Figure 5

C:\Users\BAM_P\OneDrive\GIS\3\AKD Critical Areas.mxd_Lat_Serve64_4/25/2012_10:00:01

APPENDIX A
Rocky Coulee Recreation Area Survey





GRANT COUNTY PUD
 PORTLAND, OREGON
 PORTION OF THE S 1/4 OF THE S 1/4
 SECTION 19
 MULTNOMAH COUNTY
 WA52591812

Northwest
 GEOMONITIONS
 TURNING YOUR IDEAS INTO
 REALITY THROUGH
 INNOVATION, INTEGRITY
 AND PERSONAL SERVICE
 Phone: 503-683-2000 Fax: 503-683-2078
 21 North Center Ave. Portland, OR 97201

DATE	BY

REFERENCES SURVEYS:

- (1) HAZARD IDENTIFICATION Public Utility District No. 2 of Clatsop County
 Project No. 2014-001-001-001-001
 Reissued January 24, 2016. Book 25, Page 26 of 26 of Survey
- (2) Project No. 2714 Washington
 Public Utility District No. 2 of Clatsop County
 Project No. 2014-001-001-001-001
 Project Name & Location
 Section 19 (Grant) Sheet 6 (Issued November 4, 2016)
- (3) FIRM Project No. 2014
 Project No. 2014-001-001-001-001
 Project Name & Location
 Section 19 (Grant) Sheet 6 (Issued November 4, 2016)

MONUMENT NOTES:

- (1) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (2) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (3) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (4) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (5) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (6) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (7) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (8) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (9) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)
- (10) Found 1/2" Brass Nail in Concrete (Remnant 111W 19M)

GENERAL NOTES:

- The Block of Portland's The Oregon State Police South Tower (M/O 676).
- The Vertical Datum is NAVD 83.
- Monuments shown were visited on 05/17/21, 05/18/21, 05/19/21, 05/20/21, 05/21/21, 05/22/21, 05/23/21, 05/24/21, 05/25/21, 05/26/21, 05/27/21, 05/28/21, 05/29/21, 05/30/21, 05/31/21, 06/01/21, 06/02/21, 06/03/21, 06/04/21, 06/05/21, 06/06/21, 06/07/21, 06/08/21, 06/09/21, 06/10/21, 06/11/21, 06/12/21, 06/13/21, 06/14/21, 06/15/21, 06/16/21, 06/17/21, 06/18/21, 06/19/21, 06/20/21, 06/21/21, 06/22/21, 06/23/21, 06/24/21, 06/25/21, 06/26/21, 06/27/21, 06/28/21, 06/29/21, 06/30/21, 07/01/21, 07/02/21, 07/03/21, 07/04/21, 07/05/21, 07/06/21, 07/07/21, 07/08/21, 07/09/21, 07/10/21, 07/11/21, 07/12/21, 07/13/21, 07/14/21, 07/15/21, 07/16/21, 07/17/21, 07/18/21, 07/19/21, 07/20/21, 07/21/21, 07/22/21, 07/23/21, 07/24/21, 07/25/21, 07/26/21, 07/27/21, 07/28/21, 07/29/21, 07/30/21, 07/31/21, 08/01/21, 08/02/21, 08/03/21, 08/04/21, 08/05/21, 08/06/21, 08/07/21, 08/08/21, 08/09/21, 08/10/21, 08/11/21, 08/12/21, 08/13/21, 08/14/21, 08/15/21, 08/16/21, 08/17/21, 08/18/21, 08/19/21, 08/20/21, 08/21/21, 08/22/21, 08/23/21, 08/24/21, 08/25/21, 08/26/21, 08/27/21, 08/28/21, 08/29/21, 08/30/21, 08/31/21, 09/01/21, 09/02/21, 09/03/21, 09/04/21, 09/05/21, 09/06/21, 09/07/21, 09/08/21, 09/09/21, 09/10/21, 09/11/21, 09/12/21, 09/13/21, 09/14/21, 09/15/21, 09/16/21, 09/17/21, 09/18/21, 09/19/21, 09/20/21, 09/21/21, 09/22/21, 09/23/21, 09/24/21, 09/25/21, 09/26/21, 09/27/21, 09/28/21, 09/29/21, 09/30/21, 10/01/21, 10/02/21, 10/03/21, 10/04/21, 10/05/21, 10/06/21, 10/07/21, 10/08/21, 10/09/21, 10/10/21, 10/11/21, 10/12/21, 10/13/21, 10/14/21, 10/15/21, 10/16/21, 10/17/21, 10/18/21, 10/19/21, 10/20/21, 10/21/21, 10/22/21, 10/23/21, 10/24/21, 10/25/21, 10/26/21, 10/27/21, 10/28/21, 10/29/21, 10/30/21, 10/31/21, 11/01/21, 11/02/21, 11/03/21, 11/04/21, 11/05/21, 11/06/21, 11/07/21, 11/08/21, 11/09/21, 11/10/21, 11/11/21, 11/12/21, 11/13/21, 11/14/21, 11/15/21, 11/16/21, 11/17/21, 11/18/21, 11/19/21, 11/20/21, 11/21/21, 11/22/21, 11/23/21, 11/24/21, 11/25/21, 11/26/21, 11/27/21, 11/28/21, 11/29/21, 11/30/21, 12/01/21, 12/02/21, 12/03/21, 12/04/21, 12/05/21, 12/06/21, 12/07/21, 12/08/21, 12/09/21, 12/10/21, 12/11/21, 12/12/21, 12/13/21, 12/14/21, 12/15/21, 12/16/21, 12/17/21, 12/18/21, 12/19/21, 12/20/21, 12/21/21, 12/22/21, 12/23/21, 12/24/21, 12/25/21, 12/26/21, 12/27/21, 12/28/21, 12/29/21, 12/30/21, 12/31/21.
- All distances are in US Survey Feet.
- Monuments shown were visited on 05/17/21, 05/18/21, 05/19/21, 05/20/21, 05/21/21, 05/22/21, 05/23/21, 05/24/21, 05/25/21, 05/26/21, 05/27/21, 05/28/21, 05/29/21, 05/30/21, 05/31/21, 06/01/21, 06/02/21, 06/03/21, 06/04/21, 06/05/21, 06/06/21, 06/07/21, 06/08/21, 06/09/21, 06/10/21, 06/11/21, 06/12/21, 06/13/21, 06/14/21, 06/15/21, 06/16/21, 06/17/21, 06/18/21, 06/19/21, 06/20/21, 06/21/21, 06/22/21, 06/23/21, 06/24/21, 06/25/21, 06/26/21, 06/27/21, 06/28/21, 06/29/21, 06/30/21, 07/01/21, 07/02/21, 07/03/21, 07/04/21, 07/05/21, 07/06/21, 07/07/21, 07/08/21, 07/09/21, 07/10/21, 07/11/21, 07/12/21, 07/13/21, 07/14/21, 07/15/21, 07/16/21, 07/17/21, 07/18/21, 07/19/21, 07/20/21, 07/21/21, 07/22/21, 07/23/21, 07/24/21, 07/25/21, 07/26/21, 07/27/21, 07/28/21, 07/29/21, 07/30/21, 07/31/21, 08/01/21, 08/02/21, 08/03/21, 08/04/21, 08/05/21, 08/06/21, 08/07/21, 08/08/21, 08/09/21, 08/10/21, 08/11/21, 08/12/21, 08/13/21, 08/14/21, 08/15/21, 08/16/21, 08/17/21, 08/18/21, 08/19/21, 08/20/21, 08/21/21, 08/22/21, 08/23/21, 08/24/21, 08/25/21, 08/26/21, 08/27/21, 08/28/21, 08/29/21, 08/30/21, 08/31/21, 09/01/21, 09/02/21, 09/03/21, 09/04/21, 09/05/21, 09/06/21, 09/07/21, 09/08/21, 09/09/21, 09/10/21, 09/11/21, 09/12/21, 09/13/21, 09/14/21, 09/15/21, 09/16/21, 09/17/21, 09/18/21, 09/19/21, 09/20/21, 09/21/21, 09/22/21, 09/23/21, 09/24/21, 09/25/21, 09/26/21, 09/27/21, 09/28/21, 09/29/21, 09/30/21, 10/01/21, 10/02/21, 10/03/21, 10/04/21, 10/05/21, 10/06/21, 10/07/21, 10/08/21, 10/09/21, 10/10/21, 10/11/21, 10/12/21, 10/13/21, 10/14/21, 10/15/21, 10/16/21, 10/17/21, 10/18/21, 10/19/21, 10/20/21, 10/21/21, 10/22/21, 10/23/21, 10/24/21, 10/25/21, 10/26/21, 10/27/21, 10/28/21, 10/29/21, 10/30/21, 10/31/21, 11/01/21, 11/02/21, 11/03/21, 11/04/21, 11/05/21, 11/06/21, 11/07/21, 11/08/21, 11/09/21, 11/10/21, 11/11/21, 11/12/21, 11/13/21, 11/14/21, 11/15/21, 11/16/21, 11/17/21, 11/18/21, 11/19/21, 11/20/21, 11/21/21, 11/22/21, 11/23/21, 11/24/21, 11/25/21, 11/26/21, 11/27/21, 11/28/21, 11/29/21, 11/30/21, 12/01/21, 12/02/21, 12/03/21, 12/04/21, 12/05/21, 12/06/21, 12/07/21, 12/08/21, 12/09/21, 12/10/21, 12/11/21, 12/12/21, 12/13/21, 12/14/21, 12/15/21, 12/16/21, 12/17/21, 12/18/21, 12/19/21, 12/20/21, 12/21/21, 12/22/21, 12/23/21, 12/24/21, 12/25/21, 12/26/21, 12/27/21, 12/28/21, 12/29/21, 12/30/21, 12/31/21.

LEGEND

- Found Rebar or Rebar Cap [As Noted]
- Found Brass Cap in Concrete Monument Core [As Noted]
- Colored Point N1, S1 or Found
- Spl. PK with Shovel Stamp: MWG 2020-3
- Large Rock
- Tree Jacklines
- Sign
- Concrete Post (Underground Utility Sign)
- Wellhead Taggals (Per Geodigmatics, Inc.)
- Spot Elevation
- Edge of Footprint
- Center Line Post, Blk/Sp
- Edge of Road/Cl. City
- 100% Water Line Per Geodigmatics, Inc.
- Wellhead Habitat Area Per Geodigmatics, Inc.



APPENDIX B
Site Photographs



Reviewer initials : FMM



1. Rocky Coulee Recreation Area and Columbia River, looking northeast from Ginkgo Petrified Forest Interpretive Center.



2. Northern portion of Rocky Coulee Recreation Area, looking north from the end of Recreation Drive. Notice basalt cliffs on the left and forested buffer on the right.



3. Proposed boat launch area, looking south from the end of Recreation Drive. Notice jetty in the left and center of the photograph.



4. Jetty and basalt cliffs in northern portion of the Rocky Coulee site, looking west from the end of the jetty.

Appendix B - Site Photographs Critical Areas Assessment

Rocky Coulee Recreation Area
Kittitas County, WA

GEOENGINEERS 

Page B-1

Note:
Black spot in the middle of photographs is from damage to camera.



5. Harvester ant colony (conical nest mound), in riparian forest habitat.



6. Wetland A, looking east from Sample Plot 1.



7. Beaver damage.



8. Downy woodpecker in black locust tree.

Reviewer Initials: FMM

Note:
Black spot in the middle of photographs is from damage to camera.

**Appendix B - Site Photographs
Critical Areas Assessment**

**Rocky Coulee Recreation Area
Kittitas County, WA**

GEOENGINEERS 

Page B-2



9. Wetland B, looking southwest from Sample Plot 2.



10. Wetland B, soils and high water table in soil pit.



11. Wetland C – mosaic wetland below the OHWM (Bing Map image).



12. Wetland C (mosaic wetland) vegetation.

Reviewer Initials : FMM

Note:
Black spot in the middle of photographs is from damage to camera.

**Appendix B - Site Photographs
Critical Areas Assessment**

**Rocky Coulee Recreation Area
Kittitas County, WA**



13. Typical vegetation in riparian forest.



14. Sagebrush habitat, looking south to the cliffs by Ginkgo Petrified Forest Interpretive Center.




15. Sagebrush habitat, looking east from the center of the site to the forested riparian habitat.



16. Deer scat, found in the sagebrush habitat.

Reviewer Initials: FMM

Note:
Black spot in the middle of photographs is from damage to camera.

Appendix B - Site Photographs Critical Areas Assessment	
Rocky Coulee Recreation Area Kittitas County, WA	
GEOENGINEERS 	Page B-4



APPENDIX C
FEMA Flood Insurance Rate Map



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

KITTITAS COUNTY,
WASHINGTON
(UNINCORPORATED AREAS)

PANEL 610 OF 700
(SEE MAP INDEX FOR PANELS NOT PRINTED)

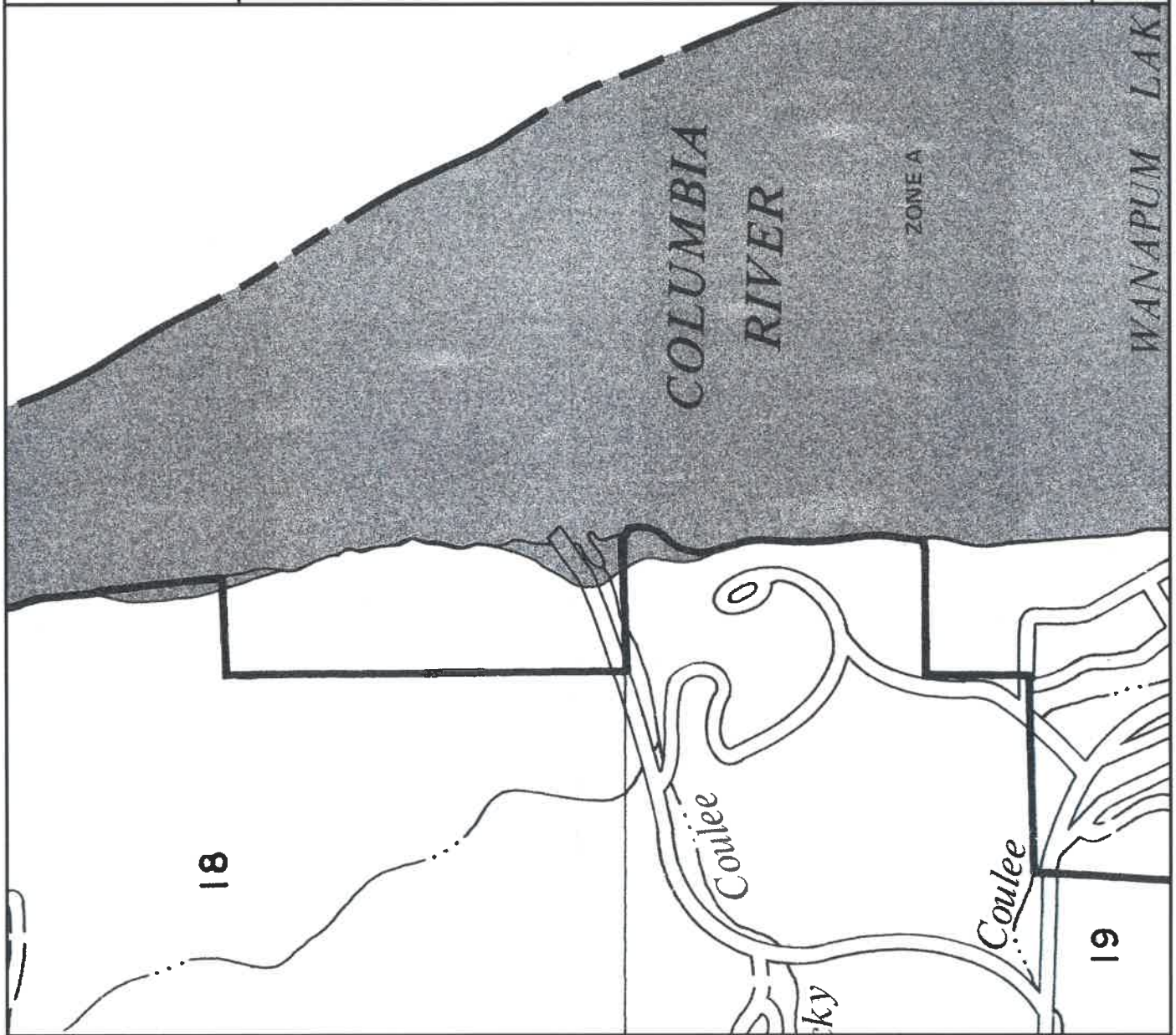
COMMUNITY-PANEL NUMBER
530095 0610 B

EFFECTIVE DATE:
MAY 5, 1981



federal emergency management agency
federal insurance administration

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov





APPENDIX D
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM -- Arid West Region

Project Site: Rocky Coulee Recreation Site City/County: Kittitas Sampling Date: 03-22-12
 Applicant/Owner: Grant PUD/ Project Groundwork State: WA Sampling Point: SP-1 Wetland
 Investigator(s): Fiona McNair and Lisa Berntsen Section, Township, Range: Sec. 18 T17N R23E
 Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): flat Slope (%): 2
 Subregion (LRR): B-Columbia/ Snake River Plateau Lat: 46°57'22" N Long: 119°59'14"W Datum: NAVD88 (survey)
 Soil Map Unit Name: Weirman complex, drained (0 to 5 percent slopes) NWI classification: none
 Are climate / 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks:					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Tree of Paradise (<i>Ailanthus altissima</i>) (NR)	5	N	NI	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)
2. Russian olive (<i>Elaeagnus angustifolia</i>) (NR)	5	N	FAC	
3. Black locust (<i>Robinia pseudoacacia</i>) (*)	20	Y	FACU	
4. <u>NR = not rooted in wetland</u>				
5. <u>* = only 1 young tree rooted in wetland</u>	30	= Total Cover		
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet: Total %Cover of: Multiply by: OBL species x1 = FACW species 75 x2 = 150 FAC species 25 x3 = 75 FACU species 20 x4 = 80 UPL species x5 = Column Totals: 120 (A) 305 (B) Prevalence Index = B/A = 2.54
1. Sweetbriar rose (<i>Rosa eglanteria</i>)	60	Y	FACW	
2. Tree of Paradise (<i>Ailanthus altissima</i>)	10	N	NI	
3. Russian olive (<i>Elaeagnus angustifolia</i>)	20	Y	FAC	
4.				
5.				
	90	= Total Cover		
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators: Yes Dominance Test is >50% Yes Prevalence Index is ≤3.0 ¹ No Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) No Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. Reed canarygrass (<i>Phalaris arundinacea</i>)	15	N	FACW	
2. Indianhemp (<i>Apocynum cannabinum</i>)	5	N		
3. Common mullein (<i>Verbascum thapsus</i>)	5	N		
4.				
5.				
6.				
7.				
8.				
	25	= Total Cover		
<u>Woody Vine Stratum</u>				
1.				
2.				
		= Total Cover		
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:				

Project Site: Rocky Coulee Recreation Site

SOIL

Sampling Point: SP-1 Wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-3	10YR 2/2	100					Silt loam	
13-14	10YR 4/2	95	7.5 YR 6/8	5	CS	M	Silt loam	Loam with gravel

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)		Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)	
Restrictive Layer (if present): Type: Depth (Inches):		Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Remarks:					

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)						Secondary Indicators (2 or more required)																				
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1) (Riverine)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 6" below ground surface (bgs) Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 3" bgs						Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																										
Remarks:																										

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Rocky Coulee Recreation Site City/County: Kittitas Sampling Date: 03-22-12
 Applicant/Owner: Grant PUD/ Project Groundwork State: WA Sampling Point: SP-2 Wetland
 Investigator(s): Fiona McNair and Lisa Berntsen Section, Township, Range: Sec. 18, T17N, R23E
 Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): flat Slope (%): 2
 Subregion (LRR): B-Columbia/ Snake River Plateau Lat: 46°57'22" N Long: 119°59'14" W Datum: NAVD88 (survey)
 Soil Map Unit Name: Weirman complex, drained (0 to 5 percent slopes) NWI classification: none
 Are climate / 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Siberian elm (<i>Ulmus pumila</i>) (OR)	25	Y	NI	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2. Russian olive (<i>Elaeagnus angustifolia</i>) (NR)	15	N	FAC	
3. <u>NR = not rooted in wetland</u>				Total Number of Dominant Species Across All Strata: 2 (B)
4. <u>OR = one plant rooted in wetland only</u>				
5. = Total Cover	40			Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
<u>Sapling/Shrub Stratum</u>				
1. Sweetbriar rose (<i>Rosa eglanteria</i>)	25	Y	FACW	Prevalence Index worksheet: Total %Cover of : Multiply by: OBL species x1 = FACW species 125 x2 = 250 FAC species 15 x3 = 45 FACU species 0 x4 = 0 UPL species x5 = Column Totals: 140 (A) 295 (B) Prevalence Index = B/A = 2.1
2.				
3.				
4.				
5. = Total Cover	25			
<u>Herb Stratum</u>				
1. Reed canarygrass (<i>Phalaris arundinacea</i>)	100	Y	FACW	Hydrophytic Vegetation Indicators: Yes Dominance Test is >50% Yes Prevalence Index is ≤3.0 ¹ No Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) No Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2.				
3.				
4.				
5.				
6.				
7.				
8. = Total Cover	25			
<u>Woody Vine Stratum</u>				
1.				
2.				
= Total Cover				
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust		

Remarks:

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-3	10YR 2/2	100					Silt loam	
13-16	10YR 4/2	85	7.5 YR 6/8	15	C & CS	M	Silt/sand loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):	
Type:	
Depth (Inches):	Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:		
Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	Depth (inches): two x 2' wide patches with surface water 2" deep 6" below ground surface (bgs)	
	Depth (inches): 3" bgs	

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Rocky Coulee Recreation Site City/County: Kittitas Sampling Date: 03-22-12
 Applicant/Owner: Grant PUD/ Project Groundwork State: WA Sampling Point: SP-3 Upland
 Investigator(s): Fiona McNair and Lisa Berntsen Section, Township, Range: Sec. 18, T17N, R23E
 Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): flat Slope (%): 2
 Subregion (LRR): B-Columbia/ Snake River Plateau Lat: 46°57'22" N Long: 119°59'14" W Datum: NAVD88 (survey)
 Soil Map Unit Name: Weirman complex, drained (0 to 5 percent slopes) NWI classification: none
 Are climate / 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. Siberian elm (<i>Ulmus pumila</i>) (OR)	10	N	NI	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)																
2. Russian olive (<i>Elaeagnus angustifolia</i>) (NR)	10	N	FAC																	
3. <u>NR = not rooted in wetland</u>				Total Number of Dominant Species Across All Strata: 3 (B)																
4. <u>OR = one plant rooted in wetland only</u>																				
5.	20	= Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)																
<u>Sapling/Shrub Stratum</u>																				
1. Sweetbriar rose (<i>Rosa eglanteria</i>)	50	Y	FACW	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Total %Cover of</th> <th style="width: 50%; text-align: center;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>x1 =</td> </tr> <tr> <td>FACW species 100</td> <td>x2 = 200</td> </tr> <tr> <td>FAC species 10</td> <td>x3 = 20</td> </tr> <tr> <td>FACU species 0</td> <td>x4 = 0</td> </tr> <tr> <td>UPL species</td> <td>x5 =</td> </tr> <tr> <td>Column Totals: 110 (A)</td> <td>220 (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = 2</td> </tr> </tbody> </table>	Total %Cover of	Multiply by:	OBL species	x1 =	FACW species 100	x2 = 200	FAC species 10	x3 = 20	FACU species 0	x4 = 0	UPL species	x5 =	Column Totals: 110 (A)	220 (B)	Prevalence Index = B/A = 2	
Total %Cover of	Multiply by:																			
OBL species	x1 =																			
FACW species 100	x2 = 200																			
FAC species 10	x3 = 20																			
FACU species 0	x4 = 0																			
UPL species	x5 =																			
Column Totals: 110 (A)	220 (B)																			
Prevalence Index = B/A = 2																				
2. Barclays willow (<i>Salix barclayi</i>)	20	Y	FACW																	
3.																				
4.																				
5.	70	= Total Cover																		
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators: Yes Dominance Test is >50% Yes Prevalence Index is ≤3.0 ¹ No Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) No Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																
1. Reed canarygrass (<i>Phalaris arundinacea</i>)	30	Y	FACW																	
2.																				
3.																				
4.																				
5.																				
6.																				
7.																				
8.	30	= Total Cover																		
<u>Woody Vine Stratum</u>																				
1.																				
2.																				
= Total Cover																				
% Bare Ground in Herb Stratum	0	% Cover of Biotic Crust		Hydrophytic Vegetation Present?																
					Yes <input type="checkbox"/> <input checked="" type="checkbox"/> No <input type="checkbox"/>															
Remarks:																				

Project Site: Rocky Coulee Recreation Site

SOIL

Sampling Point: SP-3 Upland

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-14	10YR 3/3	100					Silt loam	More sand below 10"

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)				Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)					
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)					
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)					
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)					
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)					
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)						
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)						
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)						
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)						
<input type="checkbox"/> Sandy Gleyed Matrix (S4)							

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):	
Type:	
Depth (Inches):	Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Rocky Coulee Recreation Site City/County: Kittitas Sampling Date: 03-22-12
 Applicant/Owner: Grant PUD/ Project Groundwork State: WA Sampling Point: SP-4 Wetland
 Investigator(s): Fiona McNair and Lisa Berntsen Section, Township, Range: Sec. 18, T17N, R23E
 Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): flat Slope (%): 2
 Subregion (LRR): B-Columbia/ Snake River Plateau Lat: 46°57'22" N Long: 119°59'14"W Datum: NAVD88 (survey)
 Soil Map Unit Name: Weirman complex, drained (0 to 5 percent slopes) NWI classification: none
 Are climate / 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																					
1.				Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 2 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)																					
2.																									
3.																									
4.																									
5.	0	= Total Cover																							
<u>Sapling/Shrub Stratum</u>																									
1.				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 25%; text-align: center;">Total %Cover of</th> <th style="width: 25%; text-align: center;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td style="text-align: center;">0</td> <td style="text-align: center;">x1 = 0</td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;">90</td> <td style="text-align: center;">x2 = 180</td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;">0</td> <td style="text-align: center;">x3 = 0</td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;">0</td> <td style="text-align: center;">x4 = 0</td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">0</td> <td style="text-align: center;">x5 = 0</td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;">9 (A)</td> <td style="text-align: center;">180 (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = 2		Total %Cover of	Multiply by:	OBL species	0	x1 = 0	FACW species	90	x2 = 180	FAC species	0	x3 = 0	FACU species	0	x4 = 0	UPL species	0	x5 = 0	Column Totals:	9 (A)	180 (B)
	Total %Cover of	Multiply by:																							
OBL species	0	x1 = 0																							
FACW species	90	x2 = 180																							
FAC species	0	x3 = 0																							
FACU species	0	x4 = 0																							
UPL species	0	x5 = 0																							
Column Totals:	9 (A)	180 (B)																							
2.																									
3.																									
4.																									
5.	0	= Total Cover																							
<u>Herb Stratum</u>																									
1. Reed canarygrass (<i>Phalaris arundinacea</i>)	25	Y	FACW	Hydrophytic Vegetation Indicators: Yes Dominance Test is >50% Yes Prevalence Index is ≤3.0 ¹ No Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) No Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																					
2. Slender rush (<i>Juncus tenuis</i>)	65	Y	FACW-																						
3.																									
4.																									
5.																									
6.																									
7.																									
8.	90	= Total Cover																							
<u>Woody Vine Stratum</u>																									
1.				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																					
2.			= Total Cover																						
% Bare Ground in Herb Stratum	10	% Cover of Biotic Crust																							
Remarks:																									

Project Site: Rocky Coulee Recreation Site

SOIL

Sampling Point: SP-4 Wetland

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-6	10YR 4/2	90	7.5 YR 6/8	10	C & CS		Silt/sand loam	
6-16	10YR 4/2	95					sand	Streaks of stripped color and black-stained areas, gravel mixed with sand

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)	
<input type="checkbox"/> Histic Epipedon (A2)	<input checked="" type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):			
Type:			
Depth (Inches):		Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:					
Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	6" above ground surface	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	Above ground surface		
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	to surface		

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

Remarks: This sample plot was located within the normal operating pool of the Columbia River/Wanapum Lake. Water depth in the sample plot during the site visit was 6 inches.



The image features a topographic map with contour lines. A dashed blue line traces a path across the map, starting from the upper left, moving south, then east, then south again, and finally east towards the bottom right. There are several closed contour lines, some of which are solid blue, representing specific features or points of interest.

APPENDIX E
Wetland Rating Forms

Wetland name or number A

WETLAND RATING FORM – EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland A Date of site visit: 03/22/12

Rated by Fiona McNaair Trained by Ecology? Yes No Date of training Oct 08

SEC: 19 TOWNSHIP: 17N RANGE: 23E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 5 Estimated size 1,385 sq ft

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions	18
Score for Hydrologic Functions	6
Score for Habitat Functions	11
TOTAL score for functions	35

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

III

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	
Alkali	Riverine	
Natural Heritage Wetland	Lake-fringe	<input checked="" type="checkbox"/>
Bog	Slope	
Forest		
None of the above	Check if unit has multiple HGM classes present	

Wetland name or number A

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

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

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.</p>		X
<p>SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).</p>		X
<p>SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i> <i>It is located waterward of the OHWMA, thus within the Columbia River</i></p>	X	
<p>SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 20 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Eastern Washington

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

1. Does the entire wetland unit meet both of the following criteria?

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

At least 30% of the open water area is deeper than 3 m (10 ft)?

NO - go to Step 2

YES - The wetland class is Lake-fringe (lacustrine fringe)

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

The wetland is on a slope (*slope can be very gradual*),

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded?**

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*

NO - go to Step 3

YES - The wetland class is **Slope**

3. Is the entire wetland unit in a valley or stream channel where it gets inundated by overbank flooding from that stream or river? In general, the flooding should occur at least once every ten years to answer "yes." *The wetland can contain depressions that are filled with water when the river is not flooding.*

NO - go to Step 4

YES - The wetland class is **Riverine**

4. Is the entire wetland unit in a topographic depression, outside areas that are inundated by overbank flooding, in which water ponds, or is saturated to the surface, at some time of the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to Step 5

YES - The wetland class is **Depressional**

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

Wetland name or number A

L	Lake-fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Points <small>(only 1 score per box)</small>
L	L 1.0 Does the wetland have the <u>potential</u> to improve water quality?	(see p.52)
L	L 1.1 Average width of vegetation along the lakeshore: Vegetation is more than 33ft (10m) wide <u>points = 6</u> Vegetation is between 16 ft (5m) and 33ft wide points = 3 Vegetation is 6ft (2m) wide to < 16 ft wide points = 1 Map of Cowardin classes with widths marked	Figure ____ 6
L	L 1.2 Characteristics of the vegetation in the wetland <i>choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed.</i> Herbaceous plants cover >90% of the vegetated area points = 6 Herbaceous plants cover >2/3 of the vegetated area points = 4 Herbaceous plants cover >1/3 of the vegetated area <u>points = 3</u> Other vegetation that is not aquatic bed in > 2/3 vegetated area points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1 Aquatic bed cover > 2/3 of the vegetated area points = 0 Map with polygons of different vegetation types	Figure ____ 3
L	Total for L1 <i>Add the points in the boxes above</i>	9
L	L 2.0 Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in the lake water, or surface water flowing through the wetland to the lake is polluted. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> — Wetland is along the shores of a lake or reservoir that does not meet water quality standards — Grazing in the wetland or within 150ft — Untreated stormwater flows into the wetland — Tilled fields or orchards within 150 feet of wetland — Residential or urban areas are within 150 ft of wetland <input checked="" type="checkbox"/> Powerboats with gasoline or diesel engines use the lake — Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of shore of lake) — Other _____ YES multiplier is <u>2</u> NO multiplier is 1	(see p. 53) multiplier 2
L	<u>TOTAL - Water Quality Functions</u> Multiply the score from L1 by the multiplier in L2 <i>Record score on p. 1 of field form</i>	18

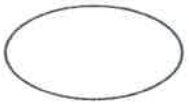





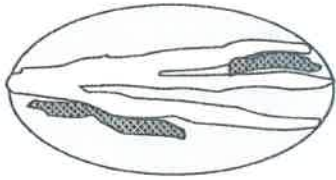
Wetland name or number A

L	Lake-fringe Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce shoreline erosion	Points (only 1 score per box)
L	L 3.0 Does the wetland have the <u>potential</u> to reduce shoreline erosion?	(see p.54)
L	L 3.1 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed): (choose the highest scoring description that matches conditions in the wetland) > ¾ of the vegetation is shrubs or trees at least 33 ft (10m) wide points = 6 > ¾ of the vegetation is shrubs or trees at least 6 ft. (2 m) wide points = 4 > ¼ of the vegetation is shrubs or trees at least 33 ft (10m) wide points = 4 Vegetation is at least 6 ft (2m) wide points = 2 Vegetation is less than 6 ft (2m) wide points = 0 Aerial photo or map with Cowardin vegetation classes	Figure <u>6</u>
L	L 4.0 Does the wetland have the <u>opportunity</u> to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following conditions apply.</i> — There are human structures and activities along the shore behind the wetland (buildings, fields) that can be damaged by erosion. — There are undisturbed natural resources along the shore (e.g. mature forests, other classes of wetland) behind the wetland than can be damaged by shoreline erosion — Other _____ YES multiplier is 2 NO multiplier is 1	(see p. 55) Multiplier <u>1</u>
L	TOTAL - Hydrologic Functions Multiply the score from L3 by the multiplier in L4 <i>Record score on p. 1 of field form</i>	<u>6</u>

Comments

Wetland name or number A

<p>These questions apply to wetlands of all HGM classes.</p> <p>HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat</p>		<p>Points (only 1 score per box)</p>								
<p>H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>										
<p>H 1.1 <u>Categories of vegetation structure</u> (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is ¼ acre or more than 10% of the area if unit is < 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants 0-12 in. (0 – 30 cm) high are the highest layer and have > 30% cover <input type="checkbox"/> Emergent plants >12 – 40 in. (>30 – 100cm) high are the highest layer with >30% cover <input type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) </p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="margin-left: auto; margin-right: 0;"> <tr> <td>4-6 types</td> <td>points = 3</td> </tr> <tr> <td>3 types</td> <td>points = 2</td> </tr> <tr> <td>2 types</td> <td>points = 1</td> </tr> <tr> <td>1 type</td> <td>points = 0</td> </tr> </table>		4-6 types	points = 3	3 types	points = 2	2 types	points = 1	1 type	points = 0	<p>Figure ____</p> <p style="text-align: center; font-size: 2em;">0</p>
4-6 types	points = 3									
3 types	points = 2									
2 types	points = 1									
1 type	points = 0									
<p>Map of Cowardin vegetation classes and areas with different heights of emergents</p>										
<p>H 1.2. Is one of the vegetation types "aquatic bed?" (see p .64) YES = 1 point NO = 0 points</p>		<p>Figure ____</p> <p style="text-align: center; font-size: 2em;">0</p>								
<p>H 1.3. <u>Surface Water</u> (see p.65)</p> <p>H 1.3.1 Does the unit have areas of "open" water (without herbaceous or shrub plants) over at least ¼ acre or 10% of its area during the spring (March – early June) OR in early fall (August – end of September)? (Note: answer YES for Lake-fringe wetlands) YES = 3 points & go to H 1.4 NO = go to H 1.3.2</p> <p>H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least ¼ acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points NO = 0 points</p> <p style="text-align: right;">Map showing areas of open water</p>		<p>Figure ____</p> <p style="text-align: center; font-size: 2em;">3</p>								
<p>H 1.4. <u>Richness of Plant Species</u> (see p. 66) 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 Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)</p> <p>If you counted: > 9 species points = 2 4-9 species points = 1 # of species ____ < 4 species points = 0 points</p> <p>List species below if you wish</p>		<p>Figure ____</p> <p style="text-align: center; font-size: 2em;">1</p>								

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end; text-align: center;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  High = 3 points </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; text-align: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  High = 3 points </div> <div style="text-align: center;">  [Riparian braided channel] </div> </div> <p style="text-align: center; margin-top: 10px;">NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure <u> </u></p> <p style="font-size: 2em; margin-top: 50px;">1</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" <u>or</u> large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. <i>The presence of "yellow flag" Iris is a good indicator of vegetation in areas permanently ponded.</i></p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)</p> <p style="text-align: right; margin-top: 10px;"><i>Maximum score possible = 6</i></p>	<p style="font-size: 2em; margin-top: 50px;">0</p>
<p>TOTAL Potential to provide habitat Add the scores in the column above</p>	<div style="border: 2px dashed black; padding: 5px; font-size: 2em; width: 40px; margin: 0 auto;">5</div>
<p>Comments</p>	

<p>H 2.0 Does the wetland have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (see p. 71) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</i></p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference Points = 5 — 330 ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4 — 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4 — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3 — 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — No paved areas (except paved trails) or buildings within 80ft (25 m) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — No paved areas or buildings within 170ft (50m) of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — Heavy grazing in buffer. Points = 1 — Vegetated buffers are <6.6ft wide (2m) for more than 95% of the circumference (e.g . tilled fields, paving, basalt bedrock extend to edge of wetland). Points = 0 — Buffer does not meet any of the criteria above. Points = 1 <p style="text-align: center;">Aerial photo showing buffers</p>	<p>Figure ____</p> <p style="text-align: center; font-size: 2em;">3</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (<i>dams, heavily used gravel roads, paved roads, fields tilled to edge of stream, or pasture to edge of stream are considered breaks in the corridor</i>).</p> <p style="padding-left: 40px;">YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor, at least ¼ mile long with water flowing seasonally, OR a lake-fringe wetland without a "wet" corridor, OR a riverine wetland without a surface channel connecting to the stream?</p> <p style="padding-left: 40px;">YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (<i>do not include man-made ditches</i>)?</p> <p style="padding-left: 40px;">YES = 1 point NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">2</p>

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections to the habitats can be disturbed.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- 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 p. 152*).
- Eastside Steppe:** Non-forested vegetation type dominated by broadleaf herbaceous flora (*full description of herbaceous species found here are in WDFW PHS report p. 153*).
- Old-growth/Mature forests (east of Cascade crest):** (*full descriptions in WDFW PHS report p. 157*). **Old-growth:** Stands are > 150 yrs in age; may be variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. **Mature:** Stands 80 – 160 yrs old. Decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.
- Oregon white Oak:** Woodlands 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*).
- Juniper Savannah:** All juniper woodlands (*SE part of state only; check map*)
- 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).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Inland Dunes** This placeholder is for a new priority habitat that will capture areas known as Inland Dunes. A definition will be developed later in Fall 2008. (*check WDFW web site*)
- 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 7.6 m (25 ft) high and occurring below 5000 ft.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- 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 > 30 cm (12 in) in eastern Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has 2 or more Priority Habitats = 4 points

If wetland has 1 Priority Habitat = 2 points

No Priority habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Near-by wetlands are addressed in question H 2.4)

Wetland name or number A

<p>H 2.4 <u>Landscape</u> (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit is in an area where annual rainfall is less than 12 inches, and its water regime is not influenced by irrigation practices, dams, or water control structures. (Generally, this means outside boundaries of reclamation areas, irrigation district, or reservoirs) points = 5 — There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing in the connection or an open water connection along a lake shore without heavy boat traffic are OK, but connections should NOT be bisected by paved roads, fill, fields, heavy boat traffic or other development) points = 5 — There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed? points = 2 <input checked="" type="checkbox"/> There is at least 1 wetland within ½ mile. (points = 1) — Does not meet any of the four criteria above points = 0 	1
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	11
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 <u>Indicator of reduced habitat functions</u> (see p. 75) Do the areas of open water in the wetland unit have a resident population of carp (see text for indicators of the presence of carp)? (NOTE: This question does not apply to reservoirs with water levels controlled by dams, such as the reservoirs on the Columbia and Snake Rivers)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p> <p>0</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	11

Comments

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
<p>SC 1.0 Vernal pools (see p. 79)</p> <p>Is the wetland unit less than 4000 ft², and does it meet at least two of the following criteria?</p> <ul style="list-style-type: none"> — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>NOTE: If you find perennial, "obligate", wetland plants the wetland is probably NOT a vernal pool</i> — The soil in the wetland are shallow (<1ft deep (30 cm)) and is underlain by an impermeable layer such as basalt or clay. — Surface water is present for less than 120 days during the "wet" season. <p>YES = Go to SC 1.1 NO - not a vernal pool</p> <p>SC 1.1 Is the vernal pool relatively undisturbed in February and March?</p> <p>YES = Go to SC 1.2 NO - not a vernal pool with special characteristics</p>	
<p>SC 1.2 Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 miles (other wetlands, rivers, lakes etc.)?</p> <p>YES = Category II NO = Category III</p>	<p>Cat. II Cat. III</p>
<p>SC 2.0 Alkali wetlands (see p. 81)</p> <p>Does the wetland unit meets one of the following two criteria?</p> <ul style="list-style-type: none"> — The wetland has a conductivity > 3.0 mS/cm. — The wetland has a conductivity between 2.0 - 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as "alkali" species (see Table 2 for list of plants found in alkali systems). — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt. <p>OR does the wetland unit meets two of the following three sub-criteria?</p> <ul style="list-style-type: none"> — Salt encrustations around more than 80% of the edge of the wetland — More than ¾ of the plant cover consists of species listed on Table 2 — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands. <p>YES = Category I NO - not an alkali wetland</p>	<p>Cat. I</p>

Wetland name or number A

SC 3.0 Natural Heritage Wetlands (see p. 81)
 Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 3.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*
 S/T/R information from Appendix D ____ or accessed from WNHP/DNR database ____

YES ____ – contact WNHP/DNR (see p. 79) and go to SC 3.2 NO

SC 3.2 Has DNR identified the wetland unit as a high quality undisturbed wetland or as or as a site with state threatened, endangered, or sensitive plant species?
 YES = Category I NO – not a natural heritage wetland

Cat. I

SC 4.0 Bogs (see p. 82)
 Does the wetland unit (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs. *Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.*

SC 4.1. Does the wetland unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)?
 Yes - go to SC 4.3 No - go to SC 4.2

SC 4.2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond??
 Yes - go to SC 4.3 No - Is not a bog for rating

SC 4.3. Does the wetland unit have more than 70% cover of mosses at ground level in any area within its boundaries, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?
 Yes – Category I bog No - go to Q. 4.4

NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.

SC 4.4. Is the unit, or any part of it, forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?
 Yes – Category I bog NO

Cat. I

Cat. I

<p>SC 5.0 Forested Wetlands (see p. 85)</p> <p>Does the wetland unit have an area of forest (you should have identified a forested class, if present, in question H 1.1) rooted within its boundary that meet at least one of the following three criteria?</p> <ul style="list-style-type: none"> — The wetland is within the “100 year” floodplain of a river or stream — aspen (<i>Populus tremuloides</i>) are a dominant or co-dominant of the “woody” vegetation. (Dominants means it represents at least 50% of the cover of woody species, co-dominant means it represents at least 20% of the total cover of woody species) — There is at least ¼ acre of trees (even in wetlands smaller than 2.5 acres) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (see p. 83) <p>YES = go to SC 5.1 NO → not a forested wetland with special characteristics</p>	
<p>SC 5.1 Does the wetland unit have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees</p> <p>Slow growing trees are: western red cedar (<i>Thuja plicata</i>), Alaska yellow cedar (<i>Chamaecyparis nootkatensis</i>), pine spp. mostly “white” pine (<i>Pinus monticola</i>), western hemlock (<i>Tsuga heterophylla</i>), Englemann spruce (<i>Picea engelmannii</i>).</p> <p>YES = Category I NO = go to SC 5.2</p>	<p>Cat. I</p>
<p>SC 5.2 Does the unit have areas where aspen (<i>Populus tremuloides</i>) are a dominant or co-dominant species?</p> <p>YES = Category I NO = go to SC 5.3</p>	<p>Cat. I</p>
<p>SC 5.3 Does the wetland unit have areas with a forest canopy where more than 50% of the tree species (by cover) are fast growing species.</p> <p>Fast growing species are:</p> <p>Alders -- red (<i>Alnus rubra</i>), thin-leaf (<i>A. tenuifolia</i>)</p> <p>Cottonwoods – narrow-leaf (<i>Populus angustifolia</i>), black (<i>P. balsamifera</i>)</p> <p>Willows- peach-leaf (<i>Salix amygdaloides</i>), Sitka (<i>S. sitchensis</i>), Pacific (<i>S. lasiandra</i>), Aspen - (<i>Populus tremuloides</i>), Water Birch (<i>Betula occidentalis</i>)</p> <p>YES = Category II NO = go to SC 5.5</p>	<p>Cat. II</p>
<p>SC 5.5 Is the forested component of the wetland within the “100 year floodplain” of a river or stream?</p> <p>YES = Category II</p>	<p>Cat. II</p>
<p>Category of wetland based on Special Characteristics</p> <p>Choose the “highest” rating if wetland falls into several categories.</p> <p>If you answered NO for all types enter “Not Applicable” on p.1</p>	<p>NA</p>

Wetland name or number B

WETLAND RATING FORM – EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland B Date of site visit: 03/22/12

Rated by Fiona McNair Trained by Ecology? Yes No Date of training Oct '08

SEC: 19 TOWNSHIP: 17N RANGE: 23E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 5 Estimated size 775 sq ft

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions	24
Score for Hydrologic Functions	2
Score for Habitat Functions	9
TOTAL score for functions	35

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

III

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	
Alkali	Riverine	
Natural Heritage Wetland	Lake-fringe	<input checked="" type="checkbox"/>
Bog	Slope	
Forest		
None of the above	Check if unit has multiple HGM classes present	

Wetland name or number B

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

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

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 20 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Eastern Washington

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

1. Does the entire wetland unit **meet both** of the following criteria?
 - The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
 - At least 30% of the open water area is deeper than 3 m (10 ft)?

NO - go to Step 2 **YES - The wetland class is Lake-fringe (lacustrine fringe)**

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

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*

NO - go to Step 3 **YES - The wetland class is Slope**

3. Is the entire wetland unit in a valley or stream channel where it gets inundated by overbank flooding from that stream or river? In general, the flooding should occur at least once every ten years to answer "yes." *The wetland can contain depressions that are filled with water when the river is not flooding.*

NO - go to Step 4 **YES - The wetland class is Riverine**

4. Is the entire wetland unit in a topographic depression, outside areas that are inundated by overbank flooding, in which water ponds, or is saturated to the surface, at some time of the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to Step 5 **YES - The wetland class is Depressional**

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

Wetland name or number: B

L	Lake-fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Points (only 1 score per box)
L	L 1.0 Does the wetland have the <u>potential</u> to improve water quality?	<i>(see p.52)</i>
L	<p>L 1.1 Average width of vegetation along the lakeshore:</p> <p>Vegetation is more than 33ft (10m) wide <u>points = 6</u></p> <p>Vegetation is between 16 ft (5m) and 33ft wide points = 3</p> <p>Vegetation is 6ft (2m) wide to < 16 ft wide points = 1</p> <p>Map of Cowardin classes with widths marked</p>	Figure _____ 6
L	<p>L 1.2 Characteristics of the vegetation in the wetland <i>choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed.</i></p> <p>Herbaceous plants cover >90% of the vegetated area <u>points = 6</u></p> <p>Herbaceous plants cover >2/3 of the vegetated area points = 4</p> <p>Herbaceous plants cover >1/3 of the vegetated area points = 3</p> <p>Other vegetation that is not aquatic bed in > 2/3 vegetated area points = 3</p> <p>Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1</p> <p>Aquatic bed cover > 2/3 of the vegetated area points = 0</p> <p>Map with polygons of different vegetation types</p>	Figure _____ 6
L	Total for L1 <i>Add the points in the boxes above</i>	12
L	<p>L 2.0 Does the wetland have the <u>opportunity</u> to improve water quality?</p> <p>Answer YES if you know or believe there are pollutants in the lake water, or surface water flowing through the wetland to the lake is polluted. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i></p> <ul style="list-style-type: none"> — Wetland is along the shores of a lake or reservoir that does not meet water quality standards — Grazing in the wetland or within 150ft — Untreated stormwater flows into the wetland — Tilled fields or orchards within 150 feet of wetland — Residential or urban areas are within 150 ft of wetland <input checked="" type="checkbox"/> Powerboats with gasoline or diesel engines use the lake — Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of shore of lake) — Other _____ <p>YES multiplier is <u>(2)</u> NO multiplier is 1</p>	<i>(see p. 53)</i> multiplier <u>2</u>
L	<p>TOTAL - Water Quality Functions Multiply the score from L1 by the multiplier in L2</p> <p style="text-align: right;"><i>Record score on p. 1 of field form</i></p>	24

Wetland name or number B

L	Lake-fringe Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce shoreline erosion	Points (only 1 score per box)
L	L 3.0 Does the wetland have the <u>potential</u> to reduce shoreline erosion?	<i>(see p. 54)</i>
L	L 3.1 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed): (choose the highest scoring description that matches conditions in the wetland) > 3/4 of the vegetation is shrubs or trees at least 33 ft (10m) wide points = 6 > 3/4 of the vegetation is shrubs or trees at least 6 ft. (2 m) wide points = 4 > 1/4 of the vegetation is shrubs or trees at least 33 ft (10m) wide points = 4 Vegetation is at least 6 ft (2m) wide <u>points = 2</u> Vegetation is less than 6 ft (2m) wide points = 0 Aerial photo or map with Cowardin vegetation classes	Figure <u> </u> <u>2</u>
L	L 4.0 Does the wetland have the <u>opportunity</u> to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following conditions apply.</i> — There are human structures and activities along the shore behind the wetland (buildings, fields) that can be damaged by erosion. — There are undisturbed natural resources along the shore (e.g. mature forests, other classes of wetland) behind the wetland than can be damaged by shoreline erosion — Other _____ YES multiplier is 2 NO multiplier is <u>1</u>	<i>(see p. 55)</i> Multiplier <u>1</u>
L	TOTAL - Hydrologic Functions Multiply the score from L3 by the multiplier in L4 <i>Record score on p. 1 of field form</i>	<u>2</u>

Comments

Wetland name or number B

<i>These questions apply to wetlands of all HGM classes.</i>		Points (only 1 score per box)								
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat										
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?										
<p>H 1.1 Categories of vegetation structure (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is ¼ acre or more than 10% of the area if unit is < 2.5 acres.</p> <p><input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants 0-12 in. (0 – 30 cm) high are the highest layer and have > 30% cover <input checked="" type="checkbox"/> Emergent plants >12 – 40 in. (>30 – 100cm) high are the highest layer with >30% cover <input type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover)</p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="margin-left: auto; margin-right: 0;"> <tr> <td>4-6 types</td> <td>points = 3</td> </tr> <tr> <td>3 types</td> <td>points = 2</td> </tr> <tr> <td>2 types</td> <td>points = 1</td> </tr> <tr> <td>1 type</td> <td>points = 0</td> </tr> </table>		4-6 types	points = 3	3 types	points = 2	2 types	points = 1	1 type	points = 0	<p>Figure ___</p> <p style="font-size: 2em; text-align: center;">0</p>
4-6 types	points = 3									
3 types	points = 2									
2 types	points = 1									
1 type	points = 0									
Map of Cowardin vegetation classes and areas with different heights of emergents										
<p>H 1.2. Is one of the vegetation types "aquatic bed?" (see p. 64) YES = 1 point NO = 0 points</p>		<p>Figure ___</p> <p style="font-size: 2em; text-align: center;">0</p>								
<p>H 1.3. Surface Water (see p.65)</p> <p>H 1.3.1 Does the unit have areas of "open" water (without herbaceous or shrub plants) over at least ¼ acre or 10% of its area during the spring (March – early June) OR in early fall (August – end of September)? <i>Note: answer YES for Lake-fringe wetlands</i> YES = 3 points & go to H 1.4 NO = go to H 1.3.2</p> <p>H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least ¼ acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points NO = 0 points</p> <p style="text-align: center;">Map showing areas of open water</p>		<p>Figure ___</p> <p style="font-size: 2em; text-align: center;">3</p>								
<p>H 1.4. Richness of Plant Species (see p. 66) 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 Salt Cedar (Tamarisk)</p> <p>If you counted: > 9 species points = 2 4-9 species points = 1 < 4 species points = 0 points</p> <p># of species <u>3</u> (< 4 species) (points = 0 points)</p> <p>List species below if you wish</p> <p style="font-size: 1.5em; margin-left: 20px;">3 species rooted in the wetland</p>		<p>Figure ___</p> <p style="font-size: 2em; text-align: center;">0</p>								

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>None = 0 points Low = 1 point Moderate = 2 points</p> <p>High = 3 points</p> <p>[Riparian braided channel]</p> <p>NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure <u> </u></p> <p style="text-align: center;">0</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" or large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. The presence of "yellow flag" Iris is a good indicator of vegetation in areas permanently ponded.</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)</p> <p style="text-align: right;">Maximum score possible = 6</p>	<p style="text-align: center;">0</p>
<p style="text-align: right;">TOTAL Potential to provide habitat Add the scores in the column above</p>	<p style="text-align: center; border: 1px dashed black;">3</p>

Comments

<p>H 2.0 Does the wetland have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (see p. 71) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</i></p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference Points = 5 — 330 ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4 — 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4 — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3 — 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — No paved areas (except paved trails) or buildings within 80ft (25 m) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — No paved areas or buildings within 170ft (50m) of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — Heavy grazing in buffer. Points = 1 — Vegetated buffers are <6.6ft wide (2m) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland). Points = 0 — Buffer does not meet any of the criteria above. Points = 1 <p style="text-align: center;">Aerial photo showing buffers</p>	<p>Figure ___</p> <p style="text-align: center; font-size: 2em;">3</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (<i>dams, heavily used gravel roads, paved roads, fields tilled to edge of stream, or pasture to edge of stream are considered breaks in the corridor</i>).</p> <p style="text-align: center;">YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor, at least ¼ mile long with water flowing seasonally, OR a lake-fringe wetland without a "wet" corridor, OR a riverine wetland without a surface channel connecting to the stream?</p> <p style="text-align: center;">YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (<i>do not include man-made ditches</i>)?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">2</p>

Wetland name or number B

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections to the habitats can be disturbed.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- 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 p. 152*).
- Eastside Steppe:** Non-forested vegetation type dominated by broadleaf herbaceous flora (*full description of herbaceous species found here are in WDFW PHS report p. 153*).
- Old-growth/Mature forests (east of Cascade crest):** (*full descriptions in WDFW PHS report p. 157*). **Old-growth:** Stands are > 150 yrs in age; may be variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. **Mature:** Stands 80 – 160 yrs old. Decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.
- Oregon white Oak:** Woodlands 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*).
- Juniper Savannah:** All juniper woodlands (*SE part of state only; check map*)
- 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).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Inland Dunes** This placeholder is for a new priority habitat that will capture areas known as Inland Dunes. A definition will be developed later in Fall 2008. (*check WDFW web site*)
- 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 7.6 m (25 ft) high and occurring below 5000 ft.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- 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 > 30 cm (12 in) in eastern Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has 2 or more Priority Habitats = 4 points

If wetland has 1 Priority Habitat = 2 points

No Priority habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number B

<p>H 2.4 Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit is in an area where annual rainfall is less than 12 inches, and its water regime is not influenced by irrigation practices, dams, or water control structures. (Generally, this means outside boundaries of reclamation areas, irrigation district, or reservoirs) points = 5 — There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing in the connection or an open water connection along a lake shore without heavy boat traffic are OK, but connections should NOT be bisected by paved roads, fill, fields, heavy boat traffic or other development) points = 5 — There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed? points = 2 — There is at least 1 wetland within ½ mile. points = 1 — Does not meet any of the four criteria above points = 0 	<p>1</p>
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	<p>9</p>
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit have a resident population of carp (see text for indicators of the presence of carp)? (NOTE: This question does not apply to reservoirs with water levels controlled by dams, such as the reservoirs on the Columbia and Snake Rivers)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p> <p>0</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	<p>9</p>

Comments

Wetland name or number B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
<p>SC 1.0 Vernal pools (see p. 79)</p> <p>Is the wetland unit less than 4000 ft², and does it meet at least two of the following criteria?</p> <ul style="list-style-type: none"> — Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input — Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. <i>NOTE: If you find perennial, "obligate", wetland plants the wetland is probably NOT a vernal pool</i> — The soil in the wetland are shallow (<1ft deep (30 cm)) and is underlain by an impermeable layer such as basalt or clay. — Surface water is present for less than 120 days during the "wet" season. YES = Go to SC 1.1 <u>NO - not a vernal pool</u> <p>SC 1.1 Is the vernal pool relatively undisturbed in February and March? YES = Go to SC 1.2 NO - not a vernal pool with special characteristics</p>	
<p>SC 1.2 Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 miles (other wetlands, rivers, lakes etc.)? YES = Category II NO = Category III</p>	Cat. II Cat. III
<p>SC 2.0 Alkali wetlands (see p. 81)</p> <p>Does the wetland unit meets one of the following two criteria?</p> <ul style="list-style-type: none"> — The wetland has a conductivity > 3.0 mS/cm. — The wetland has a conductivity between 2.0 - 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as "alkali" species (see Table 2 for list of plants found in alkali systems). — If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt. <p>OR does the wetland unit meets two of the following three sub-criteria?</p> <ul style="list-style-type: none"> — Salt encrustations around more than 80% of the edge of the wetland — More than ¾ of the plant cover consists of species listed on Table 2 — A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands. <p>YES = Category I <u>NO - not an alkali wetland</u></p>	Cat. I

Wetland name or number B

SC 3.0 Natural Heritage Wetlands (see p. 81)
 Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 3.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*
 S/T/R information from Appendix D ___ or accessed from WNHP/DNR database ___

YES ___ -- contact WNHP/DNR (see p. 79) and go to SC 3.2 NO

SC 3.2 Has DNR identified the wetland unit as a high quality undisturbed wetland or as or as a site with state threatened, endangered, or sensitive plant species?
 YES = Category I NO -- not a natural heritage wetland

Cat. I

SC 4.0 Bogs (see p. 82)
 Does the wetland unit (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs. *Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.*

SC 4.1. Does the wetland unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)?
 Yes - go to SC 4.3 No - go to SC 4.2

SC 4.2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond??
 Yes - go to SC 4.3 No - Is not a bog for rating

SC 4.3. Does the wetland unit have more than 70% cover of mosses at ground level in any area within its boundaries, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?
 Yes - Category I bog No - go to Q. 4.4

NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.

SC 4.4. Is the unit, or any part of it, forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?
 Yes - Category I bog NO

Cat. I

Cat. I

<p>SC 5.0 Forested Wetlands (see p. 85)</p> <p>Does the wetland unit have an area of forest (<i>you should have identified a forested class, if present, in question H 1.1</i>) rooted within its boundary that meet at least one of the following three criteria?</p> <ul style="list-style-type: none"> — The wetland is within the “100 year” floodplain of a river or stream — aspen (<i>Populus tremuloides</i>) are a dominant or co-dominant of the “woody” vegetation. (<i>Dominants means it represents at least 50% of the cover of woody species, co-dominant means it represents at least 20% of the total cover of woody species</i>) — There is at least ¼ acre of trees (even in wetlands smaller than 2.5 acres) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see p. 83</i>) <p>YES = go to SC 5.1 NO –not a forested wetland with special characteristics</p>	
<p>SC 5.1 Does the wetland unit have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees</p> <p>Slow growing trees are: western red cedar (<i>Thuja plicata</i>), Alaska yellow cedar (<i>Chamaecyparis nootkatensis</i>), pine spp. mostly “white” pine (<i>Pinus monticola</i>), western hemlock (<i>Tsuga heterophylla</i>), Englemann spruce (<i>Picea engelmannii</i>).</p> <p>YES = Category I NO = go to SC 5.2</p>	<p>Cat. I</p>
<p>SC 5.2 Does the unit have areas where aspen (<i>Populus tremuloides</i>) are a dominant or co-dominant species?</p> <p>YES = Category I NO = go to SC 5.3</p>	<p>Cat. I</p>
<p>SC 5.3 Does the wetland unit have areas with a forest canopy where more than 50% of the tree species (by cover) are fast growing species.</p> <p>Fast growing species are: Alders – red (<i>Alnus rubra</i>), thin-leaf (<i>A. tenuifolia</i>) Cottonwoods – narrow-leaf (<i>Populus angustifolia</i>), black (<i>P. balsamifera</i>) Willows- peach-leaf (<i>Salix amygdaloides</i>), Sitka (<i>S. sitchensis</i>), Pacific (<i>S. lasiandra</i>), Aspen - (<i>Populus tremuloides</i>), Water Birch (<i>Betula occidentalis</i>)</p> <p>YES = Category II NO = go to SC 5.5</p>	<p>Cat. II</p>
<p>SC 5.5 Is the forested component of the wetland within the “100 year floodplain” of a river or stream?</p> <p>YES = Category II</p>	<p>Cat. II</p>
<p>Category of wetland based on Special Characteristics</p> <p>Choose the “highest” rating if wetland falls into several categories. If you answered NO for all types enter “Not Applicable” on p.1</p>	<p>NA</p>

Wetland name or number C

WETLAND RATING FORM – EASTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Mosaic ; Wetland C Date of site visit: 03/22/12

Rated by Fiona McNair Trained by Ecology? Yes No Date of training Oct '08

SEC: 19 TOWNSHIP: 17N RANGE: 23E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 5 Estimated size 26,175 sq ft
0.6 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

Score for "Water Quality" Functions	<u>20</u>
Score for Hydrologic Functions	<u>2</u>
Score for Habitat Functions	<u>14</u>
TOTAL score for functions	<u>36</u>

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not Apply

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

III

Summary of basic information about the wetland unit

Wetland Type	Wetland Class	
Vernal Pool	Depressional	
Alkali	Riverine	
Natural Heritage Wetland	Lake-fringe	<input checked="" type="checkbox"/>
Bog	Slope	
Forest		
None of the above	Check if unit has multiple HGM classes present	

Wetland name or number C

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

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

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.</p>		X
<p>SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).</p>		X
<p>SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i> <i>It is located waterward of the OHWM, that within the Columbia River.</i></p>	X	
<p>SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 20 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Eastern Washington

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

1. Does the entire wetland unit meet both of the following criteria?

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

At least 30% of the open water area is deeper than 3 m (10 ft)?

NO - go to Step 2

YES - The wetland class is Lake-fringe (lacustrine fringe)

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

The wetland is on a slope (*slope can be very gradual*),

The water flows through the wetland in one direction (*unidirectional*) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded?**

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*

NO - go to Step 3

YES - The wetland class is **Slope**

3. Is the entire wetland unit in a valley or stream channel where it gets inundated by overbank flooding from that stream or river? In general, the flooding should occur at least once every ten years to answer "yes." *The wetland can contain depressions that are filled with water when the river is not flooding.*

NO - go to Step 4

YES - The wetland class is **Riverine**

4. Is the entire wetland unit in a topographic depression, outside areas that are inundated by overbank flooding, in which water ponds, or is saturated to the surface, at some time of the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to Step 5

YES - The wetland class is **Depressional**

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

Wetland name or number C

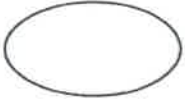


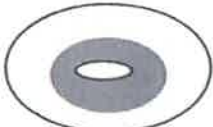
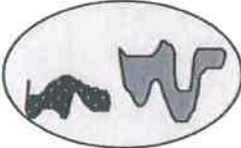

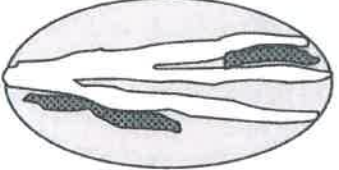
L Lake-fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		Points (only 1 score per box)
L	L 1.0 Does the wetland have the <u>potential</u> to improve water quality?	(see p. 52)
L	<p>L 1.1 Average width of vegetation along the lakeshore: Vegetation is more than 33ft (10m) wide points = 6 Vegetation is between 16 ft (5m) and 33ft wide points = 3 Vegetation is 6ft (2m) wide to < 16 ft wide points = 1</p> <p>Map of Cowardin classes with widths marked</p>	Figure ___ 6
L	<p>L 1.2 Characteristics of the vegetation in the wetland <i>choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed.</i></p> <p>Herbaceous plants cover >90% of the vegetated area points = 6 Herbaceous plants cover >2/3 of the vegetated area points = 4 Herbaceous plants cover >1/3 of the vegetated area points = 3 Other vegetation that is not aquatic bed in > 2/3 vegetated area points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1 Aquatic bed cover > 2/3 of the vegetated area points = 0</p> <p>Map with polygons of different vegetation types</p>	Figure ___ 4
L	Total for L1 <i>Add the points in the boxes above</i>	10
L	<p>L 2.0 Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in the lake water, or surface water flowing through the wetland to the lake is polluted. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i></p> <ul style="list-style-type: none"> — Wetland is along the shores of a lake or reservoir that does not meet water quality standards — Grazing in the wetland or within 150ft — Untreated stormwater flows into the wetland — Tilled fields or orchards within 150 feet of wetland — Residential or urban areas are within 150 ft of wetland <input checked="" type="checkbox"/> Powerboats with gasoline or diesel engines use the lake — Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of shore of lake) — Other _____ <p>YES multiplier is 2 NO multiplier is 1</p>	(see p. 53) multiplier 2
L	TOTAL - Water Quality Functions Multiply the score from L1 by the multiplier in L2 <i>Record score on p. 1 of field form</i>	20

L	Lake-fringe Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce shoreline erosion	Points (only 1 score per box)
L	L 3.0 Does the wetland have the <u>potential</u> to reduce shoreline erosion?	(see p.54)
L	L 3.1 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed): (choose the highest scoring description that matches conditions in the wetland) > 3/4 of the vegetation is shrubs or trees at least 33 ft (10m) wide points = 6 > 3/4 of the vegetation is shrubs or trees at least 6 ft. (2 m) wide points = 4 > 1/4 of the vegetation is shrubs or trees at least 33 ft (10m) wide points = 4 Vegetation is at least 6 ft (2m) wide <u>points = 2</u> Vegetation is less than 6 ft (2m) wide points = 0 Aerial photo or map with Cowardin vegetation classes	Figure <u> 2 </u>
L	L 4.0 Does the wetland have the <u>opportunity</u> to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following conditions apply.</i> — There are human structures and activities along the shore behind the wetland (buildings, fields) that can be damaged by erosion. — There are undisturbed natural resources along the shore (e.g. mature forests, other classes of wetland) behind the wetland than can be damaged by shoreline erosion — Other _____ YES multiplier is 2 NO multiplier is 1	(see p. 55) Multiplier <u> 1 </u>
L	TOTAL - Hydrologic Functions Multiply the score from L3 by the multiplier in L4 <i>Record score on p. 1 of field form</i>	<u> 2 </u>

Comments

Wetland name or number C

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)								
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat										
H 1. Does the wetland unit have the potential to provide habitat for many species?										
<p>H 1.1 Categories of vegetation structure (see p.62) Check the vegetation classes (as defined by Cowardin) and heights of emergents present. Size threshold for each class or height category is ¼ acre or more than 10% of the area if unit is < 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants 0-12 in. (0 – 30 cm) high are the highest layer and have > 30% cover <input type="checkbox"/> Emergent plants >12 – 40 in. (>30 – 100cm) high are the highest layer with >30% cover <input checked="" type="checkbox"/> Emergent plants > 40 in. (> 100cm) high are the highest layer with >30% cover <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) </p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>4-6 types</td> <td>points = 3</td> </tr> <tr> <td>3 types</td> <td>points = 2</td> </tr> <tr> <td>2 types</td> <td>points = 1</td> </tr> <tr> <td>1 type</td> <td>points = 0</td> </tr> </table> <p>Map of Cowardin vegetation classes and areas with different heights of emergents</p>		4-6 types	points = 3	3 types	points = 2	2 types	points = 1	1 type	points = 0	<p>Figure ____</p> <p style="font-size: 2em; text-align: center;">1</p>
4-6 types	points = 3									
3 types	points = 2									
2 types	points = 1									
1 type	points = 0									
<p>H 1.2. Is one of the vegetation types "aquatic bed?" (see p .64) YES = 1 point NO = 0 points</p>		<p>0</p>								
<p>H 1.3. Surface Water (see p.65)</p> <p>H 1.3.1 Does the unit have areas of "open" water (without herbaceous or shrub plants) over at least ¼ acre or 10% of its area during the spring (March – early June) OR in early fall (August – end of September)? Note: answer YES for Lake-fringe wetlands YES = 3 points & go to H 1.4 NO = go to H 1.3.2</p> <p>H 1.3.2 Does the unit have an intermittent or permanent stream within its boundaries, or along one side, over at least ¼ acre or 10% of its area, AND that has an unvegetated bottom (answer yes only if H 1.3.1 is NO)? YES = 3 points NO = 0 points</p> <p style="text-align: center;">Map showing areas of open water</p>		<p>Figure ____</p> <p style="font-size: 2em; text-align: center;">3</p>								
<p>H 1.4. Richness of Plant Species (see p. 66) 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 Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites, Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)</p> <p>If you counted: > 9 species points = 2 4-9 species points = 1 # of species ____ < 4 species points = 0 points</p> <p>List species below if you wish</p>		<p>0</p>								

<p>H 1.5. Interspersion of habitats (see p. 67) Decided from the diagrams below whether interspersion between categories of vegetation (described in H 1.1), or categories and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  High = 3 points </div> <div style="text-align: center;">  [Riparian braided channel] </div> </div> <p style="text-align: center;">NOTE: If you have four or more vegetation categories or three vegetation categories and open water the rating is always "high". Use maps from H1.1 and H1.3</p>	<p>Figure <u> </u></p> <p style="font-size: 2em; text-align: center;">1</p>
<p>H 1.6. Special Habitat Features: (see p. 68) Check the habitat features that are present in the wetland unit. The number of checks is the number of points you put into the next column.</p> <p><input type="checkbox"/> Loose rocks larger than 4" <u>or</u> large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.</p> <p><input type="checkbox"/> Cattails or bulrushes are present within the unit.</p> <p><input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland unit or within 30 m (100ft) of the edge.</p> <p><input type="checkbox"/> Emergent or shrub vegetation in areas that are permanently inundated/ponded. The presence of "yellow flag" <i>Iris</i> is a good indicator of vegetation in areas permanently ponded.</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> Invasive species cover less than 20% in each stratum of vegetation (<i>canopy, sub-canopy, shrubs, herbaceous, moss/ground cover</i>)</p> <p style="text-align: right;"><i>Maximum score possible = 6</i></p>	<p style="font-size: 2em;">0</p>
<p style="text-align: right;">TOTAL Potential to provide habitat Add the scores in the column above</p>	<p style="font-size: 2em;">5</p>

Comments

<p>H 2.0 Does the wetland have the opportunity to provide habitat for many species?</p> <p>H 2.1 Buffers (see p. 71) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." Relatively undisturbed also means no grazing, no landscaping, no daily human use, and no structures or paving within undisturbed part of buffer.</i></p> <ul style="list-style-type: none"> — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference Points = 5 — 330 ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4 — 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4 — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3 — 170ft (50 m) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — No paved areas (except paved trails) or buildings within 80ft (25 m) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — No paved areas or buildings within 170ft (50m) of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2 — Heavy grazing in buffer. Points = 1 — Vegetated buffers are <6.6ft wide (2m) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland). Points = 0 — Buffer does not meet any of the criteria above. Points = 1 <p style="text-align: center;">Aerial photo showing buffers</p>	<p>Figure ____</p> <p style="text-align: center; font-size: 2em;">4</p>
<p>H 2.2 Wet Corridors (see p. 72)</p> <p>H 2.2.1 Is the wetland unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (<i>dams, heavily used gravel roads, paved roads, fields tilled to edge of stream, or pasture to edge of stream are considered breaks in the corridor</i>).</p> <p style="padding-left: 40px;">YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>H 2.2.2 Is the unit part of a relatively undisturbed and unbroken, > 30 ft wide, vegetated corridor, at least ¼ mile long with water flowing seasonally, OR a lake-fringe wetland without a "wet" corridor, OR a riverine wetland without a surface channel connecting to the stream?</p> <p style="padding-left: 40px;">YES = 2 points (go to H 2.3) NO go to H 2.2.3</p> <p>H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (<i>do not include man-made ditches</i>)?</p> <p style="padding-left: 40px;">YES = 1 point NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">2</p>

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections to the habitats can be disturbed.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- 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 p. 152*).
- Eastside Steppe:** Non-forested vegetation type dominated by broadleaf herbaceous flora (*full description of herbaceous species found here are in WDFW PHS report p. 153*).
- Old-growth/Mature forests (east of Cascade crest):** (*full descriptions in WDFW PHS report p. 157*). **Old-growth:** Stands are > 150 yrs in age; may be variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. **Mature:** Stands 80 – 160 yrs old. Decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.
- Oregon white Oak:** Woodlands 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*).
- Juniper Savannah:** All juniper woodlands (*SE part of state only; check map*)
- 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).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Inland Dunes** This placeholder is for a new priority habitat that will capture areas known as Inland Dunes. A definition will be developed later in Fall 2008. (*check WDFW web site*)
- 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 7.6 m (25 ft) high and occurring below 5000 ft.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- 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 > 30 cm (12 in) in eastern Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

seasonal stream

2

If wetland has 2 or more Priority Habitats = 4 points
If wetland has 1 Priority Habitat = 2 points
No Priority habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number C

<p>H 2.4 Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 76)</p> <ul style="list-style-type: none"> — The wetland unit is in an area where annual rainfall is less than 12 inches, and its water regime is not influenced by irrigation practices, dams, or water control structures. (Generally, this means outside boundaries of reclamation areas, irrigation district, or reservoirs) points = 5 — There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing in the connection or an open water connection along a lake shore without heavy boat traffic are OK, but connections should NOT be bisected by paved roads, fill, fields, heavy boat traffic or other development) points = 5 — There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed? points = 2 <input checked="" type="checkbox"/> There is at least 1 wetland within ½ mile. points = 1 — Does not meet any of the four criteria above points = 0 	<p>1</p>
<p>H 2. TOTAL Score - opportunity for providing habitat Add the scores in the column above</p>	
<p>H 3.0 Does the wetland unit have indicators that its ability to provide habitat is reduced?</p>	
<p>H 3.1 Indicator of reduced habitat functions (see p. 75) Do the areas of open water in the wetland unit have a resident population of carp (see text for indicators of the presence of carp)? (NOTE: This question does not apply to reservoirs with water levels controlled by dams, such as the <u>Columbia and Snake Rivers</u>)</p> <p style="text-align: center;">YES = - 5 points NO = 0 points</p>	<p>Points will be subtracted</p> <p>0</p>
<p>Total Score for Habitat Functions – add the points for H 1, H 2, and H 3 and record the result on p. 1</p>	

Comments

SC 3.0 Natural Heritage Wetlands (see p. 81)
 Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 3.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*
 S/T/R information from Appendix D ___ or accessed from WNHP/DNR database ___

YES ___ – contact WNHP/DNR (see p. 79) and go to SC 3.2 NO

SC 3.2 Has DNR identified the wetland unit as a high quality undisturbed wetland or as or as a site with state threatened, endangered, or sensitive plant species?
 YES = Category I NO – *not a natural heritage wetland*

Cat. I

SC 4.0 Bogs (see p. 82)
 Does the wetland unit (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs. *Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.*

SC 4.1. Does the wetland unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)?
 Yes - go to SC 4.3 No - go to SC 4.2

SC 4.2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond??
 Yes - go to SC 4.3 No - *Is not a bog for rating*

SC 4.3. Does the wetland unit have more than 70% cover of mosses at ground level in any area within its boundaries, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?
 Yes – Category I bog No - go to Q. 4.4

NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.

SC 4.4. Is the unit, or any part of it, forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?
 Yes – Category I bog NO

Cat. I

Cat. I

<p>SC 5.0 Forested Wetlands (see p. 85)</p> <p>Does the wetland unit have an area of forest (<i>you should have identified a forested class, if present, in question H 1.1</i>) rooted within its boundary that meet at least one of the following three criteria?</p> <ul style="list-style-type: none"> — The wetland is within the “100 year” floodplain of a river or stream — aspen (<i>Populus tremuloides</i>) are a dominant or co-dominant of the “woody” vegetation. (<i>Dominants means it represents at least 50% of the cover of woody species, co-dominant means it represents at least 20% of the total cover of woody species</i>) — There is at least ¼ acre of trees (even in wetlands smaller than 2.5 acres) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (<i>see p. 83</i>) <p>YES = go to SC 5.1 NO = not a forested wetland with special characteristics</p>	
<p>SC 5.1 Does the wetland unit have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees</p> <p>Slow growing trees are: western red cedar (<i>Thuja plicata</i>), Alaska yellow cedar (<i>Chamaecyparis nootkatensis</i>), pine spp. mostly “white” pine (<i>Pinus monticola</i>), western hemlock (<i>Tsuga heterophylla</i>), Englemann spruce (<i>Picea engelmannii</i>).</p> <p>YES = Category I NO = go to SC 5.2</p>	<p>Cat. I</p>
<p>SC 5.2 Does the unit have areas where aspen (<i>Populus tremuloides</i>) are a dominant or co-dominant species?</p> <p>YES = Category I NO = go to SC 5.3</p>	<p>Cat. I</p>
<p>SC 5.3 Does the wetland unit have areas with a forest canopy where more than 50% of the tree species (by cover) are fast growing species.</p> <p>Fast growing species are:</p> <ul style="list-style-type: none"> Alders – red (<i>Alnus rubra</i>), thin-leaf (<i>A. tenuifolia</i>) Cottonwoods – narrow-leaf (<i>Populus angustifolia</i>), black (<i>P. balsamifera</i>) Willows- peach-leaf (<i>Salix amygdaloides</i>), Sitka (<i>S. sitchensis</i>), Pacific (<i>S. lasiandra</i>), Aspen - (<i>Populus tremuloides</i>), Water Birch (<i>Betula occidentalis</i>) <p>YES = Category II NO = go to SC 5.5</p>	<p>Cat. II</p>
<p>SC 5.5 Is the forested component of the wetland within the “100 year floodplain” of a river or stream?</p> <p>YES = Category II</p>	<p>Cat. II</p>
<p>Category of wetland based on Special Characteristics</p> <p>Choose the “highest” rating if wetland falls into several categories. If you answered NO for all types enter “Not Applicable” on p.1</p>	<p>NA</p>

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