Sewall Wetland Consulting, Inc.

CITY HEIGHTS
CITY OF CLE ELUM
WETLANDS AND WILDLIFE HABITAT REPORT

Prepared For:

Sapphire Skies
206 First Street
Cle Elum, Washington 98922

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Job#A9-121

Sewall Wetland Consulting, Inc.
27641 Covington Way SE #2
Covington, WA 98042

Phone: 253-859-0515
Fax: 253-852-4732

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1.0 INTRODUCTION

This report describes our observations of jurisdictional wetlands, streams and buffers as well as a review of local, state and federally listed plant and animal species on the site of the proposed City Heights project. The property is located north of the City of Cle Elum (Figure 1), mostly within unincorporated Kittitas County, Washington. Two parcels totaling 28 acres of the site are already within the City limits. The proposal includes a request for annexation to the City.

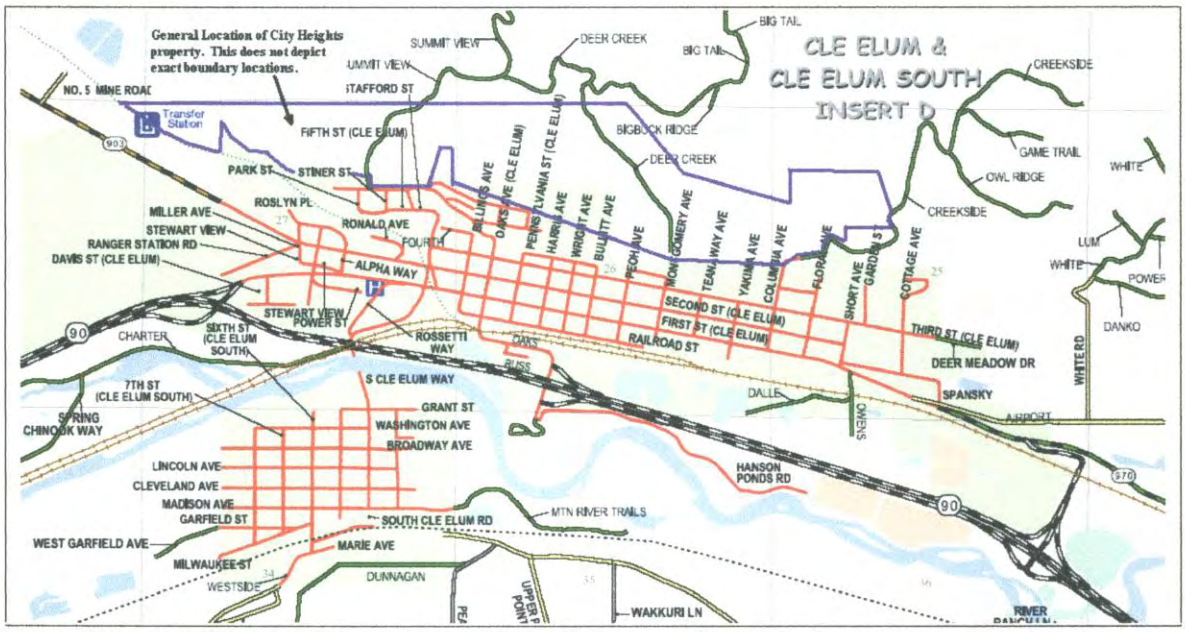


Figure 1. Vicinity Map of the City Heights site from Kittitas County Road Atlas

The site is a 358-acre irregular-shaped property located in portions of the northern half of Sections 25, 26 and 27, Township 20 North, Range 15 East of the Willamette Meridian (W.M.) in Kittitas County. The site is generally defined by the Puget Sound Energy (PSE) and Bonneville Power Administration (BPA) power line easements along the north

boundary, and existing residential development within the City of Cle Elum on the south. The property extends east and west for nearly the full length of the existing City limits.

The City Heights property consists of thinned and logged forest land as well as open, maintained meadow areas under the power lines. Several paved roads as well as numerous gravel roads and trails pass through the site. The property has had substantial historic disturbance from coal mining, logging, road development and power line construction.

2.0 METHODOLOGY

2.1 Wetlands

Ed Sewall and Aaron Will of Sewall Wetland Consulting, Inc. inspected the site between June and July of 2009. The property was reviewed using the 1989 ***U.S. Army Corps Federal Manual for Delineating Jurisdictional Wetlands*** as required by the City of Cle Elum. The site was also reviewed using methodology described in the ***Washington State Wetlands Identification Manual*** (Ecology, March 1997). This is the methodology currently recognized by Kittitas County and the State of Washington for wetland determinations and delineations. The wetland areas identified would also be considered wetlands using the methodology described in the ***Corps of Engineers Wetlands Delineation Manual*** (Environmental Laboratory 1987), as required by the U.S. Army Corps of Engineers. Soil colors were identified using the 1990 Edited and Revised Edition of the ***Munsell Soil Color Charts*** (Kollmorgen Instruments Corp. 1990).

Wetlands were flagged by Sewall Wetland Consulting staff with pink "WETLAND DELINEATION" flagging and numbered and lettered sequentially.

2.2 Streams

The ordinary high water mark (OHWM) of the streams on the site was located based upon the criteria described in the Washington Department of Ecology draft publication: ***Determining The Ordinary High Water Mark on Streams In Washington State*** (Ecology Publication 08-06-001, March 2008). The OHWM of streams were marked with sequentially-numbered white/blue dot flagging. Following delineation, all wetland and stream flags were surveyed by Encompass Engineering & Surveying and placed on the site maps.

2.3 Wildlife and Rare Plants

A review of State and Federal data bases and mapping resources was conducted to identify presence on the site or use by any State- and/or Federally-listed plant or animal

species. A general field review of the site during multiple site visits by Sewall Wetland Consulting staff was conducted to determine use and presence of any species noted on the property. This included walking transects through the site during different times of the day, as well as searching appropriate habitats for any signs of a listed species. This was not a species-specific study, but a general review of habitat as well as a review for any noted local, State or Federally-listed species.

3.0 OBSERVATIONS

3.1 Existing Site Documentation.

Prior to visiting the site, a review of several natural resource inventory maps was conducted. Resources reviewed included the National Wetland Inventory Map, the Washington State Department of Natural Resources (WDNR) Forest Practices Application Review System (FPARS) stream mapping website, the Kittitas County Mapsifter website with Wetland layers, and data on file at the Kittitas County Natural Resources Conservation Service (NRCS) office in regards to soil data for the site.

3.1.1 Soil Survey

According to data on file with the NRCS Soil Mapper website, the site contains 9 soil types. Other than the Quicksell series (somewhat poorly drained), all are moderately well-drained to well-drained soils. None of the soils found on the property are considered hydric or wetland soils. A detailed soil report specific to the City Heights site was prepared off the NRCS Soil Mapper Website on July 21, 2009. This report is included as Appendix A to this report.

3.1.2 National Wetlands Inventory (NWI)

According to the NWI map for the site, there are no wetlands on or near the property (Figure 2). Crystal Creek is depicted south of the west end of the site, and a portion of Deer Creek (Stream B) is depicted to flow through the property.

NWI Maps are prepared using the Fish and Wildlife Wetland Classification System (Cowardin et al. 1979). This system differs from the 1989 and 1987 Corps Manual in that it requires only one parameter to identify a wetland. Many areas meet this one parameter identification as wetland that would not meet identification under the 1989 and 1987 Corps Manuals. It should also be noted that NWI maps are prepared primarily from aerial photograph interpretation with some field verification. The NWI maps for this area have not been field verified and are only an interpretation of potential wetlands identified off an aerial photograph. Typically NWI maps can show some areas as wetlands that are not actually wetland, and can miss many areas that are wetland.

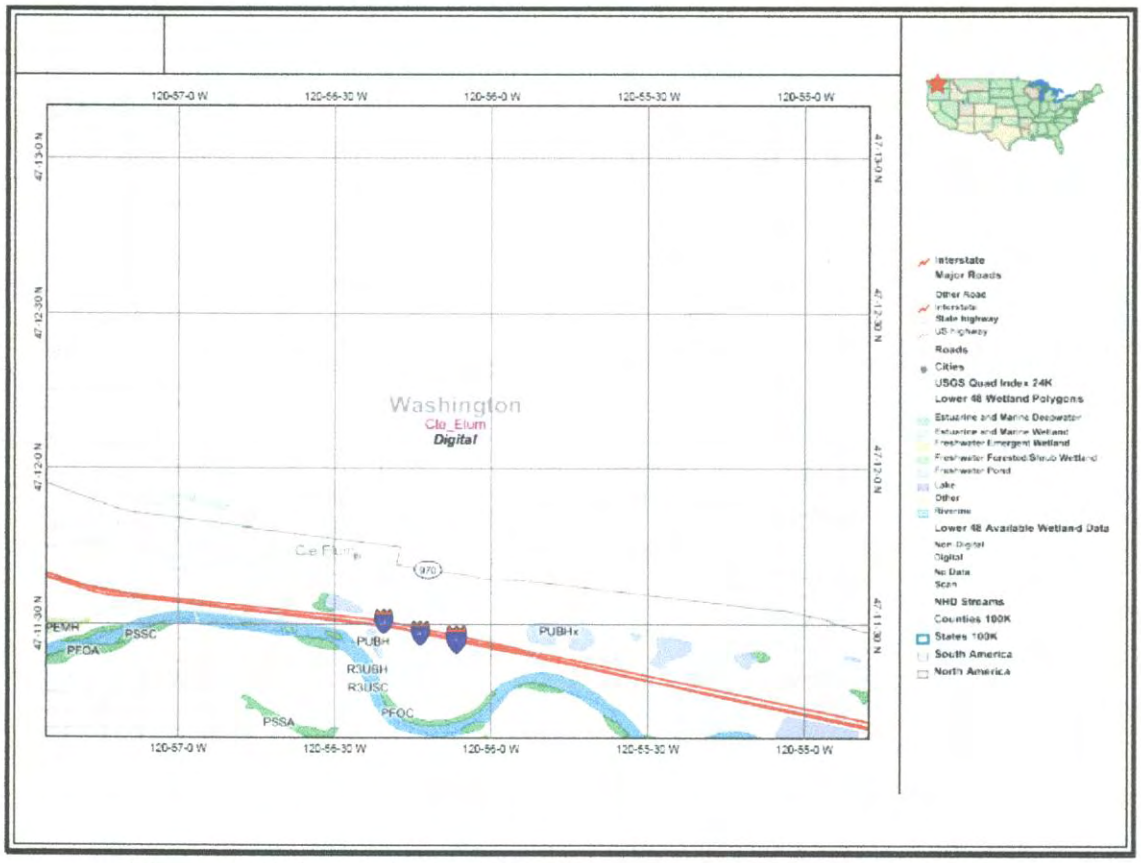


Figure 2. National Wetlands Inventory Map of the City Heights site.

3.1.3 Kittitas County Mapsifter – Wetland Layer

The Kittitas County Mapsifter website depicts no wetlands on or near the City Heights property (see Figure 3). No wetlands are depicted anywhere to the north of the city limits at all with the exception of some of the old sewer treatment ponds located to the west of the site.

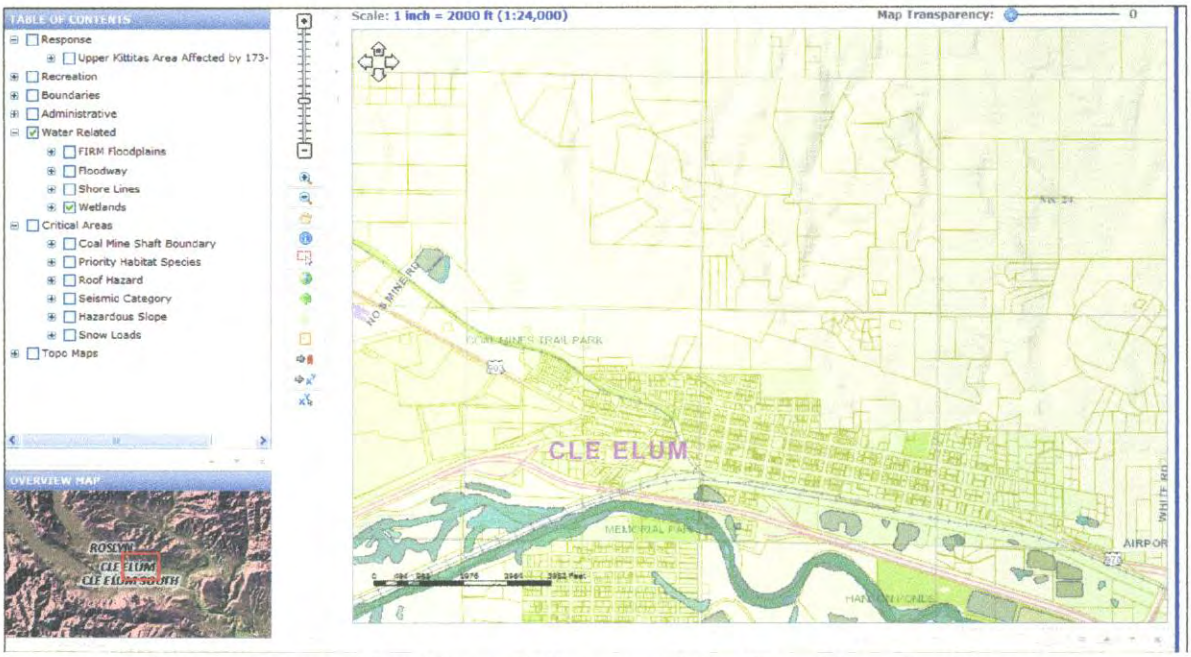


Figure 3. Kittitas County Mapsifter website page of the site with wetland layers activated.

3.1.4 Washington Department of Natural Resources (WDNR) Forest Practices Application Review System (FPARS) Website

According to the WDNR FPARS website with stream types layers activated, there are six streams on the City Heights property (see Figure 4). Three of these are depicted as Type F waters (equates to Type 3 waters) and four as Type N waters (equates to Type 4-5 waters). A detailed explanation of this water typing system described in section 3.2.3 of this report.

3.2 Field observations

3.2.1 Uplands

As previously described, the City Heights site is characterized by a mix of thinned forest area as well as open shrub and grassland areas under the power lines. Numerous dirt roads, trails and cleared areas also occur throughout the site. Evidence of historic coal mining activities are also clearly visible including large piles of tailings on the extreme west end of the site (proposed Development Area A), several collapsed openings and vents where in some cases groundwater drains out, as well as old foundations, and scattered metal debris from old structures. Abandoned mine features are described and illustrated in a site-specific report prepared by SubTerra, Inc. (2009). Trash, and scattered abandoned vehicles were found throughout the property at the time of the June and July

2009 site visits. Shortly thereafter, the trash and abandoned vehicles were removed and properly disposed by the owner (Northland Resources).

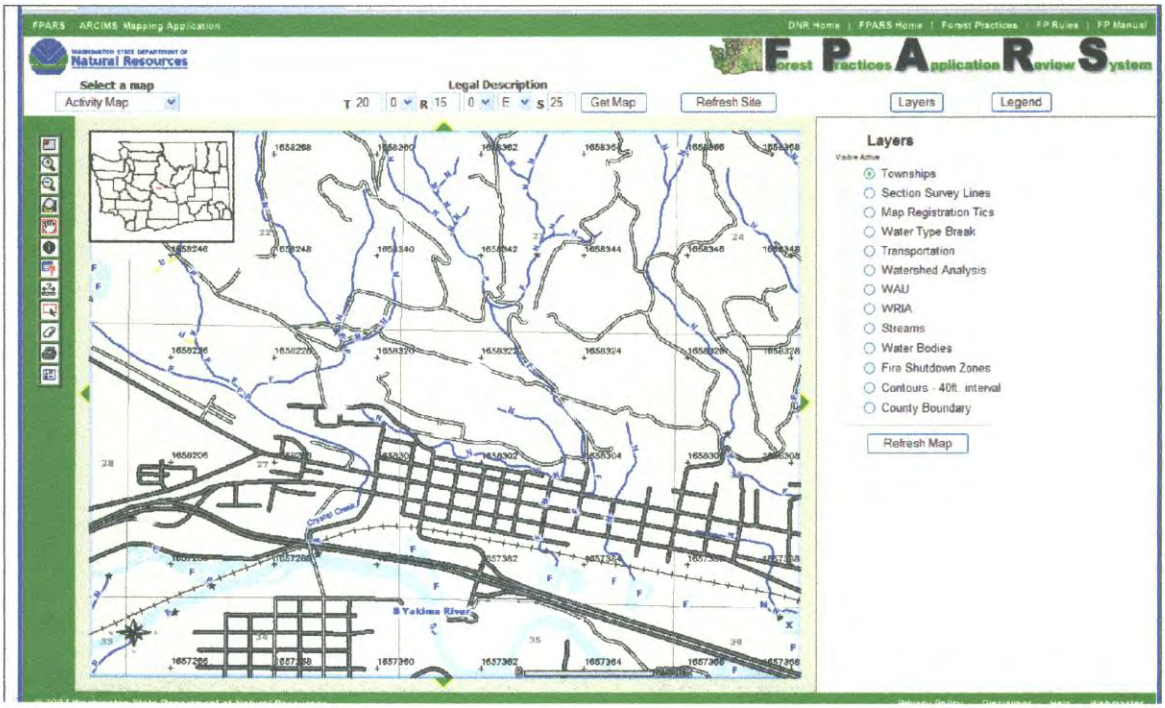


Figure 4. WNDR FPARS water typing map of the area of the site

The site is located within a transition zone from mixed Ponderosa pine/Douglas fir forest on the west, to Ponderosa pine forest with a mosaic of shrub steppe plant communities as one proceeds to the east across the site. The eastern end of the property includes many more shrub steppe species. Antelope bitterbrush is commonly found here. The logging operations that occurred in this area as well as an extensive forest fire in this area several years ago have helped perpetuate this shrub-dominated plant community as tree re-establishment on thin dry soils such as those found on the site is very slow. This soil condition and the dry climate allow shrubs to colonize and dominate this area.

The majority of the site south of the power line corridors is forested and dominated by a thinned overstory of ponderosa pine (*Pinus ponderosa*) and scattered Douglas fir (*Psuedotsuga menziesii*). Trees range from 6 to 40 inches diameter at breast height (dbh) with the majority in the 12 to 24-inch size range. Canopy coverage in this area ranges from 35% to 80%.

The understory within the forested area is variable, from areas with scattered shrubs with a pine needle litter-covered forest floor understory to the more open areas with a dense cover of shrubs, grasses and forbs. Species found in the shrub strata of this area include serviceberry (*Amalanchier alnifolia*), snowberry (*Symphocarpos albus)*, oceanspray

(*Holodiscus discolor*), rose (*Rosa* spp.), chokecherry (*Prunus virginiana*), hazelnut (*Corylus cornuta*), balsamroot (*Balsamorhiza sagittata*), and some scattered antelope bitterbrush (*Purshia tridentata*).

The shrub-covered areas under the power line and on the eastern end of the project area are patchy and contain species including cheatgrass (*Bromus tectorum*), planted small ponderosa pines, snowbush (*Ceanothus velutinous*), kinnikinnik (*Arctostaphylos patula*) Oregon grape (*Berberis nervosa*), bulbous bluegrass (*Poa bulbosa*), quackgrass (*Agropyron* spp.), serviceberry, knapweed (*Centaurea* spp.), balsamroot, oceanspray, California hellbore (*Veratrum californicum*), lupine (*Lupinus laxiflorus*), peavine (*Lathyrus* spp.), bracken fern (*Pteridium aquilinum*), blue elderberry (*Sambucus cerrulea*), scattered small Douglas fir seedlings, particularly on the western edge of the site, and dead nettle (*Lamium maculatum*).

Soil pits excavated within the upland areas of the site generally revealed a gravelly sandy loam with no hydric characteristics. Soils within upland areas were dry during all site visits.

3.2.2 Wetlands

Field observations by Sewall Wetland Consulting staff confirmed the presence of a total of six (6) wetlands on the City Heights property. There are also two wetlands in close proximity to the site. All of the wetlands are associated with streams on the property.

According to Chapter 18.01.030 of the City of Cle Elum Municipal Code, wetlands are areas that are "*inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities. However, wetlands may include those artificial wetlands intentionally created from nonwetland areas created to mitigate conversion of wetland, if permitted by the county or city*".

Table 1. Wetland Ratings and buffer widths for project wetlands.

Wetland	Category 1991 WADOE	Cle Elum Buffer	Kittitas County Buffer	Category 2007 WADOE
A	2	100'	25'-100'	2
B	2	100'	25'-100'	3
C	2	100'	25'-100'	3
E	2	100'	25'-100'	3
F	3	50'	20'-80'	2
G	3	50'	20'-80'	4
H	3	50'	20'-80'	3

The City of Cle Elum uses the Washington Department of Ecology – *Washington State Wetland Rating System for Eastern Washington* (October 1991 Pub#91-58). This system rates wetlands on a point system to classify a wetland based upon functions as a Category 1, 2, 3 or 4 wetland. Category 1 wetlands are the highest value wetlands and Category 4 are the lowest value wetland.

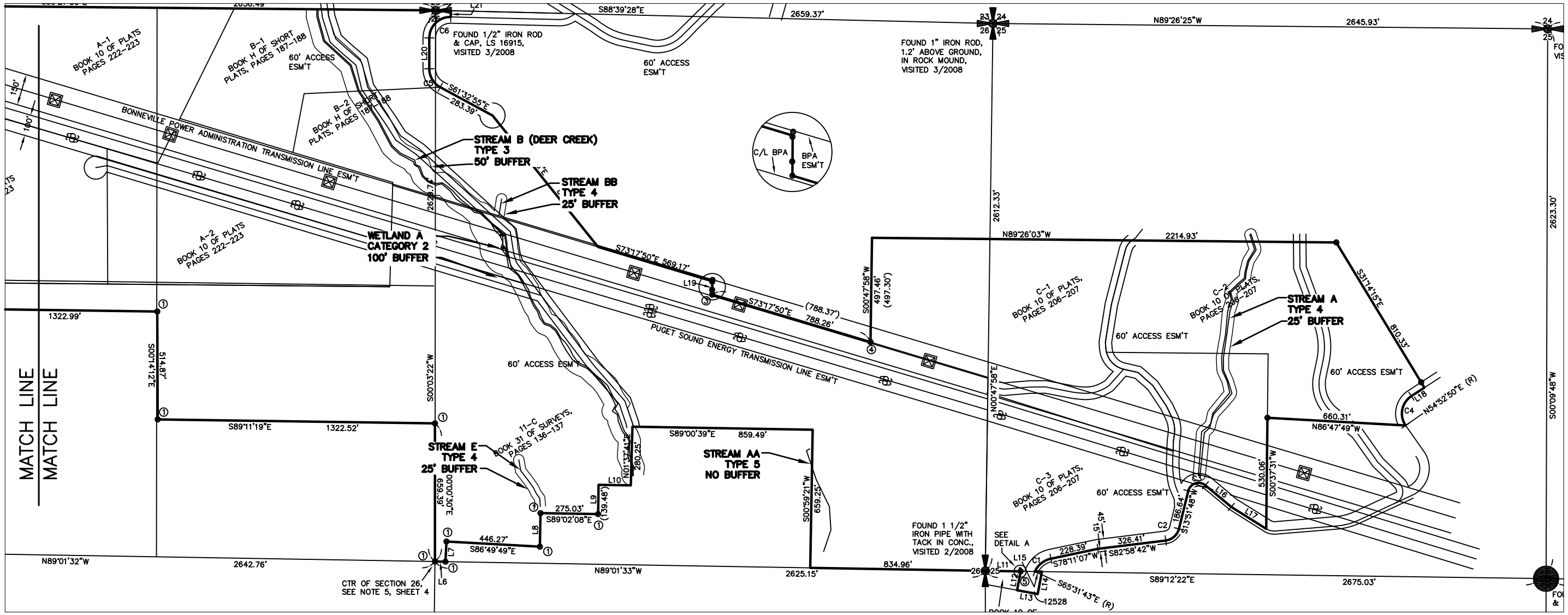
Wetlands were also rated using the more recent *Washington Department of Ecology – Washington State Wetland Rating System for Eastern Washington Revised March 2007* (Pub #04-06-15). This system also rates wetlands on functions with a numeric score to determine if a wetland rates as a Category 1, 2, 3, or 4 wetland. As with the 1991 rating system, Category 1 wetlands are of highest value or function, and Category 4 wetlands are of the lowest value or function. This 2007 rating system is more detailed and provides a better analysis of functional values of wetlands. Kittitas County as well as Washington Department of Ecology and the US Army Corps of Engineers in any reviews of projects use this rating system.

Wetlands were also classified using the methodology in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, L., V. Carter, F. Golet, and E. LaRoe. 1979).

The US Fish and Wildlife Wetland Classification system classifies wetlands based upon hydrologic location as well as vegetation classes. These classes are then utilized in the wetland rating systems above to determine functions.

Wetland A

Wetland A consists of a 1,507sf riparian wetland located just upstream of the power line road crossing (Montgomery Avenue; see Figure 5). The road crossing historically appears to have caused a dam effect allowing a wetland to form in the area upstream of it.



GRAPHIC SCALE

500' 0 250' 500'

(IN FEET)
1 inch = 500 ft.

NOTE: BASE MAP PROVIDED BY ENCOMPASS ENGINEERING AND SURVEYING.

Figure 5
City Heights Property
Streams and Wetlands Delineation Map: East End

JOB# A9-121 DATE: OCT 2009

DRAWN BY: AW SCALE: 1"=500'

REVISED: DESIGNER: ES

Sewall Wetland Consulting, Inc.
Ecological Services
27614 Covington Way SE#2
Covington, WA 98042
253-859-0515 Fax 253-852-4732

This small forested wetland was identified with flags A1-A6. Stream B (Deer Creek) forms the east side of the wetland.

Wetland A has an overstory of scattered red alder and Pacific willow, with an understory that includes red-osier dogwood, water leaf, manna grass, and horsetail.

Wetland A is a riparian wetland with its hydrology supported by stream bank overflow and seepage from the Deer Creek.

Soil pits excavated within this wetland revealed a 4-inch thick A-horizon of sandy loam with a color of 10YR 2/2. The B-horizon to a depth of 16 inches was found to be a gravelly loam with a matrix color of 10YR 2/2 with few, coarse, faint redoximorphic concentrations. Soils were saturated at a depth of -6 inches during our June 12, 2009 delineation of this feature.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), Wetland A would be classified as PFO1C (palustrine, forested, broad leaved deciduous, seasonally flooded).

Using the 1991 *Washington Department of Ecology (Ecology) Wetland Rating System* recognized by the City of Cle Elum, Wetland A received a total score of 24 points indicating a Category 2 wetland. According to Chapter 18.01.460 of the Cle Elum Municipal Code, Category 2 wetlands are required to have a 100-ft buffer measured from the wetland edge.

Kittitas County also utilizes the 1991 Ecology Wetland Ratings System. Kittitas County Code 17A.04.020 requires a buffer ranging from 25 to 100 feet for a Category 2 wetland greater than 2,000sf in size, depending upon the following;

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

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

Wetland A was also rated using the revised Ecology 2004 *Wetland Rating System for Eastern Washington* to determine functions. This is the current system used by Ecology for establishing function ratings for wetlands; however, there is no requirement for the City Heights project to provide these ratings, as neither the City of Cle Elum or Kittitas County have adopted this system to date. We are providing these ratings as they reflect a better analysis of wetland function than the 1991 system. Additionally, Kittitas County typically sends wetland studies to Ecology for peer review as the County has no wetland staff. We are providing these ratings for each wetland for Ecology's convenience in reviewing these wetlands. Using this system, and rating Wetland A as a riverine wetland, Wetland A rated as a Category 2 wetland with a total of 60 points. A total of 16 points were for habitat indicating a low to moderate habitat value for this wetland.

Wetland B

Wetland B is a 18,596sf emergent and scrub-shrub slope wetland located under the power line in the Steam C riparian corridor (see Figure 6). This emergent wetland was flagged with pink flags labeled B1-B24, and is approximately 1 acre in size. There is a "jeep" road through the center of the wetland. Vegetation within this area may have been cleared or sprayed by the electrical utility companies to keep growth at a minimum.

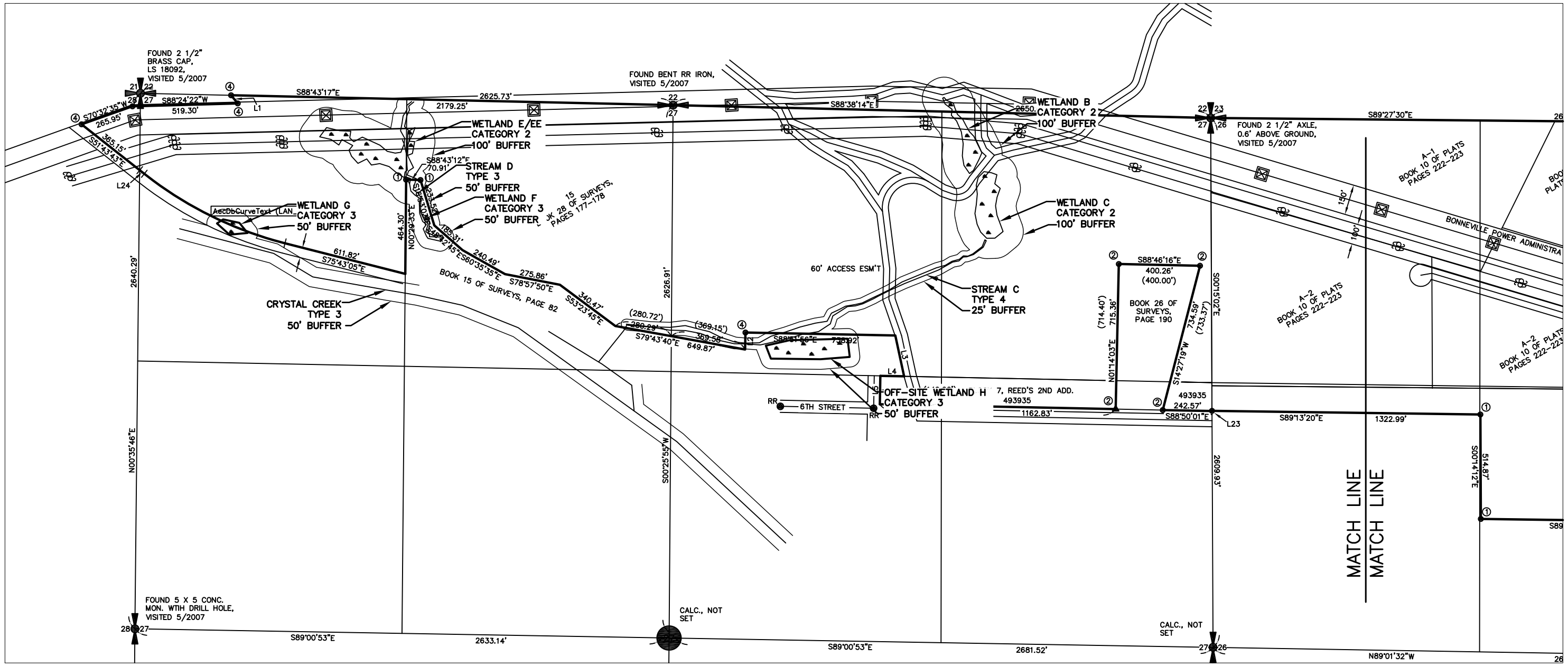
Wetland B appears to receive its hydrology from groundwater seeps as well as stream flow entering the wetland from Stream C. Numerous small ruts and depressions hold water and provide seasonal amphibian breeding areas in this wetland.

The scrub shrub portion of Wetland B includes a small area at the north end of the wetland under the power line, vegetated with a mix of red-osier dogwood, willow, and some hawthorne. The emergent portion of Wetland B is vegetated with a mix of small-fruited bulrush, spikerush (*Eleocharis palustrus*), soft rush, sedge, bluegrass, bentgrass and some quackgrass.

Soil pits excavated within Wetland B revealed a saturated-to-the-surface sandy clay loam with a soil matrix color of 2.5Y 3/2 with common, medium, distinct redoximorphic concentrations.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), Wetland B contains areas that would be classified as PSS1C (palustrine, scrub-shrub, broad leaved deciduous, seasonally flooded) and PEM1C (palustrine, emergent, persistent, seasonally flooded).

Under City of Cle Elum Municipal Code (CEMC), Wetland B received a total score of 25 points, indicating a Category 2 wetland with a 100-ft buffer measured from the wetland edge.



NOTE: BASE MAP PROVIDED BY ENCOMPASS ENGINEERING AND SURVEYING.

Figure 6
City Heights Property
Streams and Wetlands Delineation Map: West End

JOB# A9-121 DATE: OCT 2009

DRAWN BY: AW SCALE: 1"=500'

REVISED: DESIGNER: ES

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Under Kittitas County Code, Wetland B meets the criteria of Category 2 wetland due to a total score of 25 points. Category 2 wetlands greater than 2,000 sf in size have a buffer ranging from 25 to 100 feet, subject to considerations described at the beginning of this section.

Using the revised Ecology 2004 *Wetland Rating System for Eastern Washington* to determine functions, and rating Wetland B as a slope wetland, Wetland B rated as a Category 3 wetland with a total of 46 points. A total of 19 points were for habitat indicating a moderate habitat value for this wetland.

Wetland C

Wetland C is a 31,989sf forested wetland located in the Steam C riparian corridor (see Figure 6). This wetland is an apparent historic excavation presumably related to past mining operations. The wetland is defined by steep sides and a large fill berm at its south end. The bottom of the wetland is flat and has been disturbed recently by trucks "mudding" in the bottom, creating ruts and bare disturbed soil. This wetland was identified with pink flags labeled C1-C18.

Wetland C appears to receive its hydrology primarily from Stream C flows spreading out through the bottom of the wetland.

Wetland C is vegetated with an overstory of cottonwood with a sparse understory of willow and red-osier dogwood, with little in the herb strata other than quackgrass around the perimeter.

Soil pits excavated within Wetland C revealed a mix of laminar silts indicating significant recent soil migration into the area. The soil was found to be saturated at a depth of -6 inches from the surface in June 2009. Soils were found to have a matrix color of 10YR 3/2 with few fine, faint redoximorphic concentrations.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), Wetland C would be classified as PFO1C (palustrine, forested, broad leaved deciduous, seasonally flooded).

Using the 1991 *Washington Department of Ecology Wetland Rating System*, Wetland C received a total score of 22 points indicating a Category 2 wetland. According to Chapter 18.01.460 of the Cle Elum Municipal Code, Category 2 wetlands are required to have a 100-ft buffer measured from the wetland edge.

Under Kittitas County Code, Wetland C also meets the criteria of Category 2 wetland with the same score. Kittitas County Code 17A.04.020 requires Category 2 wetlands

greater than 2,000 sf in size have a buffer ranging from 25 to 100 feet, subject to considerations described at the beginning of this section.

Using the revised Ecology 2004 *Wetland Rating System for Eastern Washington* to determine functions, and rating Wetland C as a slope wetland, Wetland C rated as a Category 3 wetland with a total of 49 points. A total of 15 points were for habitat indicating a low-moderate habitat value for this wetland.

Wetland D – Offsite

During our fieldwork Wetland D was originally identified and thought to be on the property. However, it was later determined to be >200' off-site to the north of Wetland E. Therefore, details of this wetland are *not* included in this report.

Wetland E

Wetland E is a 38,289sf emergent, scrub-shrub and forested slope wetland located under the power line in the Steam D riparian corridor (see Figure 6). This wetland includes primarily scrub shrub and forested plant communities dominated by a mix of red-osier dogwood, sitka alder, and cottonwood. Understory species include field mint, sedge, spikerush, small fruited bulrush, veronica, and willow herb. In addition, a small lobe of cattail-dominated wetland is present along the west side of Wetland E in the area at the toe of the old coal mine tailings. It is possible this area is a groundwater outflow from an old coal mine opening, or possibly a natural spring. Water appears to be seeping and flowing from this area throughout the year, supporting obligate wetland species including broad-leaved cattail and small-fruited bulrush.

Wetland E appears to receive its hydrology from groundwater seeps as well as stream flow entering the wetland. Numerous small ruts and depressions hold water and provide seasonal amphibian breeding areas in this wetland.

Soil pits excavated within Wetland E revealed a saturated-to-the-surface sandy clay loam with a soil matrix color of 2.5Y 3/2 with common, medium, distinct redoximorphic concentrations.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), Wetland E contains areas that would be classified as PFO1C (palustrine, forested, broad leaved deciduous, seasonally flooded), PSS1C (palustrine, scrub-shrub, broad leaved deciduous, seasonally flooded) and PEM1C (palustrine, emergent, persistent, seasonally flooded).

Using the 1991 *Washington Department of Ecology Wetland Rating System*, Wetland E received a total score of 32 points indicating a Category 2 wetland. According to Chapter 18.01.460 of the City of Cle Elum Municipal Code, Category 2 wetlands are required to have a 100-ft buffer measured from the wetland edge.

Under Kittitas County Code, Wetland E also meets the criteria of a Category 2 wetland with the same score. Kittitas County Code 17A.04.020 requires Category 2 wetlands greater than 2,000sf in size have a buffer ranging from 25 to 100 feet, subject to considerations described at the beginning of this section.

Using the revised Ecology 2004 *Wetland Rating System for Eastern Washington* to determine functions, Wetland E (a slope wetland), rated as a Category 3 wetland with a total of 49 points. A total of 21 points were for habitat indicating a moderate-high habitat value for this wetland.

Wetlands F, G and H (offsite)

Wetland F (1,786sf) was found to be off-site riparian forested wetland similar in character to Wetland E although smaller in size. Wetland G (6,630sf) is a small forested wetland located within a swale between the hillside and the Coal Mines trail potentially off-site. Wetland H is a 35,787sf, forested, quaking aspen-dominated wetland located south of Stream C along the west side of Summit View Road, just north of its intersection with West Sixth Street (see Figure 6). Since these are off-site features, detailed characteristics were not analyzed. They are in close proximity to the site, and required some review as buffers may extend onto the City Heights property. Based upon general observations, under City of Cle Elum Municipal Code (CEMC) these wetlands appear to be Category 3 wetlands. According to Chapter 18.01.460 CEMC, Category 3 wetlands are required to have a 50-ft buffer measured from the wetland edge.

3.2.3 Streams

Field observations by Sewall Wetland Consulting staff confirmed the presence of a total of six (6) streams on the City Heights property.

Rivers and streams within both the City of Cle Elum and Kittitas County are classified using the Washington Department of Natural Resources Water Typing System. The system is based upon the following general requirements;

Type 1 Waters - are Shorelines of the State.

Type 2 Waters – Segments of natural waters that are not Type 1 and have high use and are important from a water quality standpoint for a) Domestic water supply, b) Public Recreation, c) fish spawning, rearing or migration or wildlife uses, d) are highly significant to protect water quality.
Type 3 Waters – Segments of natural waters not Type 1 or 2 with slight to moderate importance from a water quality standpoint for a) Domestic water supply, b) Public Recreation, c) fish spawning, rearing or migration or wildlife uses, d) are highly significant to protect water quality.
Type 4 Waters – Segments of natural waters not Type 1,2 or 3 until the width between the ordinary high water mark (OHWM) becomes less than 2'.
Type 5 Waters – All natural waters not classified as Type 1,2,3 or 4 with or without well defined channels.

Table 2. Stream Classification and buffer widths.

Stream	Water Type	Cle Elum Buffer	Kittitas County Buffer	New Water Type Equivalent
A	4	25'	10'-20'	N
AA	5	none	15'	N
B	3	50'	20'-50'	F
BB	4	25'	10'-20'	N
C	4	25'	10'20'	N
D	3	50'	20'-50'	F
E	4	25'	10'-20'	N

Stream A

Stream A is an intermittent stream channel located on the extreme eastern side of the City Heights site (see Figure 5). The OHWM of this stream was identified with flags OHWM EA1-OHWM EA20 (east side) and OHWM WA1-OHWM WA20 (west side).

This stream was dry during our site inspection in June of 2009, although several small standing water pools were found in the stream on depressions in portions with a bedrock bottom. The stream bed consists of cobble and sand substrate with areas of high bank erosion where some small landslides had occurred, as well as areas where the channel runs across sandstone outcroppings/bedrock. The sides of the channel are steeply sloping up the small ravine-type feature within which it is located. The open shrub community that borders Stream A generally consists of small pine seedling/saplings and antelope bitter brush. The stream width ranges from 2 to 6 feet, and exits the site in a culvert under a gravel road/driveway. Piles of debris and wood were found in this area at the south edge of the site, deposited by the January 2009 flood event.

The WDNR FPARS Maps indicate that Stream A is a Type N water, which is consistent with its ephemeral character and apparent lack of any use by fish. Under the City of Cle Elum Municipal Code, the older WDNR water typing system is utilized. Under this system, Stream A would be considered a Type 4 stream due to its lack of fish use and channel width greater than 2 feet. Typically, the buffer requirement for a Type 4 stream is 25 feet as measured from the OHWM.

Under Kittitas County Code (which uses the same water typing system as the City), the buffer requirement for Type 4 waters is typically 10 to 20 feet as measured from the OHWM.

Stream AA

Stream AA is a small, apparently perennial flowing channel located north of the Cle Elum Senior Center along the south boundary of the City Heights site (see Figure 5). This stream starts at a spring feature and drains southerly several hundred feet before infiltrating into the ground at the bottom of the hill. This feature has an iron pipe with a valve on it, and may potentially be a piped water source. It is also possible that this is spring originates in an old mine opening.

Under the City of Cle Elum Municipal Code, Stream F would be considered a Type 5 stream due to its narrow channel, lack of fish use and lack of connection to any higher-order water. Typically, Type 5 streams have no protection under City of Cle Elum Code.

Under Kittitas County Code (which uses the same water typing system as the City), Type 5 waters are typically required to have a 15-ft building setback measured from the channel.

Stream B (Deer Creek) and Stream BB

Deer Creek/Stream B
Stream B (locally known as Deer Creek) is an apparent perennial flowing stream channel located along the west side of Montgomery Avenue (see Figure 5). This stream was flagged with OHWM flags OHWM EB1-OHWM EB49 (east side) and OHWM WB1-OHWM WB49 (west side).

This stream contains a variable channel width ranging from 4 to 10 feet with a mixed cobble, sand and mud substrate. The fill slope of Montgomery Avenue forms much of the eastern bank of Stream B, and substantial amounts of trash and debris were previously deposited along this side of the channel throughout the site (now removed and properly disposed by the owner). Several mine openings on the west side of the channel upstream of the power line corridor may seasonally discharge water to the stream. Stream BB (described below), another mine outlet, also drains into Stream B (Deer Creek).

The WDNR FPARS Maps indicate Stream B (Deer Creek) is a Type F water, which indicates some use by fish. This stream classification was discussed with a Washington Department of Fish and Wildlife (WDFW) Area Habitat Biologist who indicated that WDFW has not actually found fish in the stream, but it is possible they could be present (personal communication with Brent Renfrow, WDFW Area Habitat Biologist, June 10, 2009). No fish were observed in Stream B (Deer Creek) during Sewall Wetland Consulting's flagging of the channel.

Under the City of Cle Elum Municipal Code, Stream B would be considered a Type 3 stream due to potential fish use. Typically, Type 3 streams are required to have a 50-ft buffer measured from the OHWM.

Under Kittitas County Code (which uses the same water typing system as the City), Type 3 waters are typically required to have a 20 to 50-ft wide buffer measured from the OHWM.

Stream BB

Stream BB is a short perennial flowing ditched stream that is the outflow from an abandoned mine. This stream flows from the east of Montgomery Avenue under Montgomery and joins Deer Creek just upstream of Wetland A and the power line corridor (see Figure 5).

Stream BB is not shown on any stream maps. Stream BB under the City of Cle Elum Municipal Code, would be considered a Type 4 stream due to its lack of fish use and channel width greater than 2 feet. Typically, Type 4 streams are required to have a 25-ft buffer measured from the OHWM.

Under Kittitas County Code (which uses the same water typing system as the City), Type 4 waters are typically required to have a 10 to 20-ft wide buffer measured from the OHWM.

Stream C

Stream C is an intermittent stream channel located within the middle of the site (see Figure 6). This stream channel has been substantially disturbed in the past as it passes through the property near Summit View Road. This includes re-alignment and placement in a ditch like channel as it flows to the west.

The upper end of Stream C under the power line is a diffuse meandering channel that passes through Wetland B with no well-defined channel except where it exits a culvert under a power line access road at the north edge of the site. This area has been disturbed by clearing as well as off-road vehicle use (tire ruts). Water sheet-flows through Wetland

B and enters a large, sand-filled culvert under Summit View Road before discharging into Wetland C (see Figure 6). There is no defined channel through Wetland C although water ponds and follows tire ruts in the wetland to a defined channel outlet at the south end of the wetland. At the south end of Wetland C, a ditched channel funnels flow to the southwest. The OHWM of the channel was identified with flags OHWM NC1-NC33 and OHWM SC1-SC33. The stream passes back under Summit View Road further downhill, travels in a deeply dug and incised ditch to the southwest, and then appears to spread out and follow an old road bed (see Figure 6). The channel becomes small and narrow at the west end before passing back though an 18 to 24-inch diameter culvert under a gravel driveway to the south. The stream then appears to sheet-flow into a meadow or wetland area off-site before entering Crystal Creek near the Coal Mines trail. The channel currently has a very unusual configuration being that the channel bed is higher than the surrounding landscape, or forms a ridge of sorts. It appears that during the winter 2009 flood events, the snow pack formed channel banks, and flow and debris occurred within the snow-formed banks. Debris then built up against the snowbanks and when the snow melted a large pile of sand and gravel was left higher than the banks. This indicates that next winter/spring, flow will go outside the location of the channel today. It appears that much of the water that discharges from this channel infiltrates under the gravel driveway near its southwest end, migrating south under the roadbed into the meadow with little flow actually going through the culvert.

Historically, the Stream C channel appears to have gone south from Wetland C and down through the ravine and stream channel near Stafford Street (see Figure 6).

The WDNR FPARS Maps indicate that Stream C is a Type F water, which indicates some use by fish. However, this seems to be a mapping error as it does not seem possible for fish to pass through the flat areas with no defined channel and the blockages throughout these features. This stream is dry in the summer and appears more appropriately identified as a Type 4 water. Typically, Type 4 streams are required to have a 25-ft buffer under City of Cle Elum regulations, as measured from the OHWM.

Under Kittitas County Code (which uses the same water typing system as the City), Type 4 waters are typically required to have a 10 to 20-ft wide buffer measured from the OHWM.

Stream D *(aka Tributary 1209555472010)*

Stream D is a tributary to Crystal Creek, and is identified in the WDFW Priority Habitat Maps as Stream LLID #1209555472010. This stream flows from north of the site to the south before connecting to Crystal creek off-site to the south along the north side of the Coal Mines Trail (see Figure 6). The OHWM of Stream D was identified with flags WD-1 though WD-55 and ED-1 through ED-60. A small 1-ft wide flow from a very wet

emergent cattail-dominated portion of Wetland E flows easterly into Stream D (see Figure 6).

Stream D is a narrow, mud bottom channel north of the power line corridor, and a more defined, steep-sided cobble and gravel bottom channel to the south and extending off-site. A gravel road passes through the channel under the power line creating a large mud bottom area.

Stream D was flowing in June 2009, and was dry in the area north of the power line in July 2009. South of the power line corridor, flow remained in July due to the groundwater discharge coming out of the westerly lobe of Wetland E flowing into Stream D from Stream E (see Figure 6).

No fish were observed within the Stream D channel, although the stream is of flat enough slope that fish could access the channel from Crystal Creek.

The WDNR FPARS Maps indicate that Stream D is a Type F water, which indicates use by fish. The WDFW Priority Habitat Maps indicate rainbow trout were found in this channel as recently as 2007. Under the City of Cle Elum Municipal Code, Stream D would be considered a Type 3 stream due to its use by fish. Typically, Type 3 streams are required to have a 50-ft buffer measured from the OHWM.

Under Kittitas County Code (which uses the same water typing system as the City), Type 3 waters are typically required to have a 20 to 50-ft wide buffer measured from the OHWM.

Stream E

Stream E is a small intermittent flowing channel located within a natural drainage way just west of Stream B (see Figure 5). This area appears to only have flow in the spring during snowmelt, and is characterized by a narrow (1-ft wide) gravel and sand bottom channel in a densely shrub-covered ravine. This stream leaves the site and enters a culvert passing under existing homes located along the Fourth Street alley west of Montgomery Avenue. The centerline of this feature was identified with centerline flags CLE1-CLE12.

The WDNR FPARS Maps do not show Stream E. Under City of Cle Elum Municipal Code, Stream E would be considered a Type 4 stream due to its narrow channel and lack of fish use. Typically, Type 4 streams are required to have a 25-ft buffer measured from the OHWM.

Under Kittitas County Code (which uses the same water typing system as the City), Type 4 waters are typically required to have a 10 to 20-ft wide buffer measured from the OHWM.

4.0 WILDLIFE AND THREATENED AND ENDANGERED SPECIES

4.1 Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Data

A data search of the WDFW Priority Habitat data base was ordered and received dated June 2, 2009. In using these maps we agree with WDFW to not reproduce the maps or the data. However, we can discuss the results of the data search. The resulting maps and associated species-specific reports for the area that includes the City Heights site revealed that the only features identified as priority habitats on the property are the previously described streams as "Rivers and Streams."

Stream D is identified as Stream LLID by WDFW (unique stream identifier) #1209555472010. This stream is identified as containing priority fish presence, which in this stream is indicates rainbow trout that were surveyed on July 24, 2001.

Off-site identified species and habitats

The south edge of an established Spotted Owl territory is identified approximately 1 mile north of the western end of the City Heights site.

Crystal Creek, located immediately south of the west end of the City Heights site, is identified as containing priority fish presence. Crystal Creek is also identified by WDFW as Stream LLID #1209487471921, indicating use by both rainbow trout (surveyed July 24, 2001) and spring Chinook salmon (surveyed May 17, 2003).

Although elk commonly use the area of the site, the area of the property is not listed as an area of regular concentrations, overwintering habitat, or any other special designation as a high value elk habitat according to this data bank. Typically, identified and well defined winter range areas or areas of elk and mule deer accumulations are noted as a unique and numbered as such.

4.2 Washington Department of Natural Resources (WDNR) Natural Heritage Program

A search was conducted of the WDNR Natural Heritage Information System for any significant features on the site. The WDNR Natural Heritage program records any known observations or known locations of rare plants and high quality ecosystems. The results

of this data search revealed no known or recorded rare plants or high quality ecosystems on the City Heights property (see Appendix B).

4.3 Field Observations

4.3.1 Wildlife

The City Heights site contains several habitat types including riparian corridors, wetlands, thinned forested Ponderosa pine forest, as well as shrub and herbaceous-dominated areas under the PSE and BPA electrical power transmission lines (see Figures 7 & 8). In general, the area to the south of the BPA transmission lines consists of heavily thinned and moderately thinned ponderosa pine dominated forest. These areas have a mix of Douglas fir and ponderosa pine as well as a fairly open shrub strata with lots of downed wood, as well as a mix of skid-roads and disturbed soils. Grasses and forbs are well distributed in this area. In general, the understory is open and cover is not ideal as visibility is quite good in most of this area.

Under the power lines a mix of grass and forb dominated areas are present on the western side of the site to the west of Summit road. This area is open and fairly disturbed from off-road vehicle use.

The remainder of the site, with the exception of the "redrock" area and the extreme western end of the site is comprised of a mix of shrub and meadow habitat. This area is in this condition from logging activities, clearing that is maintained under the power lines, and to the east, from some past burning. These areas have a good mix of shrub species many of which provide good nutritional needs to many wildlife species.

The redrock and western end of the site consists of old disturbed tailing piles and road areas with little habitat value.

The site also contains numerous dirt roads, as well as single-track all-terrain vehicle (ATV)/motorcycle trails. The area experiences high usage by 4x4 vehicles, ATVs, motorcycles, and snowmobiles (in the winder). Two paved roads also bisect the site, as well as two high-voltage electrical transmission lines, all of which impact wildlife. During all site visits conducted by Sewall Wetland Consulting in June and July 2009, off-road vehicles were encountered on a regular basis throughout the day. This represents a disturbance factor to wildlife. However, the site borders immense areas (over 1,000,000 acres) of forest to the north, and as a result wildlife use by species able to tolerate this intermittent human disturbance on the site is generally high.

Numerous wildlife species were noted throughout the site in June and July 2009, from visual observations, sounds, tracks, scat or other signs such as scrapes, dusting and

bedding areas. Species we noted include: red-tailed hawk *(Buteo jamaicensis),* kestrel *(Falco sparvarius*), ring-necked pheasant (*Phasianus colchicus*), ruffed grouse (*Bonasa umbellus*), common crow (*Corvus brachyrhynchos*), raven (*Corvus corax*), fence lizards , turkey vulture (*Carthartes aura*), red-headed sapsucker (*Sphyrapicus va*rius), tree swallow (*Iridoprocne bicolor*), dipper (*Cinclus mexicanus*), black capped chickadee (*Parus atricapillus*), towhee (*Pipiloerythroph thalmus*), winter wren (*Troglodytes troglodytes*), turkey (*Meleagris gallopavo*), black bear (*Ursus americanus*), mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus nelsonii*), coyote (*Canis latrans*), bobcat (*Felis rufus*), *mountain lion (Puma concolor), Douglas squirrel (Tamiasciurus douglasii), raccoon (Procyon* lotor), California quail (*Lophortyx californicus*), magpie (*Pica pica*), European starling (*Sturnus vulgaris*), various species of ground squirrels, and skunk. Several deer and mountain lion tracks were observed that indicated a mountain lion stalking a mule deer in the vicinity of Stream C as well as along the ridgeline between the "redrock" area (proposed Development Area D) and Montgomery Avenue. Clearly, mountain lions regularly use this area from the sign we observed, and regularly make incursions close to the existing homes south of the site.

No state or federally listed species were noted on or near the site.

Large Mammals

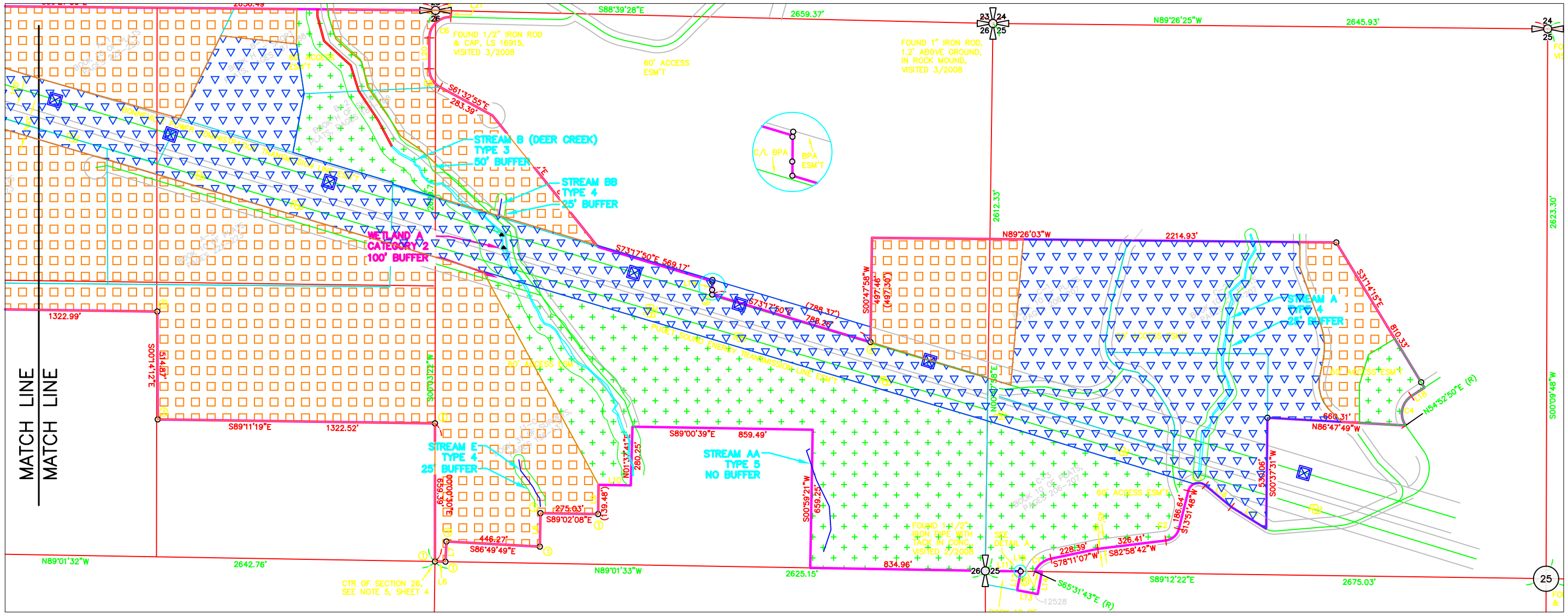
Species of large mammals found in the area of the site include elk, mule deer, black bear, and cougar. These large mammals, although only protected as game species, often result in conflicts when in close proximity to humans or development, therefore a discussion of these specific species use of the site is of special interest.

The site represents the lower elevations and edge of a vast forested area to the north, east and west. This is a mix of private and managed forest areas as well as public forest tracts. As a result many of these large mammal species with large territories and home ranges venture along the edge of the habitat which includes the site. Species such as rocky mountain elk and mule deer attract cougars to the area. Black bears are also found throughout the region and will often enter into communities such as the Cle Elum area searching for food.

Elk

The site is located on the southern edge of a portion of the area utilized by the Colockum elk herd. This herd originates from 45 rocky mountain elk released in 1915 near Boylston and driven north to Vantage. The herd has grown in size and is currently estimated to have a population of range between 3596-4378 elk. Historically, by the late 1800's elk were extirpated from the region and the re-introduction in 1915 returned elk to the area.

This herd of ranges over a vast area (1,600 square miles or 1,024,000acres) bordered by the Columbia River to the east, Interstate 90 to the south, State Route 2 to the north, and



GRAPHIC SCALE

500' 0 250' 500'

(IN FEET)
1 inch = 500 ft.

N

Shrub and Meadow

Heavily Thinned Ponderosa Pine Forest

Minimal Thinning Ponderosa Pine Forest

Disturbed/Mine Tailings

NOTE: BASE MAP PROVIDED BY ENCOMPASS ENGINEERING AND SURVEYING.

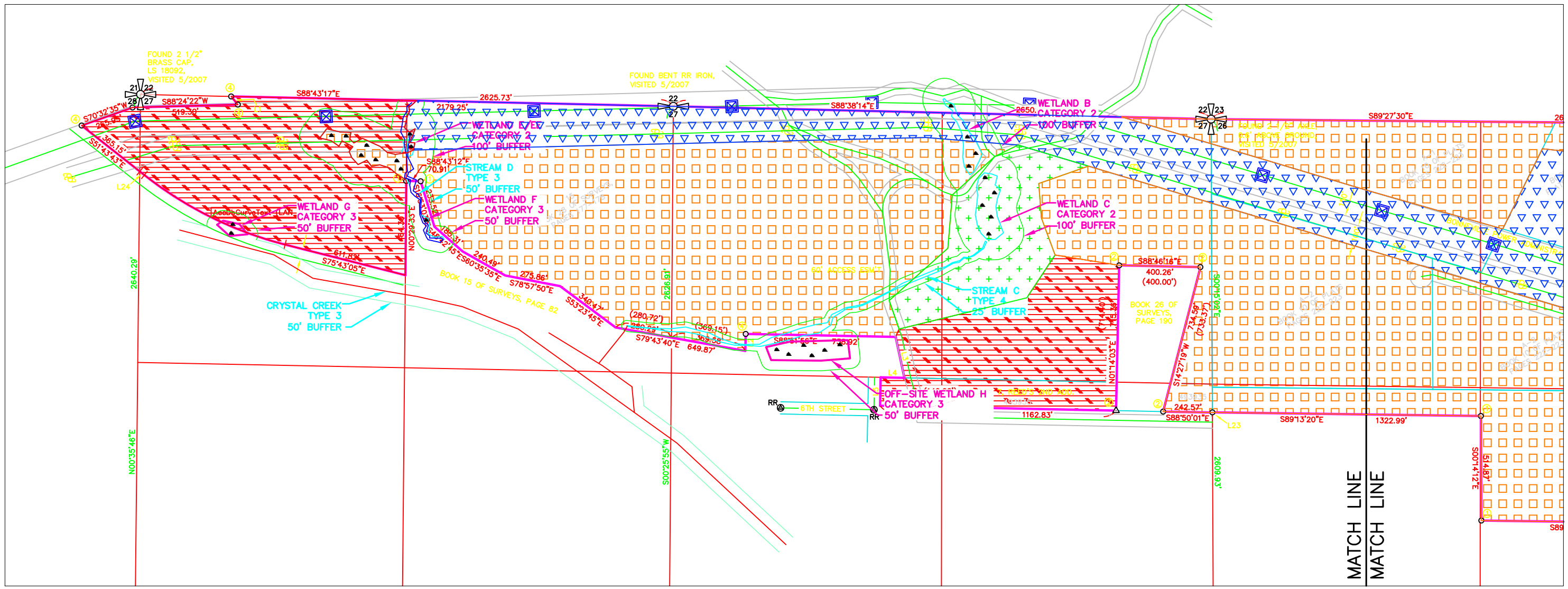
Figure 7
City Heights Property
Habitat Cover Map:
East End

JOB# A9-121 DATE: OCT 2009

DRAWN BY: AW SCALE: 1"=500'

REVISED: DESIGNER: ES

Sewall Wetland Consulting, Inc.
Ecological Services
27614 Covington Way SE#2
Covington, WA 98042
253-859-0515 Fax 253-852-4732



Shrub and Meadow

Heavily Thinned Ponderosa Pine Forest

Minimal Thinning Ponderosa Pine Forest

Disturbed/Mine Tailings

GRAPHIC SCALE

500' 0 250' 500'

(IN FEET)
1 inch = 500 ft.

N

NOTE: BASE MAP PROVIDED BY ENCOMPASS ENGINEERING AND SURVEYING.

Figure 8
City Heights Property
Habitat Cover Map:
West End

JOB# A9-121 DATE: OCT 2009

DRAWN BY: AW SCALE: 1"=500'

REVISED: DESIGNER: ES

Sewall Wetland Consulting, Inc.
Ecological Services
27614 Covington Way SE#2
Covington, WA 98042
253-859-0515 Fax 253-852-4732

the Cascade crest to the west. The herd displays season migration moving northwest to higher elevations in the summer. Conversely, winter snow and cold weather moves the elk to the southeast to more arid areas at lower elevation. Approximately 90% of these elk spend time between Colockum Creek and the Columbia River. Small sub-herds winter near Cle Elum, primarily along the Cle Elum River but also in areas such as the site.

Elk are protected as a game species by WDFW and population numbers are maintained through hunting. WDFW has a population objective for the Colockum herd of approximately 4,700 animals.

Rocky Mountain elk have home ranges between 2,500-10,000 acres and utilize a mix of forest, shrub and meadow habitats. Generally, elk utilize a variety of habitats depending on the time of year, to include a mix of meadow/grasslands particularly browsing on grasses and forbs in the spring and summer. In the fall browsing of shrubs and tree species begins and continues through winter to include bark chewing of species such as aspen and cottonwood. Elk prefer an area with good cover, ideally large blocks or tree cover at least 40' tall and least 600' wide for hiding, and in inclement weather, blocks of land at least 12 acres in size with forest cover for thermal protection, and a mix of open habitats and forest for forage. Ideally, areas have <2miles of road per square mile and reduced activity for calving and winter range.

The site provides good foraging and hiding opportunities for elk and appears to be regularly used in this manner. The vegetation species present on the site are preferred forage species for elk and are present in a mixed patchwork of forest, shrub and grassland types habitats. There are also perennial water sources (Deer Creek) as well as ephemeral water sources (the remainder of the streams and the sites wetlands) which provide not only water but mud wallow areas.

Although good forage opportunities are present, the amount of human disturbance, off-road vehicle use (dirt bikes, atv's, 4x4 vehicles, snowmobiles) as well as availability of larger, less disturbed areas to the north appear to reduce the properties use by elk other than foraging and hiding.

Cougar

Cougar are common in the area of the site due to the presence of elk and mule deer which are preferred prey species of cougar. Cougar have home ranges of 25-75 square miles for females and nearly double that for males. Cougar tracks were observed on the site and undoubtedly pass through the site on a regular basis following and hunting deer, elk, raccoons, coyotes, rabbits and other small game. These animals pass mostly unnoticed due to their dusk-dawn active period.

Cougar are protected as a game species in the state of Washington with a designated hunting season.

Black Bear

Black bears are another common large mammal found in and around the site and surrounding large forested areas. This omnivorous species is more commonly found in forested areas and also riparian areas like those that pass through the site.

Black bears are also protected as a game species in Washington and have a designated hunting season.

Mule deer

Mule have many similar requirements as do elk, and as such, the site provides similar habitat requirements for deer. As with the previously described species, mule deer are protected as a game species in Washington. Mule deer as with elk will graze and trample landscaping, lawns and gardens, although with less impact than larger elk.

4.3.2 Rare Plants/Plant Communities

A total of 46 plant species are listed by the Washington Department of Natural Resources as "rare" in Kittitas County. Of these 46 species, 14 were determined to have the potential to occur on the City Heights site, including: Wenatchee Mountain checkered-mallow (*Sidalcea organa* var. *calva*), western ladies tresses (*Spiranthese porrifolia*), lady's slipper (*Cypripedium fasciculatum*), least phacelia (*Phacelia minutissima*), dwarf evening primrose (*Camissonia pygmae*), white eatonella (*Eatonella nivea*), adder's tongue (*Ophioglossum pusillum*), basalt daisy (*Erigeron basalticus*), Columbia milk vetch (*Astragalus columbianus*), gray cyptantha (*Cryptantha leucophaea*), Wenatchee larkspur (*Delphinium viridescens*), Hoover's desert parsley (*Lomatium tuberosum*), Seeley's silene (*Silene seelyi*) and Hoover's tauschia (*Tauschia hooveri*). Of these species, only the Wenatchee Mountain checkered mallow and least phacelia are both State and Federally-listed as Endangered.

A field review was conducted of the habitats on the City Heights site in which these species would typically be found, as well as a search for any individuals of these species. Although some appropriate habitat does exist for some of these species, no evidence of any of the occurrence of these species was found on the site.

5.0 APPLICABLE REGULATIONS

In addition to the wetland regulations described above in Section 3.2.2, certain activities

(filling and dredging) within "waters of the United States" (if any) may fall under the jurisdiction of the U.S. Army Corps of Engineers (Corps). Waters of the United States are generally natural waterbodies that have some connection to navigable waters. The Corps regulates all discharges into "waters of the United States" (wetlands and streams) under Section 404(b) of the Clean Water Act. Wetlands that are hydrologically isolated are not regulated by the Corps. Only the Corp can decide when a wetland is isolated or not. Isolated wetland generally do not have any above ground hydrologic connection to any other waterbody which is, or is connected to a navigable water.

Discharges (fills) into any wetlands that are not considered "isolated" are regulated by the Corps. However, only the Corps can make the determination whether they have jurisdiction over wetlands where project impacts are proposed.

The Washington Department of Fish and Wildlife (WDFW) regulates all work within waters of the State (rivers and streams) under the Hydraulic Project Approval (HPA) process (Washington Administrative Code Chapter 220-110, *Hydraulic Code Rules*). Any work proposed within streams on the City Heights site (such as new road construction or widening existing road crossings of streams) would require obtaining a HPA from WDFW.

6.0 PROJECT ALTERNATIVES

6.1 Conceptual Land Use Alternatives Evaluated in the EIS

The City Heights project area within the City of Cle Elum north Urban Growth Area is proposed for annexation to the City. The Environmental Impact Statement (EIS) will evaluate two development scenarios under City regulations with the provision of City services, two alternatives in which there would be no annexation and the project would be developed in the County, and No Action.

Alternative 1 – Preferred

- 985 dwelling units (d.u.)
- Development under City land use regulations and development standards to be specified in a Development Agreement with the City
- One consistent set of Covenants, Conditions and Restrictions (CC&Rs)
- 20,000 sf neighborhood commercial in two 10,000 sf locations on the site
- Primary access across the Deneen property (to west end from SR 903), Summit View, Montgomery Avenue, and Columbia Avenue
- Deneen property access route would involve a bridge crossing of Crystal Creek
- Approximately 155 acres of parks, open space, and public amenities
- Walking path, hiking trails, and a multi-use path/bike access

- Total Estimated Population: 2,207 (if all units were fully occupied)
- Total Estimated Student Population in year-around d.u.: approximately 165
- Dwelling Unit Mix: 70% single-family detached; 30% attached units
- Permanent vs. Seasonal Occupancy: 65% permanent (approximately 640 d.u.), 35% second homes
- Peak occupancy anticipated during Summer (Memorial Day through Labor Day), plus winter break (same for any alternative).

Alternative 2 – Reduced Residential Density

- 875 dwelling units
- Reduced residential density over the site
- Development under City land use regulations and development standards to be specified in a Development Agreement with the City
- One consistent set of Covenants, Conditions and Restrictions (CC&Rs)
- 40,000 sf neighborhood commercial in two 20,000 sf locations on the site
- Primary access from Alliance Road (to west end from SR 903), Summit View, Fifth Street, and Columbia Avenue
- Alliance Road route would involve an at-grade crossing of the Coal Mines Trail
- Montgomery Avenue (east end) to be used for emergency vehicle access only
- Approximately 163 acres of open space and only one multi-use path
- Limited or no public amenities
- Total Estimated Population: 1,943 (if all units were fully occupied)
- Total Estimated Student Population in year-around d.u.: approximately 111
- Dwelling Unit Mix: 60% single-family detached; 40% attached units
- Permanent vs. Seasonal Occupancy: 50% permanent (approximately 440 d.u.), 50% second homes

Alternative 3A: No Annexation, Development within the County under Single Ownership.

- 875 dwelling units: 4 to 5 d.u./acre, in a Planned Unit Development (PUD)
- Site plan configuration and density essentially the same as Alternative 2
- Development under Kittitas County land use regulations and development standards
- One consistent set of Covenants, Conditions and Restrictions
- Commercial: 40,000 sf in two 20,000 sf locations on the site
- Open Space: 163 acres (all unimproved)
- Public Amenities: None
- Primary access from Alliance Road (to west end from SR 903), Summit View, and Fifth Street
- Alliance Road route would involve an at-grade crossing of the Coal Mines Trail
- Total Estimated Population: 1,943 (if all units were fully occupied)

- Student Population: approximately 111
- Dwelling Unit Mix: 60% single-family detached; 40% attached units
- Permanent vs. Seasonal Occupancy: 50% permanent (approx. 440 d.u.), 50% second homes
- Utilities: on-site septic systems, on-site Membrane Bioreactor (MBR) treatment plant, or connection to City sewer system; water provided through individual exempt wells or community systems through new water rights; and the provision of a coordinated stormwater management system.

Alternative 3B: No Annexation, Development within the County under Multiple Ownerships.

- The property would be sold in up to 17 parcels
- Possible rezone prior to sale to facilitate higher residential density than under existing zoning
- Alternatively, some or most parcels would be likely to develop under Planned Unit Development (PUD) regulations
- Estimated residential density: 500 lots
- Would not meet the objectives of the proposal; would not meet the urban residential density standards of the Washington State Growth Management Act
- Development would likely occur in a discontinuous pattern over a longer period of time
- Separate Covenants, Conditions and Restrictions (CC&Rs) for each PUD; no CC&Rs for some parcels
- No rezone of Tax Parcels 19165 or 493935.
- Total Estimated Population: 1,150 (if all units were fully occupied)
- Estimated student population in year-around d.u.: approximately 68
- Dwelling Unit Mix: 100% single-family detached
- Permanent vs. Seasonal Occupancy: 50% permanent, 50% second homes
- Utilities: on-site septic systems; possible connection to City sewer system, though less certain; water provided through individual exempt wells or community systems through new water rights; no coordinated stormwater management system
- No coordinated road system; road access or easements required to each parcel
- No open space, trail system, or public amenities
- No commercial development.

Alternative 4: No Action – No annexation, no development at this time.

- Informal (unauthorized) ATV use of private property would likely continue.
- Erosion, uncontrolled stormwater runoff, unauthorized dumping would continue
- No on-site utilities.
- Property would likely be sold to others, in total or parcel by parcel

- If the property were in multiple ownerships, some parcels may be fenced, interrupting existing trail connections
- No resident population, student population, or structures requiring public services in the short-term
- Likely to develop at urban density at some future time.

6.2 Potential Impacts

6.2.1 Wetlands

Potential Impacts During Construction

There would be a potential for construction impacts to occur in wetlands with development of any of the conceptual land use alternatives if Best Management Practices (BMPs) are not utilized. Construction impacts could include the operation of machinery in and around wetlands, compaction of soils within wetlands, erosion of soil and sediment deposition in wetlands. Clearing in and around wetlands and their associated buffers could result in changes in the hydroperiod or hydrologic regime of wetlands if there are alterations to surface or subsurface migration of water to these landforms.

Potential Developed-Condition Impacts

Direct, permanent impacts (fill) to Wetlands B and C are likely with implementation of Alternative 1, 2, or 3A due to the proposal to widen Summit View Road under any of these alternatives. In addition, impacts to Wetland E are possible associated with proposed road construction in the powerline corridor to connect proposed Development Areas A and B under these alternatives. If the road crossings are built as conceptually shown, wetland buffer impacts would also occur at these crossings. Although it is not yet possible to specifically quantify areas of wetland impact, the applicant proposes that all fills would be the minimum necessary to construct the proposed road crossings: in the range of 2,000 to 6,000 sf total (for both road crossings described here). Wetland impacts and compensatory mitigation will be quantified at the time permit applications are prepared, and will be regulated by local, State, and Federal agencies with jurisdiction.

Potential indirect impacts to wetlands in the developed condition of the site include increased human intrusion into the wetlands due to introduction of a resident population in close proximity to wetlands. Human intrusion impacts may include additional noise, light and possibly stormwater discharge to wetlands.

With Alternative 3A or 3B, potential developed-condition impacts would be similar to those described for Alternative 1 or 2. If on-site septic systems are used in either of these alternatives rather than connection to the City sewer or connection to an on-site Membrane Bioreactor (MBR) plant, there could be a potential for nutrient input to

wetlands over the long-term if septic systems fail and result in groundwater contamination and migration. The potential for this impact to occur would be highest in areas adjacent to riparian corridors and wetlands. Alternative 3B could have the greatest potential for alteration of hydrologic inputs to wetlands and streams if a large number of exempt wells were used throughout the site to provide domestic water supply. Potential wetland impacts due to road construction to implement Alternative 3B are difficult to project, but could be much higher than with Alternative 1, 2 or 3A as there would be no planned road system that largely avoids wetlands and minimizes stream crossings under these alternatives. Access would need to permitted for each parcel in Alternative 3B regardless of abutting parcel access or impact characteristics.

Under the No Action Alternative, impacts to wetlands and wetland buffers that presently occur due to off-road riding and mudding in Wetlands B, C and E, for example, would likely continue.

6.2.2 Streams

Potential Impacts During Construction

Development under conceptual land use Alternative 1, 2 or 3A would result in impacts to Streams A, B, C, and D to construct proposed road crossings. Stream A would be impacted if the extension of Columbia Avenue is widened beyond its existing footprint. This work could include extension of the existing culvert and construction disturbance within the creek buffer. The Stream B buffer as well as portions of the channel could be impacted by any improvements to the width of Montgomery Avenue beyond its existing footprint. Portions of Stream C and its associated buffer could be impacted as a result of widening Summit View Road beyond its existing footprint. Portions of the Stream D channel and buffer would be impacted during construction of a road crossing shown on conceptual land use plans for Alternative 1, 2 or 3A to provide access between proposed Development Areas A and B. Alternative 3B could potentially have the most significant construction impact to streams due to construction of a less coordinated road system, likely resulting in a larger number of stream crossings.

If access to the west end of the site is granted across the Deneen (aka Cle Elum Pines) property, Alternative 1 could result in impacts to the buffer of Crystal Creek as a large span bridge would be used for the crossing, avoiding direct impacts to the channel.

There would also be a potential for construction impacts to these streams if Best Management Practices are not utilized. Such impacts could include the operation of machinery in and around stream channels, disturbance of gravels and stream bed materials, erosion of soil and sediment transport, or incidental discharge of machinery fluids into a stream.

Streams AA, BB, and E and their associated buffers would not be impacted by development as shown in the Alternative 1, 2, or 3A conceptual land use plans.

Potential Developed-Condition Impacts

Potential developed-condition impacts to on-site streams under any build alternative include an increased volume of surface water runoff and reduced vegetative cover. If vegetation is removed from stream buffers, there could be an increase in sediment transport to streams, an increase in water temperature, and loss of woody debris recruitment to the channels. Woody debris recruitment is the natural addition of woody material to streams and their banks from abutting woody vegetation to include tree and tall shrub species.

Potential surface water quality impacts from the developed-condition of the site include heavy metals, nutrients, and sediment loads in stormwater releases from paved surfaces used by vehicles (i.e., roads and parking areas) if there were no coordinated stormwater management system on the site. If on-site septic systems were installed on the site under Alternative 3A or 3B, there could be potential nutrient inputs to streams over the long-term if septic systems failed and groundwater contamination and migration were to occur. This could potentially impact water quality as well as fish and invertebrate habitat within streams.

Under the No Action Alternative, uncontrolled runoff and on-going degradation of streams would likely continue to occur, exacerbated by off-road vehicle use in and around stream channels.

6.2.3 Wildlife

Potential Construction Impacts

All areas to be developed under any of the conceptual land use alternatives would be cleared of existing vegetation prior to construction work. The clearing of vegetation would remove forage, browse, and cover sources for numerous species that utilize the site. The seasonal timing of this activity could affect wildlife survival. This area is utilized more heavily in winter months for some species such as elk and mule deer, and vegetation removal would reduce available cover and forage for these species. If performed during the breeding season, significant potential would exist for the loss of wildlife reproductive efforts because nest sites with eggs or young would be destroyed as the habitat is cleared. If clearing activities could be confined to the non-breeding season, this loss of reproductive effort would largely be avoided, thereby minimizing the impacts to existing wildlife by affording them an opportunity to relocate to other undeveloped areas in the site vicinity.

Development of the Planned Mixed-Use Development under any of the conceptual land use alternatives would require a significant amount of grading following vegetation removal to achieve construction elevations for roads and home sites. Because grading would occur only after all woody vegetation had been removed from areas undergoing development, little, if any wildlife would still be present in these areas of the site during grading. Once grading was completed, there would be essentially no wildlife habitat left in these areas of the site; existing wildlife would have either relocated elsewhere within the landscape, or would have perished.

The construction phasing proposal includes clearing and grading approximately 25 to 125 acres of the site for development at any one time, which will result in a transitional loss of habitat from the site over the 6- to 12-year projected development period.

Nocturnal construction (if any) involving artificial lighting could temporarily disrupt wildlife use of adjacent, undeveloped property, particularly large mammals. Artificial lighting changes nocturnal habitat by reducing, if not eliminating darkness. Noise associated with construction is less likely to impact wildlife within the surrounding, undeveloped environment, as they will either move away from the noise, or become accustomed to it. Common, primarily forest species that occur within the undeveloped landscape generally habituate to the sounds of constant, daily construction activity in a relatively short period of time (Fletcher and Busnel 1978).

Under Alternative 1, direct loss of approximately 200 acres of existing shrub and open forest habitat would occur over a period of 6 to 12 years as a result of clearing and grading operations. Under Alternative 2 or 3A, this habitat loss would be approximately 195 acres. Alternative 3B could potentially result in the most significant habitat loss due to a less coordinated approach to site planning and development that could result in more vegetation removal. Development of the City Heights property would displace wildlife that utilize the site to forested areas to the north. Most of the habitat to be removed is thinned pine forest that was cleared (by others) and impacted by recent logging activities. However, many species of wildlife were still noted to utilize this area during June and July 2009 site inspections, including elk, mule deer, black bear, cougar, bobcat, ruffed grouse and forest grouse, Merriman's turkey, numerous raptors and many other common wildlife.

Potential Developed-Condition Impacts

Introduction of a resident population on the site can be expected to disturb wildlife, particularly the less comment and/or less abundant species listed above. Common species likely to move into the completed condition of the project will habituate to a persistent, non-threatening human presence.

The Alternative 1, 2, or 3A conceptual land use plans show vegetated buffers to be preserved around the perimeter and in north/south orientations through the site. Wildlife habitat that will remain in these areas would include forested riparian areas adjacent to streams, and open pine forest in transitional areas between City Heights, existing developed areas to the south, and the large contiguous forest to the north. The riparian corridors, in particular, are of high importance for wildlife as many critical habitat requirements are found in these areas. This includes areas of dense tree and shrub cover to provide hiding and thermal protection, a water source, as well as many preferable forage species. Many of the wildlife observed on the site at the present time were within these riparian corridors. Development under Alternative 3B would be most likely to result in habitat fragmentation and least likely to preserve wildlife corridors due to the lack of a fixed development plan and parcel-by-parcel development

Other significant open space to be preserved on the site includes the shrub and grassed areas under existing electrical transmission lines. The east/west powerline easements generally connect the north/south riparian corridors through the site. However, the easements are also the most impacted areas of the site with the least amount of habitat and native vegetative cover, and therefore low habitat value.

Increased noise, light and habitat fragmentation as a result of the introduction of a resident population on the site would reduce the value of the remaining habitat for wildlife.

It is likely that human-animal encounters would increase with the encroachment of development into existing habitat. Although most wildlife would relocate, some species that are attracted to features of developed areas would remain nearby and make intrusions into and through the developed area. Examples include bears and raccoons foraging in garbage cans, dumpsters, and gardens; deer and elk grazing and disturbing grassed areas, gardens, and landscaping; and predation on domestic pets by large predators like cougar and bobcat. These predators, particularly those currently using the fringes of the City at this time, will likely continue to do so.

In general, urban development of the site would be a significant deterrent to terrestrial wildlife movements into and across the site. Because the northern boundary of City Heights will represent a new boundary between the City and the expansive forested area to the north, it may be desirable to prevent access into and through the site by large terrestrial mammals and predators. Interactions between humans in a residential neighborhood with animals like deer, elk, bear and cougar could have an undesirable and potentially dangerous outcome. If wildlife corridors were intentionally provided through the project, these species could be encouraged to wander further into the City with nowhere to go except toward heavily-traveled State highways.

No impacts to any State or Federally-listed species are anticipated, as none were noted to occur on or near the site.

Under the No Action Alternative, wildlife habitat on the site would improve over time if logged forest areas were allowed to reestablish through natural progression. With the likely persistence of off-road vehicle use and targeting shooting, there would continue to be periodic human disturbance to wildlife on the site under this alternative.

If there were no development on the site in the near-term, there would be no alteration of existing habitats or wildlife use of the site. Therefore, birds and wildlife species that presently inhabit, breed and nest, and/or forage on the site would likely continue to use the property in this manner.

6.3 Mitigation Measures

6.3.1 Incorporated Features

Direct impacts to wetlands (i.e., fill at road crossings) will be mitigated at required ratios per Code through wetland creation, likely by expanding the edge of the impacted wetlands outside the impact areas. Potential impacts to wetland buffers will be mitigated through buffer averaging as allowed by Code. Buffer averaging allows reduction of a buffer in one area as long as an equal area is added to the buffer in another. Under buffer averaging, the actual area of the buffer remains the same as the standard full width buffer. Construction contractors will be required to comply with all applicable permit conditions to avoid inadvertent clearing or compaction of wetlands and their associated buffers.

Stream impacts can be mitigated through the installation of appropriate culverts as approved by the Washington Department of Fish and Wildlife, as well as stream enhancement or restoration work required as conditions of permit approvals. Construction contractors will be required to comply with all applicable permit conditions for the protection of stream beds, stream banks, and stream water quality.

It will not be possible to fully mitigate wildlife impacts under any build alternative. Species that use the site will either use the remaining linked habitat areas (wetlands, streams, buffers, and open space corridors), or they will relocate to the north into the large forested area that includes over 1,000,000 acres of forest and wilderness area. The proposal to retain open space corridors on the site and connection through the development to off-site habitat areas would partially off-set habitat fragmentation that would result from site development.

Covenants, Codes and Restrictions (CC&Rs) to be enforced by the Homeowner's Association with Alternative 1, 2 or 3A will inform residents of wildlife in the area and

how to minimize sources of conflict. For example, garbage storage areas can be required to include animal-exclusion features, and a pet leash law could help minimize predation by domestic pets on small mammals and birds on the property, as well as control these pets to minimize their availability as prey for large native predators. Additionally, certain types of landscaping such as grassed lawns, fruit trees, and berry bushes can attract wildlife into urban areas. These types of landscaping should be discouraged to prevent these conflicts.

6.3.2 Applicable Regulations

On-site septic systems, if any were installed on the site under Alternative 3A or 3B, would be required to comply with local and State (Department of Health) regulations for the proper design, construction, operation, and maintenance of these systems to avoid leaking inadequately-treated wastewater to the groundwater system.

City of Cle Elum Municipal Code Title 18 (Critical Areas Development) details regulations applying to wetlands, streams and fish and wildlife habitat conservation areas. All work in and around these types of Critical Areas would need to follow these regulations under Alternatives 1 and 2.

Kittitas County regulates wetlands, streams and wildlife under Title 17A. of the Kittitas County Code. Any work done within the unincorporated areas of Kittitas County under Alternatives 3A and 3B would be required to follow these regulations regarding critical areas.

A U.S. Army Corps of Engineers Section 404 permit will be required for impacts to wetlands and streams determined to be "Waters of the US" under all Alternatives.

Washington Department of Ecology will have jurisdiction and review authority for any wetland or stream mitigation proposed under a US Army Corps Permit.

Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife (WDFW) will regulate work within "waters of the State;" i.e., any construction activity that would impact the bed or banks of streams.

Construction hours would be regulated by Washington Administrative Code (WAC) Chapter 173-60, the State noise rules. A variance would be required from the City or County (depending on the alternative selected for implementation) to conduct construction activities outside the daytime hours between 7:00 AM and 10:00 PM. To the extent that construction is limited to these hours, it would limit nighttime disturbance to wildlife in the form of noise, light, and human activity.

Mitigating Impacts to Wetlands B & C

Impacts to Wetlands B & C from the potential widening of Summit road could be mitigated through creation of additional wetland and buffer along the sides of these wetlands, or potentially enhancement of the wetlands at a higher ratio.

Mitigating Impacts to all wetlands from increased human presence

Impacts to all of the sites wetlands from the increase in human presence in the area can be mitigated through the use of the required buffer widths, and potentially use of fencing in close proximity to development where intrusion may occur (backyards). Lights and noise creating uses can be situated away from these areas to minimize impacts from glare and sound.

Mitigating Impacts from Hydrologic impacts

Wetlands and streams can be impacted from increased or decreases in water into these features from development changes in the landscape These impacts can be minimized and avoided through the use of appropriate storm water systems that re-direct treated water back towards the wetland or stream it would have migrated to prior to development.

Mitigating Impacts from water quality degradation

Use of appropriate water quality facilities as well as Best management Practices during construction will mitigate any reduction in water quality that could occur to receiving water bodies such as wetlands and streams. This would potentially improve water quality above existing conditions as removal of the existing off-road vehicle use would reduce the amount of untreated sediment laden runoff that currently flows into several of the creeks and wetlands.

Mitigating Wildlife Habitat Loss and Wildlife Conflicts

The fact that development will occur means impacts wildlife will also occur under all Alternatives. Nearly half of the site is being left in open space which includes an east-west corridor through the site under the power line, as well as maintaining riparian corridors through the site in at least 4 locations. These corridors will allow wildlife to migrate through the site. Additionally, off-road vehicle use through the site will be removed removing this noise related impact from the remaining open space areas. Although this will allow wildlife to still pass through portions of the site, it may also increase human/wildlife contact.

Human/wildlife confrontations can occur and can be dangerous, particularly with larger wildlife such as elk, bear, cougar and to a degree deer. With the remaining corridors on the site it is likely these species will be in and around the site even after development.

Regarding elk and deer, these species can be found on the property at any time of year and would most likely to do damage to landscaping and lawns if these types of features are present. A way to reduce these impacts is to reduce the amount of vegetation that attracts these species. Lawns and gardens will attract these species as will fruit trees and certain types of shrubs. Homeowners should be educated on living in and around large grazing animals such as these and be informed which species will attract them so they can avoid planting this type of landscape. Fences can be used along open space corridors and may help limit conflicts in some portions of the site. These may be particularly useful along the riparian corridors and should be designed to allow small wildlife to still pass though the fences.

Regarding cougar, limiting the factors that attract deer and elk, will help limit attracting cougar that prey on these species. Fences that may work for deer and elk are not that effective for cougar. Effective fences are large (10'+) and not realistic in a residential development. Education of residents about these large predators is the most effective way to reduce conflicts. Small children and pets should not be left unattended in open areas, particularly at dusk. Shrubs and landscaping should be pruned several feet off the ground to eliminate hiding spaces, residents should be educated about not feeding cats and dogs outside and not to leave these pets outside from dusk-dawn. Use garbage cans with tight fitting lids that prevent small animals such as skunks raccoons and coyotes which are prey for cougars from being attracted to the area.

Black bears are often attracted to garbage, bird feeders using suet, mulch piles, fruit trees, barbeque grills and pet foods. Ways to avoid conflicts with bears include have tight fitting garbage cans only put out when garbage truck service occurs, or have tight fitting or use specially designed bear-proof garbage cans. Remove bird feeders that allow residue to build up on the ground from March-November, harvest orchard fruit regularly from any fruit trees and do not leave rotting fruit on the ground, do not feed pets outside, clean grills after each use, avoid using outdoor refrigerators or freezers, and if possible, install bear proof fencing near fruit trees and garbage storage areas.

6.3.3 Other Recommended Mitigation Measures

To the extent that on-site sewage disposal systems may be installed with Alternative 3A or 3B, these systems should be sited in areas that would avoid potential shallow groundwater contamination that could migrate to streams and/or wetlands in the event of septic system failure. Groundwater wells should be located in areas where hydrologic analysis reveals the least likelihood of impact to base flows or the hydrology of wetlands or streams.

Normal construction activities should be limited to daytime hours to prevent possible disturbance of wildlife within adjacent, undeveloped landscapes. If special circumstances would require nocturnal work with bright, artificial lighting, shields should be provided to prevent fixed lighting from shining into non-construction areas.

To partially compensate for the loss of wildlife habitat due to clearing and grading activities, a variety of habitat features including such things as nest boxes could be placed within undeveloped open space areas to be preserved. Targeted species would include most cavity-nesting birds (such as swallows, chickadees, wrens, bluebirds, and woodpeckers), and bats. Additionally, where needed, tree and shrub plantings could occur in open space areas to include wetlands and associated buffers to improve the habitat of these remaining areas.

Additionally, landscaping to be introduced on the site could be specified to include native vegetation to the extent practicable. This would partially compensate for the loss of native wildlife habitat with implementation of any conceptual land use alternative. Target species should include species particularly beneficial to wildlife such as chokecherry, serviceberry, and native roses (*Rosa pisocarpa*; *R. nutka*; and *R. gymnocarpa*). Potentially invasive, exotic vegetation should not be allowed in site landscaping, including but not limited to English ivy (*Hedera helix*).

The applicant and City decision makers should consider a fence along the north City Heights boundary (and the east and west ends, as necessary) sufficient to deter the movement of deer, elk, bear and cougar from the expansive forested area to the north through the City Heights development and potentially into the existing residential neighborhood and downtown area below. The Washington Department of Fish and Wildlife (WDFW) discourages conflicts between wildlife and resident human populations (WDFW July 15, 2009).

6.4 Significant Unavoidable Adverse Impacts

Approximately 195 to 200 acres of wildlife habitat will be permanently removed from the site, with resulting displacement of species and individuals. Conflicts may occur from time to time between wildlife and the resident population on the site.

If you have any questions in regards to this report or need additional information, please feel free to contact me at (253) 859-0515 or at esewall@sewallwc.com .

Sincerely,
Sewall Wetland Consulting, Inc.

Ed Sewall
Senior Wetlands Ecologist PWS #212

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APPENDIX A
NRCS SOIL REPORT

MAP LEGEND

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

Soils
- Soil Map Units

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

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities
- PLSS Township and Range
- PLSS Section

Water Features
- Oceans
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:21,100 if printed on A size (8.5" × 11") sheet.

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

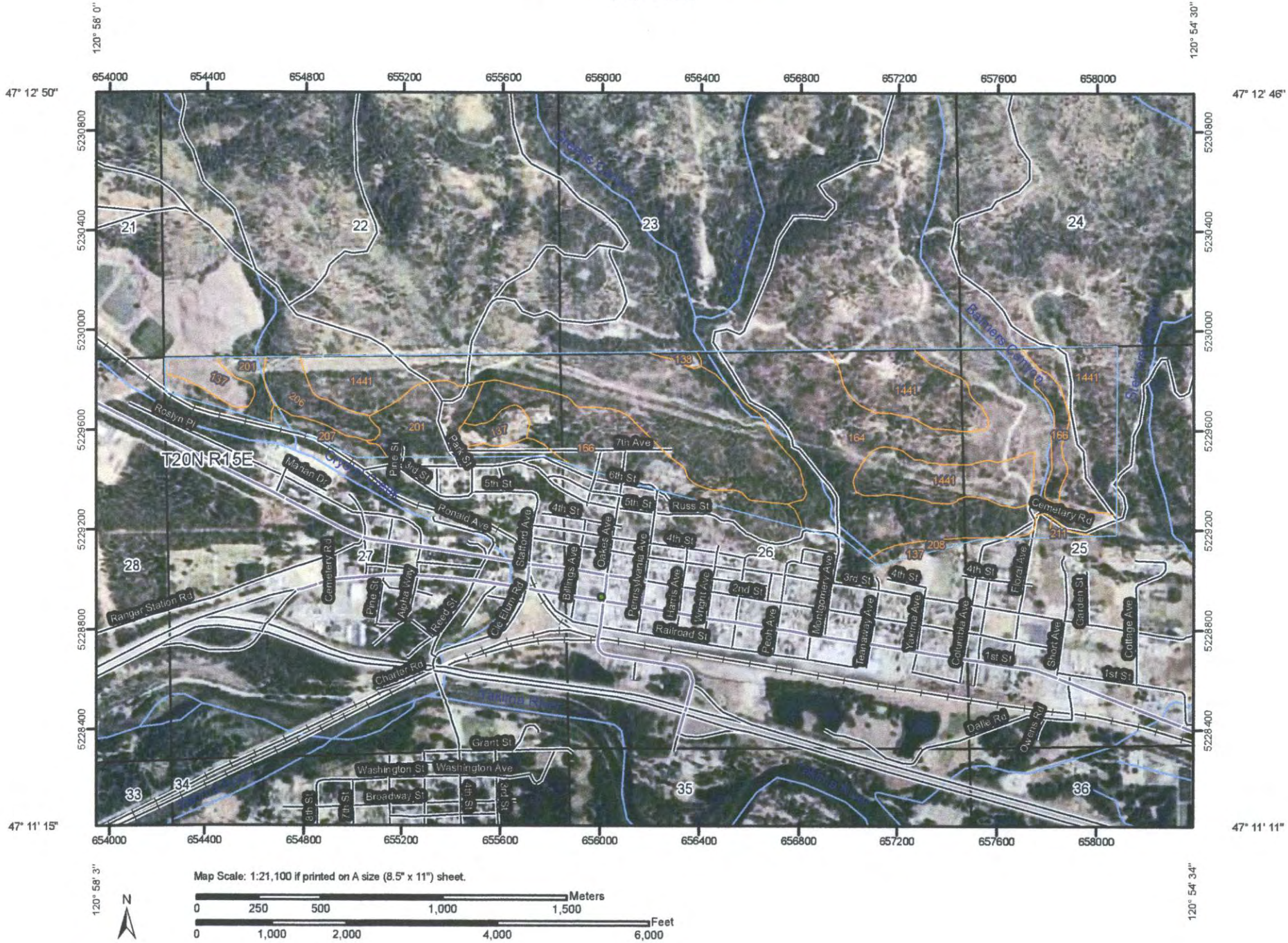
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Date(s) aerial images were photographed: 7/27/2006

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

Soil Map—Kittitas County Area, Washington
(City Hieghts)



Map Unit Legend

Kittitas County Area, Washington (WA637)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
137	Dumps, mine	17.6	3.4%
138	Pits, mine	1.8	0.4%
164	Nard ashy loam, 25 to 45 percent slopes	154.4	29.8%
166	Ampad ashy sandy loam, warm, 5 to 30 percent slopes	57.5	11.1%
201	Roslyn ashy sandy loam, 0 to 5 percent slopes	39.9	7.7%
206	Dystroxerepts, 45 to 65 percent south slopes	15.8	3.0%
207	Quicksell loam, 0 to 5 percent slopes	7.5	1.4%
208	Patnish-Mippon-Myzel complex, 0 to 3 percent slopes	6.6	1.3%
211	Teanaway loam, 0 to 3 percent slopes	1.3	0.2%
1441	Teanaway loam, 10 to 25 percent slopes	215.7	41.6%
Totals for Area of Interest		**518.3**	**100.0%**

Kittitas County Area, Washington

137—Dumps, mine

Map Unit Setting
Elevation: 2,000 to 3,600 feet

Map Unit Composition
Dumps, mine: 100 percent

Description of Dumps, Mine

Interpretive groups
Land capability (nonirrigated): 8

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

138—Pits, mine

Map Unit Setting
Elevation: 1,500 to 5,700 feet

Map Unit Composition
Pits, mine: 100 percent

Description of Pits, Mine

Properties and qualities
Slope: 15 to 45 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups
Land capability (nonirrigated): 8

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

164—Nard ashy loam, 25 to 45 percent slopes

Map Unit Setting

Elevation: 1,800 to 4,800 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 80 to 120 days

Map Unit Composition

Nard and similar soils: 80 percent
Minor components: 20 percent

Description of Nard

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum and colluvium from sandstone and old alluvium with an influence of volcanic ash in the upper part

Properties and qualities

Slope: 25 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 20 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.7 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Other vegetative classification: grand fir/vine maple (CWS551)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 4 inches: Ashy loam
4 to 12 inches: Ashy loam
12 to 24 inches: Loam
24 to 34 inches: Clay loam
34 to 60 inches: Clay loam

Minor Components

Rock outcrop

Percent of map unit: 5 percent

Roxer

Percent of map unit: 5 percent

Kiper

Percent of map unit: 5 percent

Ampad

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

166—Ampad ashy sandy loam, warm, 5 to 30 percent slopes

Map Unit Setting

Elevation: 2,100 to 3,600 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 80 to 110 days

Map Unit Composition

Ampad, warm, and similar soils: 85 percent
Minor components: 15 percent

Description of Ampad, Warm

Setting

Landform: Cuestas, mountain slopes
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Colluvium and residuum from sandstone with an influence of volcanic ash

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Other vegetative classification: Douglas-fir/pinegrass (CDG131)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 5 inches: Ashy sandy loam
5 to 10 inches: Ashy sandy loam
10 to 29 inches: Sandy loam
29 to 33 inches: Sandy loam
33 to 43 inches: Weathered bedrock

Minor Components

Nard

Percent of map unit: 10 percent

Rock outcrop
Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

201—Roslyn ashy sandy loam, 0 to 5 percent slopes

Map Unit Setting

Elevation: 1,900 to 2,400 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 85 to 115 days

Map Unit Composition

Roslyn and similar soils: 85 percent
Minor components: 15 percent

Description of Roslyn

Setting

Landform: Terraces
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glacial drift with a mantle of loess and volcanic ash

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.0 inches)

Interpretive groups

Land capability (nonirrigated): 3c
Other vegetative classification: grand fir/common snowberry/ pinegrass (CWS336)

Typical profile

0 to 1 inches: Moderately decomposed plant material
1 to 8 inches: Ashy sandy loam
8 to 15 inches: Ashy sandy loam
15 to 37 inches: Loam
37 to 49 inches: Gravelly loam
49 to 60 inches: Gravelly loam

Minor Components

Nard

Percent of map unit: 10 percent

Volperie

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

206—Dystroxerepts, 45 to 65 percent south slopes

Map Unit Setting

Elevation: 1,900 to 2,400 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 70 to 100 days

Map Unit Composition

Dystroxerepts, south slopes, and similar soils: 80 percent
Minor components: 20 percent

Description of Dystroxerepts, South Slopes

Setting

Landform: Escarpments
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Glacial outwash with an influence of volcanic ash in the upper part

Properties and qualities

Slope: 45 to 65 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Other vegetative classification: Douglas-fir/pinegrass (CDG131)

Typical profile

0 to 1 inches: Moderately decomposed plant material
1 to 7 inches: Ashy sandy loam
7 to 18 inches: Gravelly ashy loam
18 to 60 inches: Very gravelly sandy loam

Minor Components

Racker

Percent of map unit: 10 percent

Teanaway

Percent of map unit: 5 percent

Roslyn
Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

207—Quicksell loam, 0 to 5 percent slopes

Map Unit Setting

Elevation: 1,800 to 3,100 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Quicksell and similar soils: 80 percent
Minor components: 20 percent

Description of Quicksell

Setting

Landform: Terraces
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to abrupt textural change
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 5 to 15 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w
Other vegetative classification: Douglas-fir/common snowberry/ pinegrass (CDS638)

Typical profile

0 to 5 inches: Loam
5 to 20 inches: Clay loam
20 to 43 inches: Clay
43 to 60 inches: Clay loam

Minor Components

Swauk

Percent of map unit: 10 percent

Teanaway

Percent of map unit: 5 percent

Roslyn

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

208—Patnish-Mippon-Myzel complex, 0 to 3 percent slopes

Map Unit Setting

Elevation: 1,800 to 4,800 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 80 to 110 days

Map Unit Composition

Patnish and similar soils: 40 percent
Mippon and similar soils: 30 percent
Myzel and similar soils: 25 percent
Minor components: 5 percent

Description of Patnish

Setting

Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium mixed with volcanic ash in the upper part

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 35 to 60 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 3c
Land capability (nonirrigated): 3c
Other vegetative classification: Douglas-fir/common snowberry/ pinegrass (CDS638)

Typical profile

0 to 7 inches: Ashy loam
7 to 14 inches: Ashy loam
14 to 27 inches: Loam
27 to 35 inches: Very gravelly sandy loam
35 to 60 inches: Extremely cobbly loamy sand

Description of Mippon

Setting

Landform: Stream terraces
Down-slope shape: Concave

Across-slope shape: Concave
Parent material: Alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 27 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 35 to 60 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability (nonirrigated): 4s
Other vegetative classification: Douglas-fir/common snowberry/ pinegrass (CDS638)

Typical profile

0 to 1 inches: Moderately decomposed plant material
1 to 12 inches: Very cobbly loam
12 to 18 inches: Very gravelly sandy loam
18 to 60 inches: Extremely cobbly loamy sand

Description of Myzel

Setting

Landform: Alluvial fans, flood plains
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Alluvium with an influence of volcanic ash in the upper part

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 35 to 57 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 3w
Other vegetative classification: Douglas-fir/common snowberry/ pinegrass (CDS638)

Typical profile

0 to 6 inches: Ashy sandy clay loam
6 to 22 inches: Ashy sandy clay loam
22 to 38 inches: Ashy sandy clay loam

38 to 57 inches: Sandy clay loam
57 to 60 inches: Sandy clay loam

Minor Components

Xerofluvents
Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

211—Teanaway loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 1,800 to 2,500 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 80 to 110 days

Map Unit Composition

Teanaway and similar soils: 80 percent
Minor components: 20 percent

Description of Teanaway

Setting

Landform: Terraces
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loess over glacial till or outwash with an influence of volcanic ash in the surface

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 39 to 51 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 3c
Land capability (nonirrigated): 3c
Other vegetative classification: Douglas-fir/common snowberry/ pinegrass (CDS638)

Typical profile

0 to 3 inches: Moderately decomposed plant material
3 to 7 inches: Loam
7 to 22 inches: Loam
22 to 42 inches: Loam
42 to 51 inches: Loam
51 to 60 inches: Gravelly loam

Minor Components

Racker

Percent of map unit: 10 percent

Quicksell

Percent of map unit: 5 percent
Landform: Depressions on outwash terraces

Roslyn

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

Kittitas County Area, Washington

1441—Teanaway loam, 10 to 25 percent slopes

Map Unit Setting

Elevation: 1,800 to 3,600 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 120 days

Map Unit Composition

Teanaway and similar soils: 80 percent
Minor components: 20 percent

Description of Teanaway

Setting

Landform: Mountain slopes
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loess over glacial till or outwash with an influence of volcanic ash in the surface

Properties and qualities

Slope: 10 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 39 to 51 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 3e
Other vegetative classification: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 3 inches: Moderately decomposed plant material
3 to 7 inches: Loam
7 to 22 inches: Loam
22 to 42 inches: Loam
42 to 51 inches: Loam
51 to 60 inches: Gravelly loam

Minor Components

Ampad

Percent of map unit: 10 percent

Swauk

Percent of map unit: 5 percent

Nard

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 3, Jun 15, 2009

APPENDIX B
WDNR NATURAL HERITAGE DATA SEARCH RESULTS

Washington Natural Heritage Information System
Known High-Quality or Rare Plant Communities and Wetland Ecosystems of Washington
February 2008
Kittitas County

Scientific Name	Common Name	Historic Record
Artemisia arbuscula ssp. arbuscula / Festuca idahoensis Shrub Herbaceous Vegetation	Low Sagebrush / Idaho Fescue	
Artemisia rigida / Poa secunda Shrub Herbaceous Vegetation	Stiff Sagebrush / Sandberg's Bluegrass	
Artemisia rigida cover type	Stiff Sagebrush Shrubland	
Artemisia tridentata / Festuca idahoensis Shrub Herbaceous Vegetation	Big Sagebrush / Idaho Fescue	
Artemisia tridentata ssp. wyomingensis / Pseudoroegneria spicata Shrub Herbaceous Vegetation	Wyoming Big Sagebrush / Bluebunch Wheatgrass	
Artemisia tripartita ssp. tripartita / Festuca idahoensis Shrub Herbaceous Vegetation	Threetip Sagebrush / Idaho Fescue	
Eriogonum thymoides / Poa secunda Dwarf-shrub Herbaceous Vegetation	Thyme Buckwheat / Sandberg's Bluegrass	
Larix occidentalis cover type	Western Larch Forest	H
Picea engelmannii cover type	Engelmann Spruce Forest	H
Pinus albicaulis - Abies lasiocarpa cover type	White-bark Pine - Subalpine Fir Forest	H
Pinus albicaulis cover type	White-bark Pine Forest	H
Pinus monticola cover type	Western White Pine Forest	H
Pinus ponderosa / Symphoricarpos albus Temporarily Flooded Woodland	Ponderosa Pine - Common Snowberry	
Pinus ponderosa cover type	Ponderosa Pine Forest	
Pseudotsuga menziesii - Abies lasiocarpa cover type	Douglas-fir - Subalpine Fir Forest	H
Pseudotsuga menziesii - Tsuga heterophylla cover type	Douglas-fir - Western Hemlock Forest	H
Pseudotsuga menziesii cover type	Douglas-fir Forest	H
Purshia tridentata / Achnatherum hymenoides Shrubland	Bitterbrush / Indian Ricegrass	
Quercus garryana / Carex geyeri Woodland	Oregon White Oak / Geyer's Sedge	
Quercus garryana Forest [Placeholder]	Oregon White Oak	

Washington Natural Heritage Information System
List of Known Occurrences of Rare Plants in Washington
February 2009
Kittitas County

A key to status fields appears below. If a scientific name is underlined you may click on it to go to a field guide page (pdf format, average size 300 kb) for that taxon.

Scientific Name	Common Name	State Status	Federal Status	Historic Record
Agoseris elata	tall agoseris	S		
Anemone patens var. multifida	pasqueflower	T		
Anthoxanthum hirtum	common northern sweet grass	R1		H
Astragalus arrectus	Palouse milk-vetch	T		H
Astragalus columbianus	Columbia milk-vetch	S	SC	
Astragalus misellus var. pauper	Pauper milk-vetch	S		
Camissonia pygmaea	dwarf evening-primrose	S		
Camissonia scapoidea ssp. scapoidea	naked-stemmed evening-primrose	S		
Carex comosa	bristly sedge	S		H
Carex macrochaeta	large-awn sedge	T		H
Carex pauciflora	few-flowered sedge	S		
Carex scirpoidea ssp. scirpoidea	Canadian single-spike sedge	S		
Chaenactis thompsonii	Thompson's chaenactis	S		
Collomia macrocalyx	bristle-flowered collomia	S		
Cryptantha gracilis	narrow-stem cryptantha	S		
Cryptantha leucophaea	gray cryptantha	S	SC	
Cryptantha rostellata	beaked cryptantha	T		
Cryptantha scoparia	miner's candle	S		
Cypripedium fasciculatum	clustered lady's-slipper	S	SC	
Delphinium viridescens	Wenatchee larkspur	T	SC	
Eatonella nivea	white eatonella	T		
Erigeron basalticus	basalt daisy	T	SC	
Erigeron piperianus	Piper's daisy	S		H
Erigeron salishii	Salish fleabane	S		H
Gentiana douglasiana	swamp gentian	S		
Hackelia hispida var. disjuncta	sagebrush stickseed	S		H
Iliamna longisepala	longsepal globemallow	S		
Juncus howellii	Howell's rush	T		
Lomatium tuberosum	Hoover's desert-parsley	S	SC	
Mimulus suksdorfii	Suksdorf's monkey-flower	S		
Minuartia nuttallii ssp. fragilis	Nuttall's sandwort	T		
Montia diffusa	branching montia	S		H

Nicotiana attenuata	coyote tobacco	S		
Oenothera caespitosa ssp. caespitosa	cespitose evening-primrose	S		
Ophioglossum pusillum	Adder's-tongue	T		H
Oxytropis campestris var. gracilis	slender crazyweed	S		H
Pediocactus nigrispinus	snowball cactus	R1		
Pellaea breweri	Brewer's cliff-brake	S		
Penstemon eriantherus var. whitedii	fuzzytongue penstemon	S		
Phacelia minutissima	least phacelia	E	SC	
Pyrrocoma hirta var. sonchifolia	sticky goldenweed	S		
Sidalcea oregana var. calva	Wenatchee Mountain checker-mallow	E	LE	
Silene seelyi	Seely's silene	S	SC	
Spiranthes porrifolia	western ladies-tresses	S		
Subularia aquatica var. americana	water awlwort	R1		
Tauschia hooveri	Hoover's tauschia	T	SC	

Description of Codes

Historic Record:

H indicates most recent sighting in the county is before 1977.

State Status

State Status of plant species is determined by the Washington Natural Heritage Program. Factors considered include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness.
Values include:
E = Endangered. In danger of becoming extinct or extirpated from Washington.
T = Threatened. Likely to become Endangered in Washington.
S = Sensitive. Vulnerable or declining and could become Endangered or Threatened in the state.
X = Possibly extinct or Extirpated from Washington.
R1 = Review group 1. Of potential concern but needs more field work to assign another rank.
R2 = Review group 2. Of potential concern but with unresolved taxonomic questions.

Federal Status

Federal Status under the U.S. Endangered Species Act(USESA) as published in the Federal Register:
LE = Listed Endangered. In danger of extinction.
LT = Listed Threatened. Likely to become endangered.
PE = Proposed Endangered.
PT = Proposed Threatened.
C = Candidate species. Sufficient information exists to support listing as Endangered or Threatened.
SC = Species of Concern. An unofficial status, the species appears to be in jeopardy, but insufficient information to support listing.

Sections that Contain Natural Heritage Features

Data Current as of July 21, 2009

List of surveyed land sections in Washington identified by the Natural Heritage Program as reported to contain Natural Heritage Features. Contact the Washington Natural Heritage Program at (360) 902-1667 for more detailed information on locations and occurrences.

Town. Range Sec.	Town. Range Sec.	Town. Range Sec.	Town. Range Sec.
T19N R02W S44	T19N R19E S32	T19N R39E S06	T20N R17E S31
T19N R02W S45	T19N R19E S33	T19N R40E S23	T20N R18E S01
T19N R02W S46	T19N R20E S33	T19N R40E S32	T20N R18E S02
T19N R03E S06	T19N R21E S08	T19N R40E S33	T20N R18E S03
T19N R03E S17	T19N R21E S09	T19N R40E S34	T20N R18E S04
T19N R03E S19	T19N R21E S10	T19N R45E S13	T20N R18E S20
T19N R03E S29	T19N R21E S13	T19N R45E S24	T20N R21E S13
T19N R03E S30	T19N R21E S14	T19N R46E S19	T20N R21E S19
T19N R03E S31	T19N R21E S15	T19N R46E S20	T20N R22E S05
T19N R03E S32	T19N R21E S16	T20N R02E S33	T20N R22E S08
T19N R03W S17	T19N R21E S21	T20N R02W S02	T20N R22E S11
T19N R03W S29	T19N R21E S22	T20N R02W S03	T20N R22E S12
T19N R03W S32	T19N R21E S23	T20N R02W S20	T20N R22E S13
T19N R04W S17	T19N R21E S24	T20N R02W S28	T20N R22E S14
T19N R04W S18	T19N R21E S25	T20N R02W S33	T20N R22E S23
T19N R04W S19	T19N R21E S26	T20N R03E S22	T20N R22E S24
T19N R04W S20	T19N R21E S27	T20N R03E S23	T20N R22E S25
T19N R05E S09	T19N R21E S34	T20N R03W S31	T20N R22E S34
T19N R05W S02	T19N R21E S35	T20N R05W S04	T20N R22E S35
T19N R05W S17	T19N R21E S36	T20N R05W S05	T20N R22E S36
T19N R06E S01	T19N R22E S02	T20N R05W S08	T20N R23E S05
T19N R10W S29	T19N R22E S03	T20N R05W S09	T20N R23E S07
T19N R10W S30	T19N R22E S04	T20N R05W S14	T20N R23E S08
T19N R11W S04	T19N R22E S05	T20N R05W S15	T20N R23E S17
T19N R11W S05	T19N R22E S06	T20N R05W S16	T20N R23E S18
T19N R11W S07	T19N R22E S07	T20N R05W S20	T20N R23E S19
T19N R11W S08	T19N R22E S08	T20N R05W S21	T20N R23E S20
T19N R11W S09	T19N R22E S09	T20N R05W S26	T20N R31E S19
T19N R11W S17	T19N R22E S16	T20N R05W S28	T20N R31E S20
T19N R11W S18	T19N R22E S17	T20N R05W S29	T20N R33E S02
T19N R11W S22	T19N R22E S18	T20N R05W S30	T20N R33E S09
T19N R11W S27	T19N R22E S19	T20N R05W S31	T20N R33E S10
T19N R11W S33	T19N R22E S20	T20N R05W S32	T20N R33E S11
T19N R11W S34	T19N R22E S30	T20N R06E S36	T20N R33E S14
T19N R11W S35	T19N R22E S35	T20N R07E S21	T20N R33E S15
T19N R12W S04	T19N R22E S36	T20N R07E S28	T20N R33E S16
T19N R12W S05	T19N R23E S29	T20N R07E S31	T20N R33E S17
T19N R12W S09	T19N R23E S30	T20N R08E S03	T20N R33E S18
T19N R16E S01	T19N R25E S05	T20N R08E S04	T20N R34E S08
T19N R16E S02	T19N R25E S06	T20N R08E S05	T20N R34E S15
T19N R16E S11	T19N R25E S33	T20N R08E S08	T20N R34E S16
T19N R16E S12	T19N R26E S07	T20N R08E S09	T20N R34E S17
T19N R17E S06	T19N R26E S08	T20N R08E S10	T20N R35E S09
T19N R17E S07	T19N R26E S17	T20N R08E S15	T20N R35E S10
T19N R17E S18	T19N R26E S18	T20N R08E S16	T20N R35E S15
T19N R17E S20	T19N R26E S29	T20N R12W S17	T20N R35E S16
T19N R19E S09	T19N R29E S19	T20N R12W S20	T20N R35E S17
T19N R19E S16	T19N R29E S20	T20N R12W S29	T20N R35E S19
T19N R19E S20	T19N R29E S29	T20N R12W S32	T20N R35E S20
T19N R19E S25	T19N R29E S30	T20N R12W S33	T20N R35E S21
T19N R19E S28	T19N R29E S31	T20N R13E S03	T20N R35E S22
T19N R19E S29	T19N R29E S32	T20N R14E S31	T20N R36E S02
T19N R19E S30	T19N R33E S34	T20N R16E S35	T20N R37E S35
T19N R19E S31	T19N R39E S05	T20N R16E S36	T20N R39E S04

APPENDIX C
GLOSSARY OF WETLAND TERMS TAKEN FROM WASHINGTON STATE WETLANDS DELINEATION MANUAL

Basal area - The cross-sectional area of a tree trunk measured in square inches, square centimetres, etc. Basal area is normally measured at 4.5 ft above the ground level and is used as a measure of dominance. The most easily used tool for measuring basal area is a tape marked in square inches. When plotless methods are used, an angle gauge or prism will provide a means for rapidly determining basal area. This term is also applicable to the crosssectional area of a clumped herbaceous plant, measured at 1.0 in. above the soil surface.

Bench mark - A fixed, more or less permanent reference point or object, the elevation of which is known. The US Geological Survey (USGS) installs brass caps in bridge abutments or otherwise permanently sets bench marks at convenient locations nationwide. The elevations on these marks are referenced to the National Geodetic Vertical Datum (NGVD), also commonly known as mean sea level (MSL). Locations of these bench marks on USGS quadrangle maps are shown as small triangles. However, the marks are sometimes destroyed by construction or vandalism. The existence of any bench mark should be field verified before planning work that relies on a particular reference point. The USGS and/or local state surveyor's office can provide information on the existence, exact location, and exact elevation of bench marks.

Biennial - An event that occurs at 2-year intervals.

Buried soil - A once-exposed soil now covered by an alluvial, loessal, or other deposit (including man-made).

Canopy layer - The uppermost layer of vegetation in a plant community. In forested areas, mature trees comprise the canopy layer, while the tallest herbaceous species constitute the canopy layer in a marsh.

Capillary fringe - A zone immediately above the water table (zero gauge pressure) in which water is drawn upward from the water table by capillary action.

Chemical reduction - Any process by which one compound or ion acts as an electron donor. In such cases, the valence state of the electron donor is decreased.

Chroma - The relative purity or saturation of a color; intensity of distinctive hue as related to grayness; one of the three variables of color.

Comprehensive wetland determination - A type of wetland determination that is based on the strongest possible evidence, requiring the collection of quantitative data.

Concretion - A local concentration of chemical compounds (e.g. calcium carbonate, iron oxide) in the form of a grain or nodule of varying size, shape, hardness, and color. Concretions of significance in hydric soils are usually iron and/or manganese oxides occurring at or near the soil surface, which develop under conditions of prolonged soil saturation.

Contour - An imaginary line of constant elevation on the ground surface. The corresponding line on a map is called a recontour line."

Criteria - Standards, rules, or tests on which a judgment or decision may be based.

Deepwater aquatic habitat - Any open water area that has a mean annual water depth >6.6 ft, lacks soil, and/or is either unvegetated or supports only floating or submersed macrophytes.

Density - The number of individuals of a species per unit area.

Detritus - Minute fragments of plant parts found on the soil surface. When fused together by algae or soil particles, this is an indicator that surface water was recently present.

Diameter at breast height (DBH) - The width of a plant stem as measured at 4.5 ft above the ground surface.

Dike - A bank (usually earthen) constructed to control or confine water.

Dominance - As used herein, a descriptor of vegetation that is related to the standing crop of a species in an area, usually measured by height, areal cover, or basal area (for trees).

Dominant species - As used herein, a plant species that exerts a controlling influence on or defines the character of a community.

Drained - A condition in which ground or surface water has been reduced or eliminated from an area by artificial means.

Drift line - An accumulation of debris along a contour (parallel to the water flow) that represents the height of an inundation event.

Duration (inundation/soil saturation) - The length of time during which water stands at or above the soil surface (inundation), or during which the soil is saturated. As used herein, duration refers to a period during the growing season.

Ecological tolerance - The range of environmental conditions in which a plant species can grow.

Emergent plant - A rooted herbaceous plant species that has parts extending above a water surface.

Field capacity - The percentage of water remaining in a soil after it has been saturated and after free drainage is negligible.

Fill material - Any material placed in an area to increase surface elevation.

Flooded - A condition in which the soil surface is temporarily covered with flowing water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, inflow from high tides, or any combination of sources.

Flora - A list of all plant species that occur in an area.

Frequency (inundation or soil saturation) - The periodicity of coverage of an area by surface water or soil saturation. It is usually expressed as the number of years (e.g. 50 years) the soil is inundated or saturated at least once each year during part of the growing season per 100 years or as a l-, 2-, 5-year, etc., inundation frequency.

Frequency (vegetation) - The distribution of individuals of a species in an area. It is quantitatively expressed as

$$\frac{\text{Number of samples containing species A}}{\text{Total number of samples}} \times 100$$

More than one species may have a frequency of 100 percent within the same area.

Frequently flooded - A flooding class in which flooding is likely to occur often under normal weather conditions (more than 50-percent chance of flooding in any year or more than 50 times in 100 years).

Gleyed - A soil condition resulting from prolonged soil saturation, which is manifested by the presence of bluish or greenish colors through the soil mass or in mottles (spots or streaks) among other colors. Gleying occurs under reducing soil conditions resulting from soil saturation, by which iron is reduced predominantly to the ferrous state.

Ground water - That portion of the water below the ground surface that is under greater pressure than atmospheric pressure.

Growing season - The portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biologic zero (5° C) (US Department of Agriculture - Soil Conservation Service 1985).* For ease of determination this period can be approximated by the number of frost-free days (US Department of the Interior 1970).

Habitat - The environment occupied by individuals of a particular species, population, or community.

Headwater flooding - A situation in which an area becomes inundated directly by surface runoff from upland areas.

Herb - A nonwoody individual of a macrophytic species. In this manual, seedlings of woody plants (including vines) that are less than 3.2 ft in height are considered to be herbs.

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* See references at the end of the main text.

Herbaceous layer - Any vegetative stratum of a plant community that is composed predominantly of herbs.

Histic epipedon - An 8- to 16-in. soil layer at or near the surface that is saturated for 30 consecutive days or more during the growing season in most years and contains a minimum of 20 percent organic matter when no clay is present or a minimum of 30 percent organic matter when 60 percent or greater clay is present.

Histosols - An order in soil taxonomy composed of organic soils that have organic soil materials in more than half of the upper 80 cm or that are of any thickness if directly overlying bedrock.

Homogeneous vegetation - A situation in which the same plant species association occurs throughout an area.

Hue - A characteristic of color that denotes a color in relation to red, yellow, blue, etc; one of the three variables of color. Each color chart in the Munsell Color Book (Munsell Color 1975) consists of a specific hue.

Hydric soil - A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. (USDA-NRCS 1995, Federal Register, 7/13/94, Vol. 59, No. 133, pp 35680-83). Hydric soils that occur in areas having positive indicators of hydrophytic vegetation and wetland hydrology are wetland soils.

Hydric soil condition - A situation in which characteristics exist that are associated with soil development under reducing conditions.

Hydrologic regime - The sum total of water that occurs in an area on average during a given period.

Hydrologic zone - An area that is inundated or has saturated soils within a specified range of frequency and duration of inundation and soil saturation.

Hydrology - The science dealing with the properties, distribution, and circulation of water.

Hydrophyte - Any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

Hydrophytic vegetation - The sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. When hydrophytic vegetation comprises a community where indicators of hydric soils and wetland hydrology also occur, the area has wetland vegetation.

Hypertrophied lenticels - An exaggerated (oversized) pore on the surface of stems of woody plants through which gases are exchanged between the plant and the atmosphere. The enlarged

lenticels serve as a mechanism for increasing oxygen to plant roots during periods of inundation and/or saturated soils.

Importance value - A quantitative term describing the relative influence of a plant species in a plant community, obtained by summing any combination of relative frequency, relative density, and relative dominance.

Indicator - As used in this manual, an event, entity, or condition that typically characterizes a prescribed environment or situation; indicators determine or aid in determining whether or not certain stated circumstances exist.

Indicator status - One of the categories (e.g. OBL) that describes the estimated probability of a plant species occurring in wetlands.

Intercellular air space - A cavity between cells in plant tissues, resulting from variations in cell shape and configuration. Aerenchymous tissue (a morphological adaptation found in many hydrophytes) often has large intercellular air spaces.

Inundation - A condition in which water from any source temporarily or permanently covers a land surface.

Levee - A natural or man-made feature of the landscape that restricts movement of water into or through an area.

Liana - As used in this manual, a layer of vegetation in forested plant communities that consists of woody vines. The term may also be applied to a given species.

Limit of biological activity - With reference to soils, the zone below which conditions preclude normal growth of soil organisms. This term often is used to refer to the temperature (5°C) in a soil below which metabolic processes of soil microorganisms, plant roots, and animals are negligible.

Long duration (flooding) - A flooding class in which the period of inundation for a single event ranges from 7 days to 1 month.

Macrophyte - Any plant species that can be readily observed without the aid of optical magnification. This includes all vascular plant species and mosses *(e.g., Sphagnum* spp.), as well as large algae (e.g. *Chara* spp., kelp).

Macrophytic - A term referring to a plant species that is a macrophyte.

Major portion of the root zone - The portion of the soil profile in which more than 50 percent of plant roots occur. In wetlands, this usually constitutes the upper 12 in. of the profile.

Man-induced wetland - Any area that develops wetland characteristics due to some activity (e.g., irrigation) of man.

Mapping unit - As used in this manual, some common characteristic of soil, vegetation, and/or hydrology that can be shown at the scale of mapping for the defined purpose and objectives of a survey.

Mean sea level - A datum, or ‰plane of zero elevation,'"established by averaging all stages of oceanic tides over a 19-year tidal cycle or ‰epoch.'"This plane is corrected for curvature of the earth and is the standard reference for elevations on the earth‰s surface. The correct term for mean sea level is the National Geodetic Vertical Datum (NGVD).

Mesophytic - Any plant species growing where soil moisture and aeration conditions lie between extremes. These species are typically found in habitats with average moisture conditions, neither very dry nor very wet.

Metabolic processes - The complex of internal chemical reactions associated with life-sustaining functions of an organism.

Method - A particular procedure or set of procedures to be followed.

Mineral soil - A soil consisting predominantly of, and having its properties determined predominantly by, mineral matter usually containing less than 20 percent organic matter.

Morphological adaptation - A feature of structure and form that aids in fitting a species to its particular environment (e.g. buttressed base, adventitious roots, aerenchymous tissue).

Mottles - Spots or blotches of different color or shades of color interspersed within the dominant color in a soil layer, usually resulting from the presence of periodic reducing soil conditions.

Muck - Highly decomposed organic material in which the original plant parts are not recognizable.

Multitrunk - A situation in which a single individual of a woody plant species has several stems.

Nonhydric soil - A soil that has developed under predominantly aerobic soil conditions. These soils normally support mesophytic or xerophytic species.

Nonwetland - Any area that has sufficiently dry conditions that indicators of hydrophytic vegetation, hydric soils, and/or wetland hydrology are lacking. As used in this manual, any area that is neither a wetland, a deepwater aquatic habitat, nor other special aquatic site.

Organic pan - A layer usually occurring at 12 to 30 inches below the soil surface in coarse-textured soils, in which organic matter and aluminum (with or without iron) accumulate at the point where the top of the water table most often occurs. Cementing of the organic matter slightly reduces permeability of this layer.

Organic soil - A soil is classified as an organic soil when it is: (1) saturated for prolonged periods (unless artificially drained) and has more than 30-percent organic matter if the mineral fraction is more than 50-percent clay, or more than 20-percent organic matter if the mineral fraction has no clay; or (2) never saturated with water for more than a few days and having more than 34-percent organic matter.

Overbank flooding - Any situation in which inundation occurs as a result of the water level of a stream rising above bank level.

Oxidation-reduction process - A complex of biochemical reactions in soil that influences the valence state of component elements and their ions. Prolonged soil saturation during the growing season elicits anaerobic conditions that shift the overall process to a reducing condition.

Oxygen pathway - The sequence of cells, intercellular spaces, tissues, and organs, through which molecular oxygen is transported in plants. Plant species having pathways for oxygen transport to the root system are often adapted for life in saturated soils.

Parameter - A characteristic component of a unit that can be defined. Vegetation, soil, and hydrology are three parameters that may be used to define wetlands.

Parent material - The unconsolidated and more or less weathered mineral or organic matter from which a soil profile develops.

Ped - A unit of soil structure (e.g. aggregate, crumb, prism, block, or granule) formed by natural processes.

Peraquic moisture regime - A soil condition in which a reducing environment always occurs due to the presence of ground water at or near the soil surface.

Periodically - Used herein to define detectable regular or irregular saturated soil conditions or inundation, resulting from ponding of ground water, precipitation, overland flow, stream flooding, or tidal influences that occur(s) with hours, days, weeks, months, or even years between events.

Permeability - A soil characteristic that enables water or air to move through the profile, measured as the number of inches per hour that water moves downward through the saturated soil. The rate at which water moves through the least permeable layer governs soil permeability.

Physiognomy - A term used to describe a plant community based on the growth habit (e.g., trees, herbs, lianas) of the dominant species.

Physiological adaptation - A feature of the basic physical and chemical activities that occurs in cells and tissues of a species, which results in it being better fitted to its environment (e.g. ability to absorb nutrients under low oxygen tensions).

Plant community - All of the plant populations occurring in a shared habitat or environment.

Plant cover - See areal cover.

Pneumatophore - Modified roots that may function as a respiratory organ in species subjected to frequent inundation or soil saturation (e.g., cypress knees).

Ponded - A condition in which water stands in a closed depression. Water may be removed only by percolation, evaporation, and/or transpiration.

Poorly drained - Soils that commonly are wet at or near the surface during a sufficient part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these conditions.

Population - A group of individuals of the same species that occurs in a given area.

Positive wetland indicator - Any evidence of the presence of hydrophytic vegetation, hydric soil, and/or wetland hydrology in an area.

Prevalent vegetation - The plant community or communities that occur in an area during a given period. The prevalent vegetation is characterized by the dominant macrophytic species that comprise the plant community.

Quantitative - A precise measurement or determination expressed numerically.

Range - As used herein, the geographical area in which a plant species is known to occur.

Redox potential - A measure of the tendency of a system to donate or accept electrons, which is governed by the nature and proportions of the oxidizing and reducing substances contained in the system.

Reducing environment - An environment conducive to the removal of oxygen and chemical reduction of ions in the soils.

Relative density - A quantitative descriptor, expressed as a percent, of the relative number of individuals of a species in an area; it is calculated by

$$\frac{\text{Number of individuals of species A}}{\text{Total number of individuals of all species}} \times 100$$

Relative dominance - A quantitative descriptor, expressed as a percent, of the relative size or cover of individuals of a species in an area; it is calculated by

$$\frac{\text{Amount}^{*} \text{ of species A}}{\text{Total amount of all species}} \times 100$$

Relative frequency - A quantitative descriptor, expressed as a percent, of the relative distribution of individuals of a species in an area; it is calculated by

$$\frac{\text{Frequency of species A}}{\text{Total frequency of all species}} \times 100$$

Relief - The change in elevation of a land surface between two points; collectively, the configuration of the earth's surface, including such features as hills and valleys.

Reproductive adaptation - A feature of the reproductive mechanism of a species that results in it being better fitted to its environment (e.g. ability for seed germination under water).

Respiration - The sum total of metabolic processes associated with conversion of stored (chemical) energy into kinetic (physical) energy for use by an organism.

Rhizosphere - The zone of soil in which interactions between living plant roots and microorganisms occur.

Root zone - The portion of a soil profile in which plant roots occur.

Routine wetland determination - A type of wetland determination in which office data and/or relatively simple, rapidly applied onsite methods are employed to determine whether or not an area is a wetland. Most wetland determinations are of this type, which usually does not require collection of quantitative data.

Sample plot - An area of land used for measuring or observing existing conditions.

Sapling/shrub - A layer of vegetation composed of woody plants <3.0 in. in diameter at breast height but greater than 3.2 ft in height, exclusive of woody vines.

Saturated soil conditions - A condition in which all easily drained voids (pores between soil particles in the root zone are temporarily or permanently filled with water to the soil surface at pressures greater than atmospheric.

Soil - Unconsolidated mineral and organic material that supports, or is capable of supporting, plants, and which has recognizable properties due to the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over time.

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* The "amount" of a species may be based on percent areal cover, basal area, or height.

Soil horizon - A layer of soil or soil material approximately parallel to the land surface and differing from adjacent genetically related layers in physical, chemical, and biological properties or characteristics (e.g. color, structure, texture, etc.).

Soil matrix - The portion of a given soil having the dominant color. In most cases, the matrix will be the portion of the soil having more than 50 percent of the same color.

Soil permeability - The ease with which gases, liquids, or plant roots penetrate or pass through a layer of soil.

Soil phase - A subdivision of a soil series having features (e.g. slope, surface texture, and stoniness) that affect the use and management of the soil, but which do not vary sufficiently to differentiate it as a separate series. These are usually the basic mapping units on detailed soil maps produced by the Soil Conservation Service.

Soil pore - An area within soil occupied by either air or water, resulting from the arrangement of individual soil particles or peds.

Soil profile - A vertical section of a soil through all its horizons and extending into the parent material.

Soil series - A group of soils having horizons similar in differentiating characteristics and arrangement in the soil profile, except for texture of the surface horizon.

Soil structure - The combination or arrangement of primary soil particles into secondary particles, units, or peds.

Soil surface - The upper limits of the soil profile. For mineral soils, this is the upper limit of the highest (A1) mineral horizon. For organic soils, it is the upper limit of undecomposed, dead organic matter.

Soil texture - The relative proportions of the various sizes of particles in a soil.

Somewhat poorly drained - Soils that are wet near enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless artificial drainage is provided. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, wet conditions high in the profile, additions of water through seepage, or a combination of these conditions.

Stilted roots - Aerial roots arising from stems (e.g., trunk and branches), presumably providing plant support (e.g., *Rhizophora mangle).*

Stooling - A form of asexual reproduction in which new shoots are produced at the base of senescing stems, often resulting in a multitrunk growth habit.

Stratigraphy - Features of geology dealing with the origin, composition, distribution, and succession of geologic strata (layers).

Substrate - The base or substance on which an attached species is growing.

Surface water - Water present above the substrate or soil surface.

Tidal - A situation in which the water level periodically fluctuates due to the action of lunar and solar forces upon the rotating earth.

Topography - The configuration of a surface, including its relief and the position of its natural and man-made features.

Transect - As used herein, a line on the ground along which observations are made at some interval.

Transition zone - The area in which a change from wetlands to nonwetlands occurs. The transition zone may be narrow or broad.

Transpiration - The process in plants by which water vapor is released into the gaseous environment, primarily through stomata.

Tree - A woody plant >3.0 in. in diameter at breast height, regardless of height (exclusive of woody vines).

Typical - That which normally, usually, or commonly occurs.

Typically adapted - A term that refers to a species being normally or commonly suited to a given set of environmental conditions, due to some feature of its morphology, physiology, or reproduction.

Unconsolidated parent material - Material from which a soil develops, usually formed by weathering of rock or placement in an area by natural forces (e.g. water, wind, or gravity).

Under normal circumstances - As used in the definition of wetlands, this term refers to situations in which the vegetation has not been substantially altered by manŝ activities.

Uniform vegetation - As used herein, a situation in which the same group of dominant species generally occurs throughout a given area.

Upland - As used herein, any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. Such areas occurring within floodplains are more appropriately termed nonwetlands.

Value (soil color) - The relative lightness or intensity of color, approximately a function of the square root of the total amount of light reflected from a surface; one of the three variables of color.

Vegetation - The sum total of macrophytes that occupy a given area.

Vegetation layer - A subunit of a plant community in which all component species exhibit the same growth form (e.g., trees, saplings/shrubs, herbs).

Very long duration (flooding) - A duration class in which the length of a single inundation event is greater than 1 month.

Very poorly drained - Soils that are wet to the surface most of the time. These soils are wet enough to prevent the growth of important crops (except rice) unless artificially drained.

Watermark - A line on a tree or other upright structure that represents the maximum static water level reached during an inundation event.

Water table - The upper surface of ground water or that level below which the soil is saturated with water. It is at least 6 in. thick and persists in the soil for more than a few weeks.

Wetlands - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wetland boundary - The point on the ground at which a shift from wetlands to nonwetlands or aquatic habitats occurs. These boundaries usually follow contours.

Wetland determination - The process or procedure by which an area is adjudged a wetland or nonwetland.

Wetland hydrology - The sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation.

Wetland plant association - Any grouping of plant species that recurs wherever certain wetland conditions occur.

Wetland soil - A soil that has characteristics developed in a reducing atmosphere, which exists when periods of prolonged soil saturation result in anaerobic conditions. Hydric soils that are sufficiently wet to support hydrophytic vegetation are wetland soils.

Wetland vegetation - The sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

As used herein, hydrophytic vegetation occurring in areas that also have hydric soils and wetland hydrology may be properly referred to as wetland vegetation.

Woody vine - See liana.

Xerophytic - A plant species that is typically adapted for life in conditions where a lack of water is a limiting factor for growth and/or reproduction. These species are capable of growth in extremely dry conditions as a result of morphological, physiological, and/or reproductive adaptations.

APPENDIX D
WETLAND DATA SHEETS

ROUTINE WETLAND DETERMINATION DATA FORM
(*Federal Manual for Identifying and Delineation wetlands 1989*)

SEWALL WETLAND CONSULTING, INC.
27641 Covington Way SE #2
Covington, Washington 98042
(253) 859-0515

wet B

Project Name/#: **City Heights** Date: Investigator: **Ed Sewall** Data Point: DPB-1
Jurisdiction: **City of Cle Elum** State: **WA** Atypical Analysis: Problem Area:

VEGETATION

Dominant plant species	Stratum	Indicator	Coverage %
1. Eleocharis palustris	H	OBL	
2. Agropyron spp	H	FAC	
3. Carex spp	H	FAC-OBL	
4. Agrostis spp	H	FAC	
5.			
6.			
7.			
8.			
9.			
10.			

% of species OBL, FACW and/or FAC: 100 Hydrophytic vegetation criteria met: (Yes) No Marginal
Comments:

SOILS

Mapped Soil Series: On Hydric Soils List?: Yes No Drainage Class:

Depth(0 in)	*Matrix color*	*Redox concentration color*	*Texture*
6 in.	2.5 Y 3/2		sandy loam
16 in.	10YR 2/2	common, med, distinct	sandy clay loam
__ in.			
__ in.			

Organic soil__, Histic epipedon__, Hydrogen sulfide__, gleyed__, redox concentrations✓, redox depletions__, pore linings__, iron concretions__, manganese concretions__, organic matter in surface horizon (sandy soil)__, organic streaking (sandy soils)__, organic pan (sandy soil)__.
Hydric soil criteria met: (Yes) No Basis: chroma of 2 w/redox
Comments:

HYDROLOGY

Recorded data__, inundation_____, saturation 6 ,watermarks_____, drift lines_____, sediment deposits_____, drainage patterns_____.
Wetland hydrology criteria met: (Yes) No Basis: sat at surface
Comments:

SUMMARY OF CRITERIA

Soil Temp. at 19.7" depth: NA Growing Season?: Yes
Hydrophytic vegetation: (Y) N Hydric soils: (Y) N Wetland hydrology: (Y) N
Data point meets the criteria of a jurisdictional wetland?: (Yes) No

ROUTINE WETLAND DETERMINATION DATA FORM

(Federal Manual for Identifying and Delineation wetlands 1989)

SEWALL WETLAND CONSULTING, INC.
27641 Covington Way SE #2
Covington, Washington 98042
(253) 859-0515

near Wet B

Project Name/#: **City Heights** Date: Investigator: **Ed Sewall** Data Point: DPB-2
Jurisdiction: **City of Cle Elum** State: **WA** Atypical Analysis: Problem Area:

VEGETATION

Dominant plant species	Stratum	Indicator	Coverage %
1. Agrostis spp	PH	FAC	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

% of species OBL, FACW and/or FAC: 100 Hydrophytic vegetation criteria met: (Yes) No Marginal
Comments:

SOILS

Mapped Soil Series: On Hydric Soils List?: Yes No Drainage Class:

Depth(0 in)	*Matrix color*	*Redox concentration color*	*Texture*
16 in.	10YR 3/3		Sandy Loam
in.			
in.			
in.			

Organic soil__, Histic epipedon__, Hydrogen sulfide__, gleyed__, redox concentrations__, redox depletions__, pore linings__, iron concretions__, manganese concretions__, organic matter in surface horizon (sandy soil)__, organic streaking (sandy soils)__, organic pan (sandy soil)__.
Hydric soil criteria met: Yes (No) Basis: no indicators
Comments:

HYDROLOGY

Recorded data__, inundation_____, saturation_____,watermarks_____, drift lines_____, sediment deposits_____, drainage patterns_____.
Wetland hydrology criteria met: Yes (No) Basis: no indicators
Comments: dry

SUMMARY OF CRITERIA

Soil Temp. at 19.7" depth: NA Growing Season?: Yes
Hydrophytic vegetation (Y)N Hydric soils: Y/(N) Wetland hydrology: Y(N)
Data point meets the criteria of a jurisdictional wetland?: Yes (No)

ROUTINE WETLAND DETERMINATION DATA FORM

(Federal Manual for Identifying and Delineation wetlands 1989)

SEWALL WETLAND CONSULTING, INC.
27641 Covington Way SE #2
Covington, Washington 98042
(253) 859-0515

DPC-1
Wet C

Project Name/#: **City Heights** Date: Investigator: **Ed Sewall** Data Point:
Jurisdiction: **City of Cle Elum** State: **WA** Atypical Analysis: Problem Area:

VEGETATION

Dominant plant species	Stratum	Indicator	Coverage %
1. Populus balsamifera	T	FAC	
2. Cornus stolonifera	S	FACW	
3. Rosa spp	S	FAC	
4.			
5.			
6.			
7.			
8.			
9.			
10.			

% of species OBL, FACW and/or FAC: 100 Hydrophytic vegetation criteria met (Yes) No Marginal
Comments:

SOILS

Mapped Soil Series: On Hydric Soils List?: Yes No Drainage Class:

Depth(0 in)	*Matrix color*	*Redox concentration color*	*Texture*
16 in.	10YR 2/2	Few Fine Faint	Mixed laminar silts
__in.			
__in.			
__in.			

Organic soil__, Histic epipedon__, Hydrogen sulfide__, gleyed__, redox concentrations✓, redox depletions__, pore linings__, iron concretions__, manganese concretions__, organic matter in surface horizon (sandy soil)__, organic streaking (sandy soils)__, organic pan (sandy soil)__.
Hydric soil criteria met: (Yes) No Basis: chroma 2 redox
Comments:

HYDROLOGY

Recorded data__, inundation_____, saturation 0"__,watermarks_____, drift lines_____, sediment deposits_____, drainage patterns_____.
Wetland hydrology criteria met: (Yes) No Basis: sat at surface
Comments:

SUMMARY OF CRITERIA

Soil Temp. at 19.7" depth: NA Growing Season?: Yes
Hydrophytic vegetation: (Y)N Hydric soils: (Y)N Wetland hydrology: (Y)N
Data point meets the criteria of a jurisdictional wetland?: (Yes) No

ROUTINE WETLAND DETERMINATION DATA FORM
(*Federal Manual for Identifying and Delineation wetlands 1989*)

SEWALL WETLAND CONSULTING, INC.
27641 Covington Way SE #2
Covington, Washington 98042
(253) 859-0515

Project Name/#: **City Heights** Date: Investigator: **Ed Sewall** Data Point: DP E1
Jurisdiction: **City of Cle Elum** State: **WA** Atypical Analysis: Problem Area:

VEGETATION

Dominant plant species	Stratum	Indicator	Coverage %
1. Cornus stolonifera			
2. Salix spp			
3. Alnus			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

% of species OBL, FACW and/or FAC:_____ Hydrophytic vegetation criteria met: Yes No Marginal
Comments:

SOILS

Mapped Soil Series: / On Hydric Soils List?: Yes No Drainage Class:

Depth(0 in)	*Matrix color*	*Redox concentration color*	*Texture*
16 in.	10YR 2/2	Fm Fm Faint	
__in.			
__in.			
__in.			

Organic soil__, Histic epipedon__, Hydrogen sulfide__, gleyed__, redox concentrations__, redox depletions__, pore linings__, iron concretions__, manganese concretions__, organic matter in surface horizon (sandy soil)__, organic streaking (sandy soils)__, organic pan (sandy soil)__.
Hydric soil criteria met: Yes No Basis: chroma 2 w/redox
Comments:

HYDROLOGY

Recorded data__, inundation_____, saturation 0"_____, watermarks_____, drift lines_____, sediment deposits_____, drainage patterns_____.
Wetland hydrology criteria met: Yes No Basis: Sat at surface
Comments:

SUMMARY OF CRITERIA

Soil Temp. at 19.7" depth: NA Growing Season?: Yes
Hydrophytic vegetation: Y/N Hydric soils: Y/N Wetland hydrology: Y/N
Data point meets the criteria of a jurisdictional wetland?: Yes No

ROUTINE WETLAND DETERMINATION DATA FORM
(*Federal Manual for Identifying and Delineation wetlands 1989*)

SEWALL WETLAND CONSULTING, INC.
27641 Covington Way SE #2
Covington, Washington 98042
(253) 859-0515

Project Name/#: **City Heights** Date: Investigator: **Ed Sewall** Data Point: DP F
Jurisdiction: **City of Cle Elum** State: **WA** Atypical Analysis: Problem Area:

VEGETATION

Dominant plant species	Stratum	Indicator	Coverage %
1. Salix	S	FACW	
2. Alnus rubra	T	FAC	
3. Cornus stolonifera	S	FACW	
4.			
5.			
6.			
7.			
8.			
9.			
10.			

% of species OBL, FACW and/or FAC: 100 Hydrophytic vegetation criteria met: (Yes) No Marginal
Comments:

SOILS

Mapped Soil Series: On Hydric Soils List?: Yes No Drainage Class:

Depth(0 in)	*Matrix color*	*Redox concentration color*	*Texture*
16 in.	10YR 2/2	Few, Fine Faint	loam w/ some coal tailings
__ in.			
__ in.			
__ in.			

Organic soil__, Histic epipedon__, Hydrogen sulfide__, gleyed__, redox concentrations X, redox depletions__, pore linings__, iron concretions__, manganese concretions__, organic matter in surface horizon (sandy soil)__, organic streaking (sandy soils)__, organic pan (sandy soil)__.
Hydric soil criteria met: (Yes) No Basis: chroma 2 or less
Comments:

HYDROLOGY

Recorded data__, inundation_____, saturation -7"__,watermarks_____, drift lines_____, sediment deposits_____, drainage patterns_____.
Wetland hydrology criteria met: (Yes) No Basis:
Comments:

SUMMARY OF CRITERIA

Soil Temp. at 19.7" depth: NA Growing Season?: Yes
Hydrophytic vegetation: (Y)N Hydric soils: (Y)N Wetland hydrology: (Y)N
Data point meets the criteria of a jurisdictional wetland?: (Yes) No

APPENDIX E
WETLAND RATING FORMS 1991
DEPARTMENT OF ECOLOGY RATING SYSTEM

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: Ed Sewall Affiliation: Sewall Wet Cons. Date: July 09

Name of wetland (if known): Wetland A

Government Jurisdiction of wetland: C. Z. of Cle Elum

Location: 1/4 S: _____ of 1/4 S: _____ SEC: 26 TWNSHP: 20N RNGE: 15E

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ✓ USGS Topo Map: ___ NWI map: ___ Aerial Photo: ___ Soils survey: ✓

Other: ___ Describe: _____

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	2
Q.1. <u>High Quality Natural Heritage Wetland.</u> Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers:
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes <u>could</u> include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: road fill on southend	(Yes: go to Q.3.) No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): _____	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: _____	Yes: go to Q.3. No: <u>Possible Category I</u>

Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland: - have at a least 1/2 acre of contiguous peat wetland; . . . . . . - or, have a forested class greater than 1 acre ;	No to both: go to Q.4. Yes: go to 3a. Yes: go to 3b.
Q.3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?.	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover? . .	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?. .	Yes: go to Q.5. No: Category I
Q.4. Category IV wetlands 4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2.
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5.

Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:____acres, and source:_____	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	 Yes=6 Yes=5 Yes=4 Yes=3 Yes=2 Yes=1
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: if the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: _____ Aquatic Beds: if the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: if the area of emergent class is > 1/2 acre or > 10% of the total wetland area. Scrub-Shrub: if the area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. Forested: if area of forested class is > 1/2 acre or > 10% of the total wetland area.		
Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 8 points in the far right column.	# of classes 1 . . . . . . 2 . . . . . . 3 . . . . . . 4 . . . . . . 5	 Yes =1 Yes =3 Yes =5 Yes =8 Yes =11
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	Class — # of species Aquatic Bed 1-2... " " 3... " " > 3... Emergent 1-2... " 3-4... " > 4... Scrub-Shrub 1-2... " 3-4... " > 4... Forested 1... " 2... " > 2...	 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3

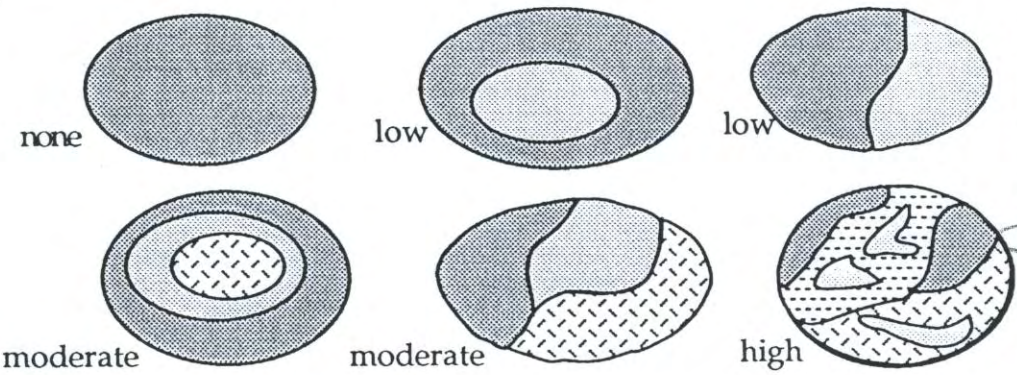
6

5d. Structural diversity.
If the wetland has a forested class, add 1 point for each of the following:

-trees > 50' tall	Yes=1
-trees 20'- 49' tall	Yes=1
-shrubs	Yes=1
-herbaceous ground cover	Yes=1

3

5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none?



High=3
Moderate=2
Low=1
None=0

0

5f. Habitat features.

Answer questions below, circle features that apply, and score to right:

Is there evidence of current use by beavers ? no	Yes=3
Is a heron rookery located within 300'? no	Yes=2
Are raptor nest/s located within 300'? no	Yes=1
Are there at least 3 standing dead trees (snags) per acre? no	Yes=1
Are any of these standing dead trees (snags) > 10" in diameter?	Yes=1
Are there any other perches (wires, poles or posts)?	Yes=1
Are there at least 3 downed logs per acre? yes	Yes=1

1

5g. Connection to streams. (Score one answer only.)

Is the wetland connected at any time of the year via surface water:

to a perennial stream or a seasonal stream with fish;	Yes=6
or, to a seasonal stream without fish;	Yes=4
or, is not connected to any stream?	Yes=0

16

5h. Buffers.

STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %/s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 25-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: %50 x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % ___ x 1 =	____ x __ = ___
ungrazed grassland or orchards: %___ x 2 =	____ x __ = ___
open water or native grasslands: %___ x 3 =	____ x __ = ___
forest or shrub: %50 x 4 =	200 x 2 = 400
	Add Buffer total = 400

STEP 3. Score points according to table at right :

Buffer total	
900-1200...	Yes=4
600-899....	Yes=3
300-599....	Yes=2 (circled)
100-299....	Yes=1

2

5i. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?..... Yes =6 (circled)

- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area? ..... Yes=4

- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?..... Yes=1

- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?..... Yes=0

6

NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total..... Total = 24

Is the Total greater than or equal to 22 points..... Yes: Category II (circled)
No: Category III

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: El Scull Affiliation: Scull Wet Co Date: Aug 09

Name of wetland (if known): Wetland B

Government Jurisdiction of wetland: City of Elm

Location: 1/4 S: _____ of 1/4 S: _____ SEC: 27 TWNSHP: 70 RNGE: 15

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ✓ USGS Topo Map: ✓ NWI map: ✓ Aerial Photo: ✓ Soils survey: ✓

Other: ___ Describe: _____

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	2
Q.1. <u>High Quality Natural Heritage Wetland.</u> Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers:
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes <u>could</u> include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: Road crossings	(Yes: go to Q.3.) No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): _____	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: _____	Yes: go to Q.3. No: <u>Possible Category I</u>

Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland: - have at a least 1/2 acre of contiguous peat wetland; . . . . . . - or, have a forested class greater than 1 acre ;	No to both: go to Q.4. Yes: go to 3a. Yes: go to 3b.
Q.3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?.	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover? . .	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?. .	Yes: go to Q.5. No: Category I
Q.4. Category IV wetlands 4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2.
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5.

Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:_____acres, and source:__________	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	 Yes=6 Yes=5 Yes=4 Yes=3 (Yes=2) 2 Yes=1
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: if the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: __________________ Aquatic Beds: if the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: if the area of emergent class is > 1/2 acre or > 10% of the total wetland area. ✓ Scrub-Shrub: if the area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. ✓ Forested: if area of forested class is > 1/2 acre or > 10% of the total wetland area.		
Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 8 points in the far right column.	# of classes 1........ 2........ 3........ 4........ 5........	 Yes =1 (Yes =3) Yes =5 Yes =8 Yes =11 3
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	Class / # of species Aquatic Bed 1-2... " " 3... " " > 3... Emergent 1-2... " 3-4... " > 4... Scrub-Shrub 1-2... " 3-4... " > 4... Forested 1... " 2... " > 2...	 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 (Yes=3) Yes=1 (Yes=2) Yes=3 Yes=1 Yes=2 Yes=3 5

15

5h. Buffers.

STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %/s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 25-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: %25 x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % ___ x 1 =	____ x __ = ___
ungrazed grassland or orchards: %___ x 2 =	____ x __ = ___
open water or native grasslands: %___ x 3 =	____ x __ = ___
forest or shrub: %75 x 4 =	300 x 3 = 900
	Add Buffer total = 900

STEP 3. Score points according to table at right :

Buffer total	
900-1200...	Yes=4
600-899....	Yes=3
300-599....	Yes=2
100-299....	Yes=1

4

5i. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?..... Yes =6

- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area?..... Yes=4

- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?..... Yes=1

- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?..... Yes=0

6

NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total.....
Is the Total greater than or equal to 22 points.....

Total = 25
Yes: Category II
No: Category III

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: El Sewell Affiliation: Sewell Wet Co Date: Aug 07

Name of wetland (if known): Wetland C

Government Jurisdiction of wetland: O.A. - P Cle Elm

Location: 1/4 S: _____ of 1/4 S: _____ SEC: 27 TWNSHP: 20N RNGE: 15E

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ___ USGS Topo Map: ✓ NWI map: ✓ Aerial Photo: ___ Soils survey: ✓

Other: ___ Describe: _____

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	2
Q.1. <u>High Quality Natural Heritage Wetland.</u> Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers:
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes <u>could</u> include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: yes bermed + excavate	~~Yes: go to Q.3.~~ No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): _____	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: _____	Yes: go to Q.3. No: <u>Possible Category I</u>

Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland: - have at a least 1/2 acre of contiguous peat wetland; . . . . . . - or, have a forested class greater than 1 acre ;	No to both: go to Q.4. Yes: go to 3a. Yes: go to 3b.
Q.3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?.	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover? . .	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?. .	Yes: go to Q.5. No: Category I
Q.4. Category IV wetlands 4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2.
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5.

Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:_____acres, and source:_____	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	 Yes=6 Yes=5 Yes=4 Yes=3 Yes=2 Yes=1 3
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: if the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: _____ Aquatic Beds: if the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: if the area of emergent class is > 1/2 acre or > 10% of the total wetland area. Scrub-Shrub: if the area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. Forested: if area of forested class is > 1/2 acre or > 10% of the total wetland area.		
Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 8 points in the far right column.	# of classes 1 . . . . . . 2 . . . . . . 3 . . . . . . 4 . . . . . . 5	 Yes =1 Yes =3 Yes =5 Yes =8 Yes =11 1
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	Class # of species Aquatic Bed 1-2... " " 3... " " > 3... Emergent 1-2... " 3-4... " > 4... Scrub-Shrub 1-2... " 3-4... " > 4... Forested 1... " 2... " > 2...	 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 3

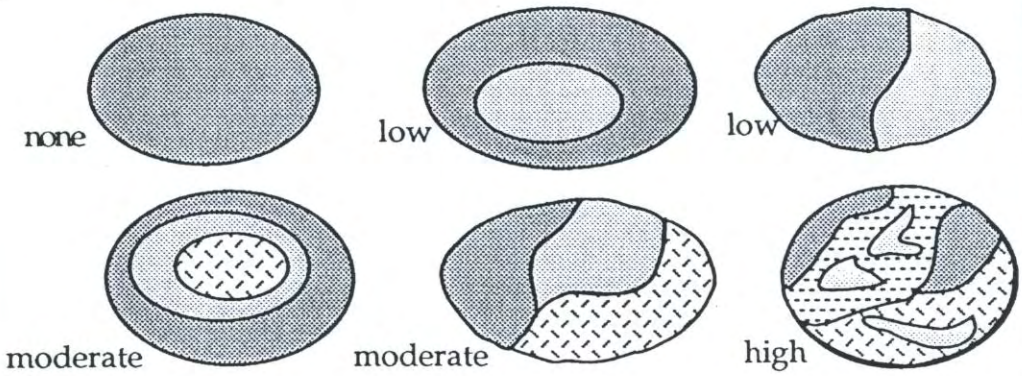
7

5d. Structural diversity.
If the wetland has a forested class, add 1 point for each of the following:

-trees > 50' tall	Yes=1
-trees 20'- 49' tall	Yes=1
-shrubs	Yes=1
-herbaceous ground cover	Yes=1

3

5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none?



High=3
Moderate=2
Low=1
None=0

0

5f. Habitat features.

Answer questions below, circle features that apply, and score to right:

Is there evidence of current use by beavers ? No	Yes=3
Is a heron rookery located within 300'? No	Yes=2
Are raptor nest/s located within 300'? No	Yes=1
Are there at least 3 standing dead trees (snags) per acre? NO	Yes=1
Are any of these standing dead trees (snags) > 10" in diameter? No	Yes=1
Are there any other perches (wires, poles or posts)?	Yes=1
Are there at least 3 downed logs per acre? yes	Yes=1

1

5g. Connection to streams. (Score one answer only.)

Is the wetland connected at any time of the year via surface water:

to a perennial stream or a seasonal stream with fish;	Yes=6
or, to a seasonal stream without fish;	Yes=4
or, is not connected to any stream?	Yes=0

4

15

5h. Buffers.

STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %/s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 25-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: %40 x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % ___ x 1 =	____ x __ = ___
ungrazed grassland or orchards: %___ x 2 =	____ x __ = ___
open water or native grasslands: %___ x 3 =	____ x __ = ___
forest or shrub: %60 x 4 =	240 x 3 = 720
	Add Buffer total =___

STEP 3. Score points according to table at right :

Buffer total	
900-1200...	Yes=4
600-899....	Yes=3
300-599....	Yes=2
100-299....	Yes=1

3

5i. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?..... Yes =6

- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area?..... Yes=4

- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?..... Yes=1

- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?..... Yes=0

4

NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total..... Total = 22

Is the Total greater than or equal to 22 points..... Yes: Category II
No: Category III

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: Ed Sewall Affiliation: Sewall Wet Con Date: Aug 09

Name of wetland (if known): Wetland E

Government Jurisdiction of wetland: City of Ole Elm

Location: 1/4 S: ______ of 1/4 S: ______ SEC: 27 TWNSHP: 20 RNGE: 15

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ✓ USGS Topo Map: ✓ NWI map: ✓ Aerial Photo: ✓ Soils survey: ✓

Other: ___ Describe: ______________________________

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	2
Q.1. High Quality Natural Heritage Wetland. Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers:
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes could include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: ditching road crossing	(Yes: go to Q.3.) circled No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): ______	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: ______	Yes: go to Q.3. No: Possible Category I

Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland: - have at a least 1/2 acre of contiguous peat wetland; . . . . . . - or, have a forested class greater than 1 acre ;	No to both: go to Q.4. Yes: go to 3a. Yes: go to 3b.
Q.3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?.	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover? . .	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?. .	Yes: go to Q.5. No: Category I
Q.4. Category IV wetlands 4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5

Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:____acres, and source:_____	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	 Yes=6 Yes=5 Yes=4 Yes=3 Yes=2 Yes=1 3
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: if the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: _____ Aquatic Beds: if the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: if the area of emergent class is > 1/2 acre or > 10% of the total wetland area. 2 Scrub-Shrub: if the area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. Forested: if area of forested class is > 1/2 acre or > 10% of the total wetland area. ✓		
Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 8 points in the far right column.	# of classes 1 . . . . . . 2 . . . . . . 3 . . . . . . 4 . . . . . . 5	 Yes =1 Yes =3 Yes =5 Yes =8 Yes =11 3
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	Class # of species Aquatic Bed 1-2... " " 3... " " > 3... Emergent 1-2... " 3-4... " > 4... Scrub-Shrub 1-2... " 3-4... " > 4... Forested 1... " 2... " > 2...	 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 6

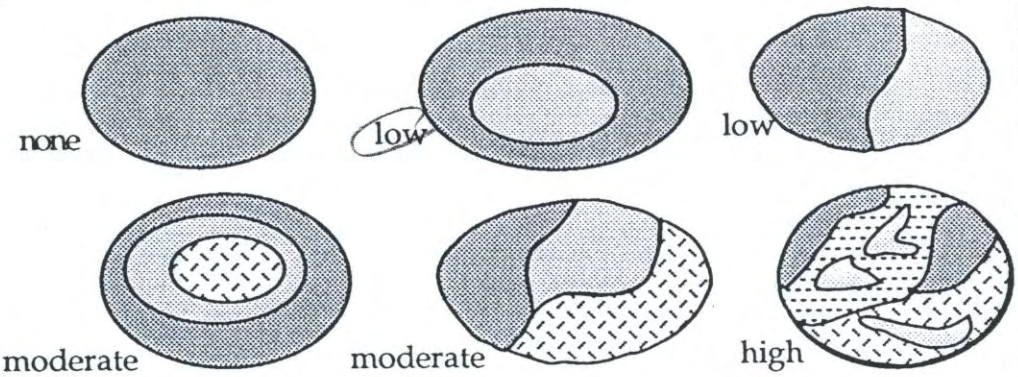
12

5d. Structural diversity.
If the wetland has a forested class, add 1 point for each of the following:

-trees > 50' tall	Yes=1
-trees 20'- 49' tall	Yes=1
-shrubs	Yes=1
-herbaceous ground cover	Yes=1

3

5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none?



High=3
Moderate=2
Low=1
None=0

1

5f. Habitat features.

Answer questions below, circle features that apply, and score to right:

Is there evidence of current use by beavers ?	Yes=3
Is a heron rookery located within 300'?	Yes=2
Are raptor nest/s located within 300'?	Yes=1
Are there at least 3 standing dead trees (snags) per acre?	Yes=1
Are any of these standing dead trees (snags) > 10" in diameter?	Yes=1
Are there any other perches (wires, poles or posts)?	Yes=1
Are there at least 3 downed logs per acre? yes	Yes=1

1

5g. Connection to streams. (Score one answer only.)

Is the wetland connected at any time of the year via surface water:

to a perennial stream or a seasonal stream with fish;	Yes=6
or, to a seasonal stream without fish;	Yes=4
or, is not connected to any stream?	Yes=0

6

23

5h. Buffers.

STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %/s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 25-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: %30 x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % ___ x 1 =	____ x __ = ___
ungrazed grassland or orchards: %___ x 2 =	____ x __ = ___
open water or native grasslands: %___ x 3 =	____ x __ = ___
forest or shrub: %70 x 4 =	280 x 3 = 840
	Add Buffer total = ___

STEP 3. Score points according to table at right :	Buffer total	
	900-1200...	Yes=4
	600-899....	~~Yes=3~~
	300-599....	Yes=2
	100-299....	Yes=1

3

5i. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?.....	(Yes =6)
- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area?.....	Yes=4
- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?.....	Yes=1
- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?.....	Yes=0

6

NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total.....	Total = 32
Is the Total greater than or equal to 22 points.....	Yes: Category II No: Category III

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: [illegible] Affiliation: [illegible] Date: Aug 04

Name of wetland (if known): Wetland F

Government Jurisdiction of wetland: City of Cle Elum

Location: 1/4 S: _____ of 1/4 S: _____ SEC: 27 TWNSHP: 20 RNGE: 15

SOURCES OF INFORMATION: (Check all sources that apply)

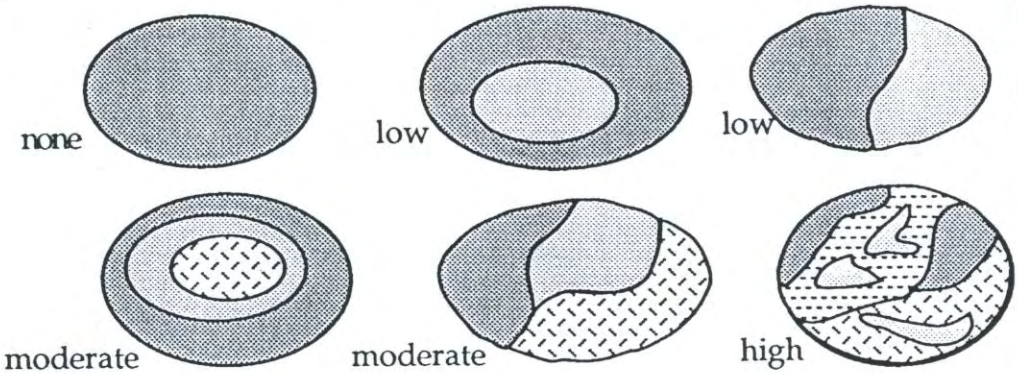
Site visit: ___ USGS Topo Map: ___ NWI map: ___ Aerial Photo: ___ Soils survey: ___

Other: ___ Describe: _____

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	2
Q.1. High Quality Natural Heritage Wetland. Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers:
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes could include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: _____	Yes: go to Q.3. No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): _____	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: _____	Yes: go to Q.3. No: Possible Category I

Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland: - have at a least 1/2 acre of contiguous peat wetland; . . . . . . - or, have a forested class greater than 1 acre ;	No to both: go to Q.4. Yes: go to 3a. Yes: go to 3b.
Q.3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?.	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years?	Yes: Category I No: go to 3b2.
3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover? . .	Yes: go to 3b3. No: go to Q.5.
3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?. .	Yes: go to Q.5. No: Category I
Q.4. Category IV wetlands 4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18.	Yes: Category IV No: go to 4.2.
4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to Q.5.

6

5d. Structural diversity. If the wetland has a forested class, add 1 point for each of the following: -trees > 50' tall ..... -trees 20'- 49' tall ..... -shrubs. ..... -herbaceous ground cover.	 Yes=1 Yes=1 Yes=1 Yes=1 3
5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none?  	High=3 Moderate=2 Low=1 None=0 0
5f. Habitat features. Answer questions below, circle features that apply, and score to right: Is there evidence of current use by beavers ? ..... Is a heron rookery located within 300'? ..... Are raptor nest/s located within 300'? ..... Are there at least 3 standing dead trees (snags) per acre? ..... Are any of these standing dead trees (snags) > 10" in diameter? ..... Are there any other perches (wires, poles or posts)? ..... Are there at least 3 downed logs per acre? ..... yes	 Yes=3 Yes=2 Yes=1 Yes=1 Yes=1 Yes=1 Yes=1 1
5g. Connection to streams. (Score one answer only.) Is the wetland connected at any time of the year via surface water: to a perennial stream or a seasonal stream with fish; ..... or, to a seasonal stream without fish; ..... or, is not connected to any stream?	 Yes=6 Yes=4 Yes=0 6

16

5h. Buffers.

STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %/s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 25-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: %___ x 0 =	0
lawn, grazed pasture, vineyards or annual crops: %___ x 1 =	____ x __ = ___
ungrazed grassland or orchards: %___ x 2 =	____ x __ = ___
open water or native grasslands: %___ x 3 =	____ x __ = ___
forest or shrub: %/100 x 4 =	400 x 3 = 1200
	Add Buffer total =___

STEP 3. Score points according to table at right :

Buffer total	
900-1200...	Yes=4
600-899....	Yes=3
300-599....	Yes=2
100-299....	Yes=1

4

5i. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?..... Yes =6

- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area?..... Yes=4

- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?..... Yes=1

- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?..... Yes=0

6

NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total..... Total = 26

Is the Total greater than or equal to 22 points..... Yes: Category II / No: Category III

WETLANDS RATING FIELD DATA FORM

BACKGROUND INFORMATION:

Name of Rater: EJ Small Affiliation: Small Wetland Cons. Date: Aug 09

Name of wetland (if known): Aspen wetland - Wet H

Government Jurisdiction of wetland: City of Elk River

Location: 1/4 S: _____ of 1/4 S: _____ SEC: 27 TWNSHP: 30 RNGE: 25

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ~~✓~~ USGS Topo Map: ~~✓~~ NWI map: ~~✓~~ Aerial Photo: ✓ Soils survey: ✓

Other: ___ Describe: _____

WHEN THE FIELD DATA FORM IS COMPLETE ENTER CATEGORY HERE:	3
Q.1. <u>High Quality Natural Heritage Wetland.</u> Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	Circle answers:
1a. Is there significant evidence of human-caused changes to topography or hydrology of the wetland? Significant changes <u>could</u> include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland. Briefly describe the changes and your information source/s: road along one side Discharge from residential stream Flood's wetland	~~Yes: go to Q.3.~~ No: go to 1b.
1b. Are there populations of non-native plants which are currently present and appear to be invading native populations? Briefly describe any non-native plant populations and information source(s): _____	Yes: go to Q.3. No: go to 1c.
1c. Is there significant evidence of human-caused disturbance of the water quality of the system? Degradation of water quality could be evidenced by culverts entering the system, direct road/parking lot runoff, evidence of historic dumping of wastes, oily sheens, extreme eutrophic conditions, livestock use or dead fish etc. Briefly describe: _____	Yes: go to Q.3. No: <u>Possible Category I</u>

Q.2. Regionally Rare Native Wetland Communities The Department of Ecology is developing a methodology for regionally rare native wetland communities. It is not yet available for use.	
Q.3. Irreplaceable Ecological Functions: Does the wetland: - have at a least 1/2 acre of contiguous peat wetland; . . . . . - or, have a forested class greater than 1 acre ;	No to both: go to Q.4. Yes: go to 3a. Yes: go to 3b.
Q.3a. Peat Wetlands. 3a1. Does at least 1/2 acre of the contiguous peat wetland have < 25% areal cover of any combination of species from the list of invasive/exotic species on p.19, and have < 80% areal cover of *Spirea douglasii*?.	Yes: Category I No: go to Q.4.
Q.3b. Mature forested wetland. 3b1. Is the average age of dominant trees in the forested wetland > 80 years? . . . . . 3b2. Is the average age of dominant trees in the forested wetland 50-80 years, and is the structural diversity high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49' tall and shrubs and herbaceous groundcover? . . 3b3. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, herbs) invasive/exotic plant species from the p.19 list?. .	Yes: Category I No: go to 3b2. Yes: go to 3b3. No: go to Q.5. Yes: go to Q.5. No: Category I
Q.4. Category IV wetlands 4.1. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in guidance p.18. . . . . 4.2. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in guidance p.19.	Yes: Category IV No: go to 4.2. Yes: Category IV No: go to Q.5.

Q.5. Significant habitat value. Answer all questions and enter data requested.		Circle scores that qualify
5a. Total wetland area Estimate area, select from choices in the near-right column, and score in the far column: Enter acreage of wetland here:_____acres, and source:_____	acres > 20.00 10 - 19.99 5 - 9.99 1 - 4.99 0.1 - 0.99 <0.1	 Yes=6 Yes=5 Yes=4 Yes=3 (Yes=2) 2 Yes=1
5b. Wetland classes: Circle the wetland classes below that qualify: Open Water: if the area of open water is > 1/2 acre or > 10% of the total wetland area. Source: _____ Aquatic Beds: if the area of aquatic beds > 10% of the open water area or > 1/2 acre. Emergent: if the area of emergent class is > 1/2 acre or > 10% of the total wetland area. Scrub-Shrub: if the area of scrub-shrub class is > 1/2 acre or > 10% of the total wetland area. Forested: if area of forested class is > 1/2 acre or > 10% of the total wetland area.		
Add the number of wetland classes, above, that qualify, and then score according to the columns at right. e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub-shrub), you would circle 8 points in the far right column.	# of classes 1 . . . . . (Yes =1) 2 . . . . . Yes =3 3 . . . . . Yes =5 4 . . . . . Yes =8 5 . . . . . Yes =11	1
5c. Plant species diversity. For all wetland classes (at right) that qualify in 5b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.	Class — # of species Aquatic Bed 1-2... Yes=1 " " 3... Yes=2 " " > 3... Yes=3 Emergent 1-2... Yes=1 " 3-4... Yes=2 " > 4... Yes=3 Scrub-Shrub 1-2... Yes=1 " 3-4... Yes=2 " > 4... Yes=3 Forested 1... Yes=1 " 2... Yes=2 " > 2... (Yes=3)	3

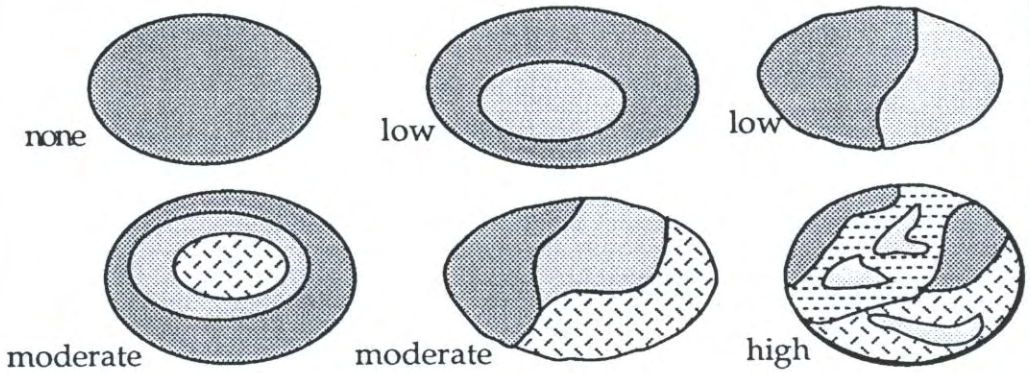
6

5d. Structural diversity.
If the wetland has a forested class, add 1 point for each of the following:

-trees > 50' tall	Yes=1
-trees 20'- 49' tall	Yes=1
-shrubs	Yes=1
-herbaceous ground cover	Yes=1

2

5e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none?



High=3
Moderate=2
Low=1
None=0

0

5f. Habitat features.

Answer questions below, circle features that apply, and score to right:

Is there evidence of current use by beavers ?	Yes=3
Is a heron rookery located within 300'?	Yes=2
Are raptor nest/s located within 300'?	Yes=1
Are there at least 3 standing dead trees (snags) per acre?	Yes=1
Are any of these standing dead trees (snags) > 10" in diameter?	Yes=1
Are there any other perches (wires, poles or posts)?	Yes=1
Are there at least 3 downed logs per acre?	Yes=1

0

5g. Connection to streams. (Score one answer only.)

Is the wetland connected at any time of the year via surface water:

to a perennial stream or a seasonal stream with fish;	Yes=6 > 2
or, to a seasonal stream without fish;	Yes=4
or, is not connected to any stream?	Yes=0

6

12

5h. Buffers.

STEP 1 Estimate (to the nearest 5%) the % of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply the %/s by the factor(s) below and enter result in column to right:	STEP 2 Multiply result(s) of step 1: by 1, if buffer width is 25-50'; by 2, if buffer width is 50-100'; by 3, if buffer width is >100'. Enter results below and add subscore:
roads, buildings or parking lots: %50 x 0 =	0
lawn, grazed pasture, vineyards or annual crops: % ___ x 1 =	____ x __ = ___
ungrazed grassland or orchards: %___ x 2 =	____ x __ = ___
open water or native grasslands: %___ x 3 =	____ x __ = ___
forest or shrub: %50 x 4 =	200 x 3 = 600
	Add Buffer total =___

STEP 3. Score points according to table at right :

Buffer total	
900-1200...	Yes=4
600-899....	Yes=3
300-599....	Yes=2
100-299....	Yes=1

3

5i. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor > 100' wide with good forest or shrub cover to any other habitat area?..... Yes =6

- Is there a narrow corridor < 100' wide with good cover or a wide corridor > 100' wide with low cover to any other habitat area?..... Yes=4

- Is there a narrow corridor < 100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?..... Yes=1

- Is the wetland and buffer completely isolated by development and or cultivated agricultural land?..... Yes=0

6

NOW: Add the scores circled (for Q.5a - Q.5i above) to get a Total.....	Total =21
Is the Total greater than or equal to 22 points.....	Yes: Category II No: Category III

APPENDIX F
WETLAND RATING FORMS 2007
DEPARTMENT OF ECOLOGY RATING SYSTEM

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: Wetland A **Date:** 7-7-09

Name of wetland (if known): Wet A City Hts

Location: SEC: 26 TWNSHP: 20 RNGE: 15 (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: Ed Sewell Affiliation: _____ Date of site visit: ___

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	16
Score for Hydrologic Functions	28
Score for Habitat Functions	16
TOTAL score for functions	60

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ Does not Apply___

Final Category (choose the "highest" category from above) 2

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	
Alkali		Riverine	✓
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	
Forest			
None of the above	✓		

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
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		✓
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		✓
A4. Does the wetland have a **local significance** in addition to its functions. 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.		✓

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

Wetland Name: wet A **Date:** _____

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

___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 wetland **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 wetland 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 wetland 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class > 10% total
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

R	Riverine Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
R	**R 1.0 Does the wetland have the potential to improve water quality?** *(see p. 45)*	
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >1/3 area of wetland — points = 6 Depressions cover > 1/10 area of wetland — points = 3 Depressions present but cover < 1/10 area of wetland — points = 1 No depressions present — points = 0	6
R	R 1.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland — points = 10 Forest or shrub 1/3 – 2/3 area of the wetland — points = 5 Ungrazed, emergent plants > 2/3 area of wetland — points = 5 Ungrazed emergent plants 1/3 – 2/3 area of wetland — points = 2 Forest, shrub, and ungrazed emergent < 1/3 area of wetland — points = 0	10
R	**Total for R1** *Add the points in the boxes above*	16
R	**R 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.46)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water flows into wetland from a stream or culvert that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential or urban areas are within 150 ft of wetland — The river or stream that floods the wetland has a contributing basin where human activities have raised the levels of sediment, toxic compounds or nutrients in the river water above water quality standards — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 1
R	**TOTAL - Water Quality Functions** Multiply the score from R1 by the multiplier in R2 ***Record score on p. 1 of field form***	16

Comments

R	Riverine Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
R	**R 3.0 Does the wetland have the <u>potential</u> to reduce flooding and erosion?** *(see p. 47)*	
R	R 3.1 Amount overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow of water and the width of the stream or river channel (distance between banks). Calculate the ratio: width of wetland/ width of stream.* If the ratio is 2 or more — points = 10 If the ratio is between 1 and < 2 — points = 8 If the ratio is ½ to < 1 — points = 4 If the ratio is ¼ to < ½ — points = 2 If the ratio is < ¼ — points = 1	8
R	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* Forest or shrub for more than 2/3 the area of the wetland. — points = 6 Forest or shrub for >1/3 area OR Emergent plants > 2/3 area — points = 4 Forest or shrub for > 1/10 area OR Emergent plants > 1/3 area — points = 2 Vegetation does not meet above criteria — points = 0	6
R	**Total for R3** *Add the points in the boxes above*	14
R	**R 4.0 Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** ***(see p. 50)*** *Answer NO if the major source of water is irrigation return flow or water levels are controlled by a reservoir.* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. — There are natural resources downstream (e.g. salmon redds) than can be damaged by flooding — Other _____ **YES** multiplier is 2 **NO** multiplier is **1**	multiplier 2
R	**TOTAL - Hydrologic Functions** Multiply the score from R3 by the multiplier in R4 ***Record score on p. 1 of field form***	28

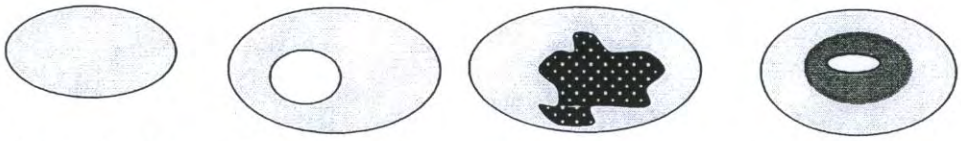
Comments

These questions apply to wetlands of all HGM classes.	**Points**
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p.62)*** *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ____Aquatic bed ____Emergent plants 0-12 inches high (0 – 30 cm) ____Emergent plants >12 – 40 inches high (>30 – 100cm) ____Emergent plants > 40 inches high (> 100 cm) ____Scrub/shrub (areas where shrubs have >30% cover) __✓__Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	0
H 1.2. Is one of the vegetation types "aquatic bed?" ***(see p .64)*** YES = 1 point NO = 0 points	0
H 1.3. <u>Surface Water</u> ***(see p.65)*** H 1.3.1 Does the wetland have areas of "open" water (without emergent 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 H 1.3.2 Does the wetland have an intermittent or permanent stream within its boundaries, or along one side, that has an unvegetated bottom (*answer yes only if H 1.3.1 is NO*)? YES = 3 points NO = 0 points	3
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 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species points = 2 4-9 species points = 1 # of species ____ < 4 species points = 0 points	1

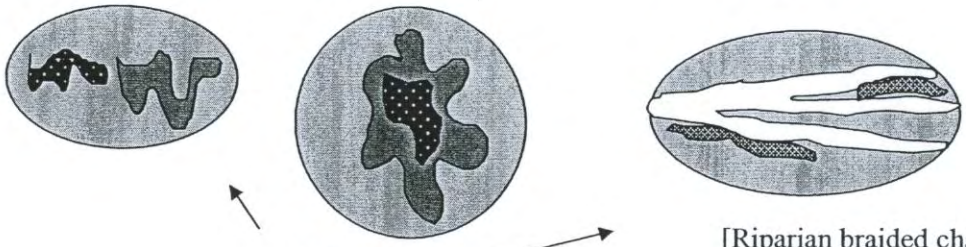
4

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [Riparian braided channel]

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

6

H 1.6. Special Habitat Features: *(see p. 68)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

✓ ____Loose rocks larger than 4" **or** large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

____Cattails or bulrushes are present within the wetland.

____Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

____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.*

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity

✓ ____Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6

2

TOTAL Potential to provide habitat
Add the scores in the column above

6

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 71)* *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **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** **If buffer does not meet any of the criteria above** — 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**	2
H 2.2 Wet Corridors *(see p. 72)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (*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*). YES = 4 points (go to H 2.3) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, 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? YES = 2 points (go to H 2.3) NO go to H 2.2.3 H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (*do not include man-made ditches*)? YES = 1 point NO = 0 points	4

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)*
Which of the following priority habitats are within 330ft (100m) of the wetland?
(see text for a more detailed description of these priority habitats)

✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres.

____**Cliffs:** Greater than 25 ft high and occurring below 5000 ft.

____**Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acrethat are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter.

____**Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest.

____**Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft, composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

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

2

Comments

H 2.4 Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 76)*** — The wetland 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	2
H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*	16
H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?	
H 3.1 Indicator of reduced habitat functions ***(see p. 75)*** Do the areas of open water in the wetland 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)* YES = **- 5 points** NO = 0 points	*Points will be subtracted* 0
Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1*	16

Comments

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: Wetland B **Date:** 7-7-09

Name of wetland (if known): City Hts Wet B

Location: SEC: 22 TWNSHP: 20 RNGE: 45 (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: Ed Sewall Affiliation: _____ Date of site visit: ___

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	11
Score for Hydrologic Functions	16
Score for Habitat Functions	19
TOTAL score for functions	46

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ Does not Apply___

Final Category (choose the "highest" category from above) 3

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	
Alkali		Riverine	
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	
Forest			
None of the above	✓		

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
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		✓
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		✓
A4. Does the wetland have a **local significance** in addition to its functions. 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.		✓

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

Wetland Name: _____ **Date:** _____

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

___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 wetland **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 wetland 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 wetland 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class > 10% total
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

S	Slope Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
S	**S 1.0 Does the wetland have the potential to improve water quality?** *(see p.56)*	
S	S 1.1 Characteristics of average slope of wetland: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is between 1% and 2% points = 2 Slope is more than 2% but less than 5% points = 1 Slope is 5% or greater points = 0	2
S	S 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). Hydrogen sulfide odor YES = 3 points NO = 0 points	3
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fit conditions in the wetland. Dense vegetation means you have trouble seeing the soil surface.* Dense, ungrazed, herbaceous vegetation > 90% of the wetland area points = 6 Dense, ungrazed, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, ungrazed, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for herbaceous vegetation points = 0	6
S	**Total for S 1** *Add the points in the boxes above*	11
S	**S 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.58)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland is a groundwater seep within the Reclamation Area — Untreated stormwater flows through the wetland — Tilled fields or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 1
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by the multiplier in S2 ***Record score on p. 1 of field form***	11

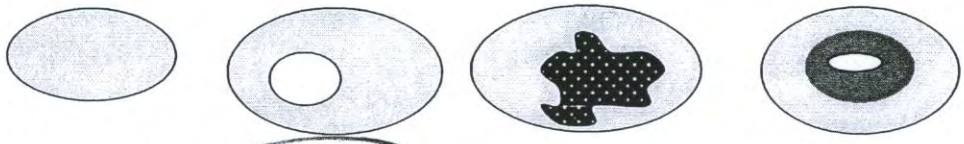
S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
S	**S 3.0 Does the wetland have the <u>potential</u> to reduce flooding and stream erosion?** ***(see p.59)***	
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland.* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows) points = 6 Dense, uncut, **rigid** vegetation > 1/2 – 90% area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 – 1/2 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	6
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	2
S	**Total for S3** *Add the points in the boxes above*	8
S	**S 4. 0 Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** ***(see p.61)*** *Answer NO if the major source of water is irrigation return flow (e.g. a seep that is on the downstream side of a dam or at the base of an irrigated field.* Answer YES if the wetland is in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland has surface runoff that can cause flooding problems downgradient — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
S	**TOTAL - Hydrologic Functions** Multiply the score from S3 by the multiplier in S4 ***Record score on p. 1 of field form***	16

Comments

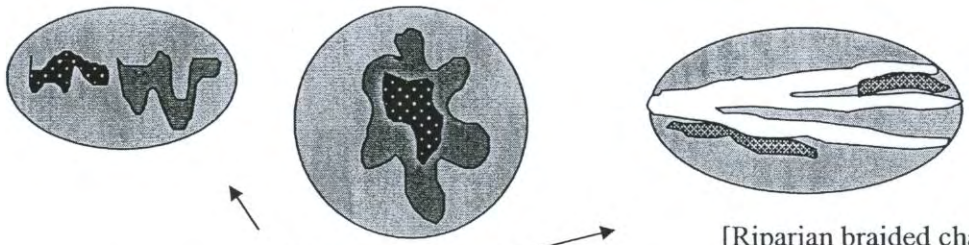
These questions apply to wetlands of all HGM classes.	**Points**
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p.62)*** *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ____Aquatic bed ____Emergent plants 0-12 inches high (0 – 30 cm) __✓__Emergent plants >12 – 40 inches high (>30 – 100cm) ____Emergent plants > 40 inches high (> 100 cm) __✓__Scrub/shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	1
H 1.2. Is one of the vegetation types "aquatic bed?" ***(see p .64)*** YES = 1 point (NO = 0 points)	0
H 1.3. Surface Water ***(see p.65)*** H 1.3.1 Does the wetland have areas of "open" water (without emergent 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) H 1.3.2 Does the wetland have an intermittent or permanent stream within its boundaries, or along one side, that has an unvegetated bottom (*answer yes only if H 1.3.1 is NO*)? (YES = 3 points) NO = 0 points	3
H 1.4. Richness of Plant Species ***(see p. 66)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species (points = 2) 4-9 species points = 1 # of species ____ < 4 species points = 0 points	2

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [Riparian braided channel]

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

1

H 1.6. Special Habitat Features: *(see p. 68)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Loose rocks larger than 4" **or** large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

____Cattails or bulrushes are present within the wetland.

____Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

____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.*

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity

__✓__Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6

1

TOTAL Potential to provide habitat
Add the scores in the column above

8

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 71)* *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **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** **If buffer does not meet any of the criteria above** — 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**	2
H 2.2 Wet Corridors *(see p. 72)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (*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*). YES = 4 points (go to H 2.3) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, 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? YES = 2 points (go to H 2.3) NO go to H 2.2.3 H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (*do not include man-made ditches*)? YES = 1 point NO = 0 points	2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(see text for a more detailed description of these priority habitats)* ✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____**Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres. ____**Cliffs:** Greater than 25 ft high and occurring below 5000 ft. ____**Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acrethat are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter. ____**Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest. ____**Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community. ____**Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs. ____**Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft, composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages ____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%. ____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development. ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres). If wetland has **2 or more** Priority Habitats = **4 points** If wetland has **1** Priority Habitat = **2 points** No Priority habitats = 0 points	2

Comments

H 2.4 Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 76)*** — The wetland 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	5
H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*	
H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?	
H 3.1 Indicator of reduced habitat functions ***(see p. 75)*** Do the areas of open water in the wetland 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)* YES = **- 5 points** NO = 0 points	*Points will be subtracted* 0
Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1*	19

Comments

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: Wetland C **Date:** 7-7-09

Name of wetland (if known): City Hts

Location: SEC: 27 TWNSHP: 20 RNGE: 15 (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: SI Sewell Affiliation: _____ Date of site visit: ___

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	22
Score for Hydrologic Functions	12
Score for Habitat Functions	15
TOTAL score for functions	49

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ Does not Apply___

Final Category (choose the "highest" category from above) 3

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	✓
Alkali		Riverine	
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	
Forest			
None of the above	✓		

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
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		✓
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		✓
A4. Does the wetland have a **local significance** in addition to its functions. 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.		✓

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

Wetland Name: _____ **Date:** _____

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

___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 wetland **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 wetland 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 wetland 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class > 10% total
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

D	Depressional Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
D	**D 1.0 Does the wetland have the potential to improve water quality?** ***(see p. 32 in text)***	
D	D 1.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing , or highly constricted, outlet – points = 3 Wetland has a permanently flowing surface outlet – points = 1	3
D	D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES points = 3 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (**emergent, shrub, and/or forest**): Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = 5 Wetland has persistent, ungrazed, vegetation from 1/3 to 2/3 of area points = 3 Wetland has persistent, ungrazed vegetation from 1/10 to < 1/3 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0	5
D	D 1.4 Characteristics of seasonal ponding or inundation. *This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.* Area seasonally ponded is > ½ total area of wetland points = 3 Area seasonally ponded is ¼ - ½ total area of wetland points = 1 Area seasonally ponded is < ¼ total area of wetland points = 0 NOTE: *See text for indicators of seasonal and permanent inundation/flooding.*	3
D	**Total for D 1** *Add the points in the boxes above*	11
D	**D 2.0 Does the wetland have the opportunity to improve water quality?** ***(see p.38)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water from a stream or culvert flows into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by the multiplier in D2 ***Record score on p. 1 of field form***	22

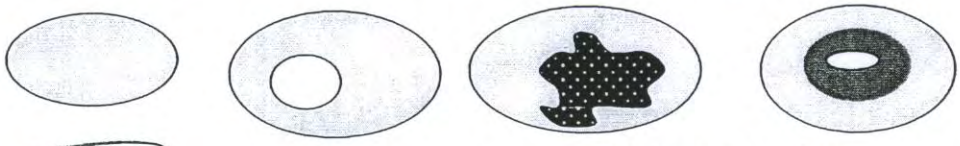
D	Depressional Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
D	**D 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** ***(see p. 39)***	
D	D 3.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet — points = 8 Wetland has an intermittently flowing, or highly constricted, outlet — points = 4 Wetland has a permanently flowing surface outlet — points = 0	4
D	D 3.2 Depth of storage during wet periods: *Estimate the height of ponding above the surface of the wetland (see text for description of measuring height). In wetlands with permanent ponding, the surface is the lowest elevation of "permanent" water)* Marks of ponding are at least 3 ft above the surface — points = 8 The wetland is a "headwater" wetland" *(see p. 39)* — points = 6 Marks are 2 ft to < 3 ft from surface — points = 6 Marks are 1 ft to < 2 ft from surface — points = 4 Marks are 6 in to < 1 ft from surface — points = 2 No marks above 6 in. or wetland has only saturated soils — points = 0	2
D	**Total for D 3** *Add the points in the boxes above*	6
D	**D 4.0 Does the wetland have the opportunity to reduce flooding and erosion?** ***(see p. 42)*** *Answer NO if the major source of water is groundwater, irrigation return flow, or water levels in the wetland are controlled by a reservoir.* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other evidence of flood flow below wetland **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D3 by the multiplier in D4 ***Record score on p. 1 of field form***	12

Comments

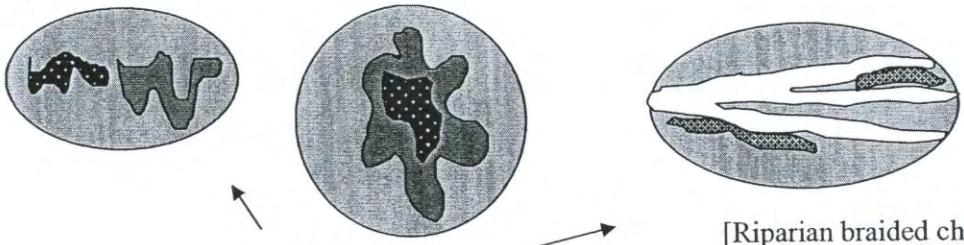
These questions apply to wetlands of all HGM classes.	**Points**
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p.62)*** *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ____Aquatic bed ____Emergent plants 0-12 inches high (0 – 30 cm) ____Emergent plants >12 – 40 inches high (>30 – 100cm) ____Emergent plants > 40 inches high (> 100 cm) ____Scrub/shrub (areas where shrubs have >30% cover) __✓__Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	0
H 1.2. Is one of the vegetation types "aquatic bed?" ***(see p .64)*** YES = 1 point NO = 0 points	0
H 1.3. <u>Surface Water</u> ***(see p.65)*** H 1.3.1 Does the wetland have areas of "open" water (without emergent 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~~ H 1.3.2 Does the wetland have an intermittent or permanent stream within its boundaries, or along one side, that has an unvegetated bottom (*answer yes only if H 1.3.1 is NO*)? YES = 3 points NO = 0 points	3
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 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species points = 2 4-9 species points = 1 # of species ____ < 4 species points = 0 points	1

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



[Riparian braided channel]

High = 3 points

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

0

H 1.6. Special Habitat Features: *(see p. 68)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

✓ Loose rocks larger than 4" **or** large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

___ Cattails or bulrushes are present within the wetland.

✓ Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

___ 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.*

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity

___ Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6

2

TOTAL Potential to provide habitat
Add the scores in the column above

6

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 71)* *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **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** **If buffer does not meet any of the criteria above** — 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**	4
H 2.2 Wet Corridors *(see p. 72)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (*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*). YES = 4 points (go to H 2.3) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, 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? YES = 2 points (go to H 2.3) NO go to H 2.2.3 H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (*do not include man-made ditches*)? YES = 1 point NO = 0 points	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(see text for a more detailed description of these priority habitats)* ✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres. ____ **Cliffs:** Greater than 25 ft high and occurring below 5000 ft. ____ **Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acrethat are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter. ____ **Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest. ____ **Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community. ____ **Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft, composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%. ____ **Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development. ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres). If wetland has **2 or more** Priority Habitats = **4 points** If wetland has **1** Priority Habitat = **2 points** No Priority habitats = 0 points	2

Comments

H 2.4 Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 76)*** — The wetland 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	
H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*	2
H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?	
H 3.1 Indicator of reduced habitat functions ***(see p. 75)*** Do the areas of open water in the wetland 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)* YES = **- 5 points** NO = 0 points	*Points will be subtracted* 0
Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1*	15

Comments

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: Wetland E **Date:** Aug 09

Name of wetland (if known): Wetland E

Location: SEC: 27 TWNSHP: 20 RNGE: 5 (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: Ed Sarb Affiliation: _____ Date of site visit: ___

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	5
Score for Hydrologic Functions	16
Score for Habitat Functions	21
TOTAL score for functions	42

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ Does not Apply___

Final Category (choose the "highest" category from above) 3

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	
Alkali		Riverine	
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	✓
Forest			
None of the above	✓		

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
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		
A4. Does the wetland have a **local significance** in addition to its functions. 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.		

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

Wetland Name: _____ **Date:** _____

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);
   ___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 wetland **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 wetland 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 wetland 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class > 10% total
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

S	Slope Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
S	**S 1.0 Does the wetland have the potential to improve water quality? *(see p.56)***	
S	S 1.1 Characteristics of average slope of wetland: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is between 1% and 2% points = 2 Slope is more than 2% but less than 5% points = 1 Slope is 5% or greater points = 0	2
S	S 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES = 3 points NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fit conditions in the wetland. Dense vegetation means you have trouble seeing the soil surface.* Dense, ungrazed, herbaceous vegetation > 90% of the wetland area points = 6 Dense, ungrazed, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, ungrazed, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for herbaceous vegetation points = 0	3
S	**Total for S 1** *Add the points in the boxes above*	5
S	**S 2.0 Does the wetland have the opportunity to improve water quality? *(see p.58)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland is a groundwater seep within the Reclamation Area — Untreated stormwater flows through the wetland — Tilled fields or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 1
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by the multiplier in S2 ***Record score on p. 1 of field form***	5

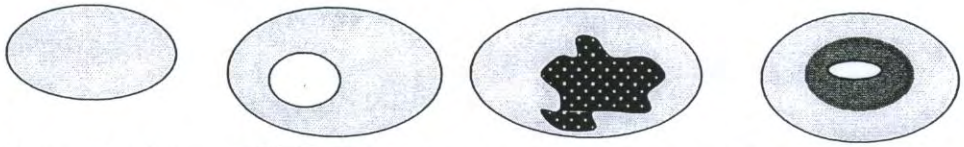
S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
S	**S 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** ***(see p.59)***	
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland.* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows) points = 6 Dense, uncut, **rigid** vegetation > 1/2 – 90% area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 – 1/2 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	6
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	2
S	**Total for S3** *Add the points in the boxes above*	8
S	**S 4. 0 Does the wetland have the opportunity to reduce flooding and erosion?** ***(see p.61)*** *Answer NO if the major source of water is irrigation return flow (e.g. a seep that is on the downstream side of a dam or at the base of an irrigated field.* Answer YES if the wetland is in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland has surface runoff that can cause flooding problems downgradient — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
S	**TOTAL - Hydrologic Functions** Multiply the score from S3 by the multiplier in S4 ***Record score on p. 1 of field form***	16

Comments

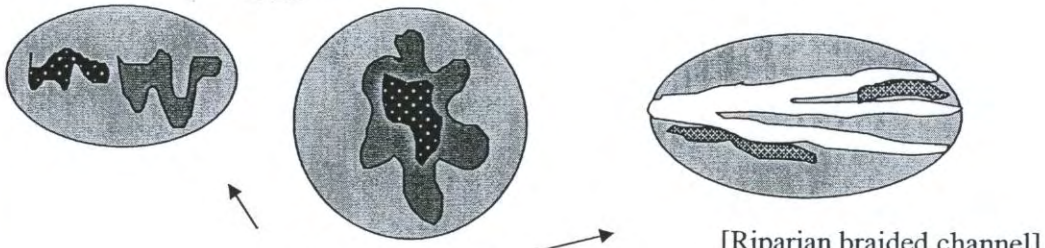
These questions apply to wetlands of all HGM classes.	Points
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p.62)*** *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ____Aquatic bed ____Emergent plants 0-12 inches high (0 – 30 cm) __✓__Emergent plants >12 – 40 inches high (>30 – 100cm) ____Emergent plants > 40 inches high (> 100 cm) ____Scrub/shrub (areas where shrubs have >30% cover) __✓__Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	1
H 1.2. Is one of the vegetation types "aquatic bed?" ***(see p .64)*** YES = 1 point NO = 0 points	0
H 1.3. <u>Surface Water</u> ***(see p.65)*** H 1.3.1 Does the wetland have areas of "open" water (without emergent 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~~ H 1.3.2 Does the wetland have an intermittent or permanent stream within its boundaries, or along one side, that has an unvegetated bottom (*answer yes only if H 1.3.1 is NO*)? YES = 3 points NO = 0 points	3
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 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species ~~points = 2~~ 4-9 species points = 1 # of species ____ < 4 species points = 0 points	2

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [Riparian braided channel]

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

1

H 1.6. Special Habitat Features: *(see p. 68)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

✓ Loose rocks larger than 4" **or** large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

✓ Cattails or bulrushes are present within the wetland.

✓ Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

___ 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.*

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity

✓ Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6

4

TOTAL Potential to provide habitat
Add the scores in the column above

11

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 71)* *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **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** **If buffer does not meet any of the criteria above** — 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**	4
H 2.2 Wet Corridors *(see p. 72)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (*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*). YES = 4 points (go to H 2.3) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, 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? YES = 2 points (go to H 2.3) NO go to H 2.2.3 H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (*do not include man-made ditches*)? YES = 1 point NO = 0 points	2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)*
Which of the following priority habitats are within 330ft (100m) of the wetland?
(see text for a more detailed description of these priority habitats)

✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres.

____**Cliffs:** Greater than 25 ft high and occurring below 5000 ft.

____**Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acrethat are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter.

____**Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest.

____**Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft, composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

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

2

Comments

H 2.4 Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 76)*** — The wetland 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	2
H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*	
H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?	
H 3.1 Indicator of reduced habitat functions ***(see p. 75)*** Do the areas of open water in the wetland 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)* YES = **- 5 points** NO = 0 points	*Points will be subtracted* 0
Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1*	21

Comments

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: _____ **Date:** Aug 07

Name of wetland (if known): Wetland H

Location: SEC: 27 TWNSHP: 20 RNGE: 45 (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: Ed Sewell Affiliation: _____ Date of site visit: ___

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

Category I = Score >70	Score for "Water Quality" Functions: 13
Category II = Score 51-69	Score for Hydrologic Functions: 24
Category III = Score 30-50	Score for Habitat Functions: 11
Category IV = Score < 30	**TOTAL score for functions**: 48

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ **Does not Apply**___

Final Category (choose the "highest" category from above): 3

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	✓
Alkali		Riverine	
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	
Forest			
None of the above			

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
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		✓
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		✓
A4. Does the wetland have a **local significance** in addition to its functions. 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.		✓

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

Wetland Name: _____ **Date:** _____

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);
   ___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 wetland **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 wetland 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 wetland 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class > 10% total
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

	D Depressional Wetlands	**Points**
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
D	**D 1.0 Does the wetland have the potential to improve water quality?** *(see p. 32 in text)*	
D	D 1.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing , or highly constricted, outlet – points = 3 Wetland has a permanently flowing surface outlet – points = 1	5
D	D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES points = 3 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (**emergent, shrub, and/or forest**): Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = 5 Wetland has persistent, ungrazed, vegetation from 1/3 to 2/3 of area points = 3 Wetland has persistent, ungrazed vegetation from 1/10 to < 1/3 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0	5
D	D 1.4 Characteristics of seasonal ponding or inundation. *This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.* Area seasonally ponded is > ½ total area of wetland points = 3 Area seasonally ponded is ¼ - ½ total area of wetland points = 1 Area seasonally ponded is < ¼ total area of wetland points = 0 NOTE: *See text for indicators of seasonal and permanent inundation/flooding.*	3
D	**Total for D 1** *Add the points in the boxes above*	13
D	**D 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.38)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water from a stream or culvert flows into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Other_____ YES multiplier is 2 NO multiplier is 1	multiplier ___
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by the multiplier in D2 *Record score on p. 1 of field form*	13

D	Depressional Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
D	**D 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** *(see p. 39)*	
D	D 3.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet — points = 8 (circled) Wetland has an intermittently flowing, or highly constricted, outlet — points = 4 Wetland has a permanently flowing surface outlet — points = 0	8
D	D 3.2 Depth of storage during wet periods: *Estimate the height of ponding above the surface of the wetland (see text for description of measuring height). In wetlands with permanent ponding, the surface is the lowest elevation of "permanent" water)* Marks of ponding are at least 3 ft above the surface — points = 8 The wetland is a "headwater" wetland" *(see p. 39)* — points = 6 Marks are 2 ft to < 3 ft from surface — points = 6 Marks are 1 ft to < 2 ft from surface — points = 4 (circled) Marks are 6 in to < 1 ft from surface — points = 2 No marks above 6 in. or wetland has only saturated soils — points = 0	4
D	**Total for D 3** *Add the points in the boxes above*	12
D	**D 4.0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 42)* *Answer NO if the major source of water is groundwater, irrigation return flow, or water levels in the wetland are controlled by a reservoir.* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* ✓ — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ YES multiplier is 2 (circled) NO multiplier is 1	multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D3 by the multiplier in D4 *Record score on p. 1 of field form*	24

Comments

R	Riverine Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
R	**R 1.0 Does the wetland have the potential to improve water quality?** *(see p. 45)*	
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >1/3 area of wetland — points = 6 Depressions cover > 1/10 area of wetland — points = 3 Depressions present but cover < 1/10 area of wetland — points = 1 No depressions present — points = 0	
R	R 1.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland — points = 10 Forest or shrub 1/3 – 2/3 area of the wetland — points = 5 Ungrazed, emergent plants > 2/3 area of wetland — points = 5 Ungrazed emergent plants 1/3 – 2/3 area of wetland — points = 2 Forest, shrub, and ungrazed emergent < 1/3 area of wetland — points = 0	
R	**Total for R1** *Add the points in the boxes above*	
R	**R 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.46)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water flows into wetland from a stream or culvert that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential or urban areas are within 150 ft of wetland — The river or stream that floods the wetland has a contributing basin where human activities have raised the levels of sediment, toxic compounds or nutrients in the river water above water quality standards — Other_____ YES multiplier is 2 NO multiplier is 1	multiplier ____
R	**TOTAL - Water Quality Functions** Multiply the score from R1 by the multiplier in R2 *Record score on p. 1 of field form*	

Comments

S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
S	**S 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** *(see p.59)*	
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland.* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows) points = 6 Dense, uncut, **rigid** vegetation > 1/2 – 90% area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 – 1/2 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	**Total for S3** *Add the points in the boxes above*	
S	**S 4. 0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p.61)* *Answer NO if the major source of water is irrigation return flow (e.g. a seep that is on the downstream side of a dam or at the base of an irrigated field.* Answer YES if the wetland is in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland has surface runoff that can cause flooding problems downgradient — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier _____
S	**TOTAL - Hydrologic Functions** Multiply the score from S3 by the multiplier in S4 ***Record score on p. 1 of field form***	

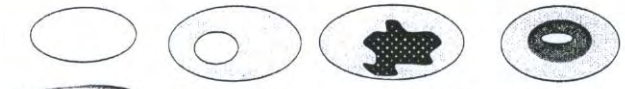
Comments

These questions apply to wetlands of all HGM classes.	Points
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p.62)* *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ___Aquatic bed ___Emergent plants 0-12 inches high (0 – 30 cm) ___Emergent plants >12 – 40 inches high (>30 – 100cm) ___Emergent plants > 40 inches high (> 100 cm) ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	6
H 1.2. Is one of the vegetation types "aquatic bed?" *(see p .64)* YES = 1 point NO = 0 points	0
H 1.3. Surface Water *(see p.65)* H 1.3.1 Does the wetland have areas of "open" water (without emergent 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 H 1.3.2 Does the wetland have an intermittent or permanent stream within its boundaries, or along one side, that has an unvegetated bottom (*answer yes only if H 1.3.1 is NO*)? YES = 3 points NO = 0 points	3
H 1.4. Richness of Plant Species *(see p. 66)* Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species points = 2 4-9 species points = 1 # of species ____ < 4 species points = 0 points	0

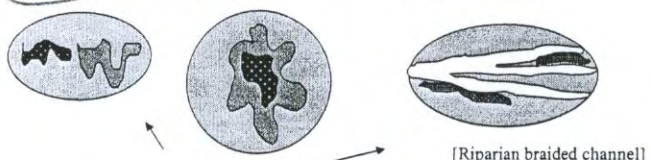
3

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



[Riparian braided channel]

High = 3 points

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

0

H 1.6. Special Habitat Features: *(see p. 68)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___ Loose rocks larger than 4" **or** large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

___ Cattails or bulrushes are present within the wetland.

✓ Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

___ 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.*

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity

___ Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6

1

TOTAL Potential to provide habitat
Add the scores in the column above

4

Comments

4

H 2.0 Does the wetland have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see p. 71)*

Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."

— 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **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**

If buffer does not meet any of the criteria above

— 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**

2

H 2.2 Wet Corridors *(see p. 72)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? *(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).*

YES = 4 points (go to H 2.3) NO = go to H 2.2.2

H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, 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?

YES = 2 points (go to H 2.3) NO go to H 2.2.3

H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (*do not include man-made ditches*)?

YES = 1 point NO = 0 points

1

7

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(see text for a more detailed description of these priority habitats)* ✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other ___ **Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres. ___ **Cliffs:** Greater than 25 ft high and occurring below 5000 ft. ___ **Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acrethat are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter. ___ **Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest. ___ **Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community. ___ **Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs. ___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft, composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages ___ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%. ___ **Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development. ___ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres). If wetland has **2 or more** Priority Habitats = **4 points** If wetland has **1** Priority Habitat = **2 points** No Priority habitats = 0 points	2

Comments

site is a aspen stand but only @ 10,000sF

9

H 2.4 Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 76)*** — The wetland 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	2
H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*	11
H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?	
H 3.1 Indicator of reduced habitat functions *(see p. 75)* Do the areas of open water in the wetland 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)* YES = **- 5 points** NO = 0 points	*Points will be subtracted* 0
Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1*	11

Comments

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: _____ **Date:** Aug 07

Name of wetland (if known): Wetland G - along Coal mine trail

Location: SEC: 27 TWNSHP: 20 RNGE: 15 (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: Ed Small Affiliation: _____ Date of site visit: ___

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

Category I = Score >70	Score for "Water Quality" Functions: 6
Category II = Score 51-69	Score for Hydrologic Functions: 0
Category III = Score 30-50	Score for Habitat Functions: 9
Category IV = Score < 30	**TOTAL score for functions**: 15

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ Does not Apply___

Final Category (choose the "highest" category from above): 4

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	✓
Alkali		Riverine	
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	
Forest			
None of the above			

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
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		✓
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		✓
A4. Does the wetland have a **local significance** in addition to its functions. 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.		✓

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

Wetland Name: _____ **Date:** _____

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);
   ___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 wetland **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 wetland 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 wetland 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class > 10% total
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

D	**Depressional Wetlands**	**Points**
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
D	**D 1.0 Does the wetland have the potential to improve water quality?** *(see p. 32 in text)*	
D	D 1.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing , or highly constricted, outlet – points = 3 Wetland has a permanently flowing surface outlet – points = 1	1
D	D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES points = 3 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (**emergent, shrub, and/or forest**): Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = 5 Wetland has persistent, ungrazed, vegetation from 1/3 to 2/3 of area points = 3 Wetland has persistent, ungrazed vegetation from 1/10 to < 1/3 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0	5
D	D 1.4 Characteristics of seasonal ponding or inundation. *This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.* Area seasonally ponded is > ½ total area of wetland points = 3 Area seasonally ponded is ¼ - ½ total area of wetland points = 1 Area seasonally ponded is < ¼ total area of wetland points = 0 NOTE: *See text for indicators of seasonal and permanent inundation/flooding.*	0
D	**Total for D 1** *Add the points in the boxes above*	6
D	**D 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.38)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water from a stream or culvert flows into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier ___
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by the multiplier in D2 *Record score on p. 1 of field form*	6

D	**Depressional Wetlands**	**Points**
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
D	**D 3.0 Does the wetland have the <u>potential</u> to reduce flooding and stream erosion?** *(see p. 39)*	
D	D 3.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet — points = 8 Wetland has an intermittently flowing, or highly constricted, outlet — points = 4 Wetland has a permanently flowing surface outlet — points = 0	0
D	D 3.2 Depth of storage during wet periods: *Estimate the height of ponding above the surface of the wetland (see text for description of measuring height). In wetlands with permanent ponding, the surface is the lowest elevation of "permanent" water)* Marks of ponding are at least 3 ft above the surface — points = 8 The wetland is a "headwater" wetland" *(see p. 39)* — points = 6 Marks are 2 ft to < 3 ft from surface — points = 6 Marks are 1 ft to < 2 ft from surface — points = 4 Marks are 6 in to < 1 ft from surface — points = 2 No marks above 6 in. or wetland has only saturated soils — points = 0	0
D	**Total for D 3** *Add the points in the boxes above*	0
D	**D 4.0 Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** *(see p. 42)* *Answer NO if the major source of water is groundwater, irrigation return flow, or water levels in the wetland are controlled by a reservoir.* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is 2 **NO** multiplier is 1	multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D3 by the multiplier in D4 *Record score on p. 1 of field form*	0

Comments

R	**Riverine Wetlands**	**Points**
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
R	**R 1.0 Does the wetland have the <u>potential</u> to improve water quality?** *(see p. 45)*	
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >1/3 area of wetland — points = 6 Depressions cover > 1/10 area of wetland — points = 3 Depressions present but cover < 1/10 area of wetland — points = 1 No depressions present — points = 0	
R	R 1.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland — points = 10 Forest or shrub 1/3 – 2/3 area of the wetland — points = 5 Ungrazed, emergent plants > 2/3 area of wetland — points = 5 Ungrazed emergent plants 1/3 – 2/3 area of wetland — points = 2 Forest, shrub, and ungrazed emergent < 1/3 area of wetland — points = 0	
R	**Total for R1** *Add the points in the boxes above*	
R	**R 2.0 Does the wetland have the <u>opportunity</u> to improve water quality?** *(see p.46)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water flows into wetland from a stream or culvert that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential or urban areas are within 150 ft of wetland — The river or stream that floods the wetland has a contributing basin where human activities have raised the levels of sediment, toxic compounds or nutrients in the river water above water quality standards — Other_____ **YES** multiplier is 2 **NO** multiplier is 1	multiplier
R	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from R1 by the multiplier in R2 *Record score on p. 1 of field form*	

Comments

S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
S	**S 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** *(see p.59)*	
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland.* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows) points = 6 Dense, uncut, **rigid** vegetation > 1/2 – 90% area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 – 1/2 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	**Total for S3** *Add the points in the boxes above*	
S	**S 4. 0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p.61)* *Answer NO if the major source of water is irrigation return flow (e.g. a seep that is on the downstream side of a dam or at the base of an irrigated field.* Answer YES if the wetland is in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland has surface runoff that can cause flooding problems downgradient — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier _____
S	**TOTAL - Hydrologic Functions** Multiply the score from S3 by the multiplier in S4 ***Record score on p. 1 of field form***	

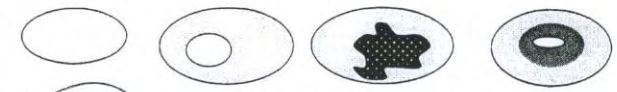
Comments

These questions apply to wetlands of all HGM classes.	Points
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p.62)* *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ____Aquatic bed ____Emergent plants 0-12 inches high (0 – 30 cm) ____Emergent plants >12 – 40 inches high (>30 – 100cm) ____Emergent plants > 40 inches high (> 100 cm) ____Scrub/shrub (areas where shrubs have >30% cover) __✓__Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	0
H 1.2. Is one of the vegetation types "aquatic bed?" *(see p .64)* YES = 1 point NO = 0 points	0
H 1.3. Surface Water *(see p.65)* H 1.3.1 Does the wetland have areas of "open" water (without emergent 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 H 1.3.2 Does the wetland have an intermittent ~~or permanent~~ stream within its boundaries, or along one side, that has an unvegetated bottom (*answer yes only if H 1.3.1 is NO*)? YES = 3 points NO = 0 points	0
H 1.4. Richness of Plant Species *(see p. 66)* Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species points = 2 4-9 species ~~points = 1~~ # of species ____ < 4 species points = 0 points	1

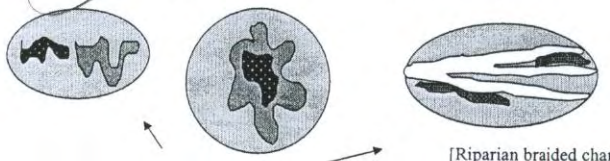
1

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [Riparian braided channel]

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

0

H 1.6. Special Habitat Features: *(see p. 68)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___ Loose rocks larger than 4" **or** large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

___ Cattails or bulrushes are present within the wetland.

V Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

___ 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.*

___ 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

1 ___ Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6

1

TOTAL Potential to provide habitat
Add the scores in the column above

2

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see p. 71)*

Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."

— 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **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**

If buffer does not meet any of the criteria above

— 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**

2

H 2.2 Wet Corridors *(see p. 72)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? (*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*).

YES = 4 points (go to H 2.3) NO = go to H 2.2.2

H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, 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?

YES = 2 points (go to H 2.3) NO go to H 2.2.3

H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake *(do not include man-made ditches)*?

YES = 1 point NO = 0 points

1

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(see text for a more detailed description of these priority habitats)* ✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ___ **Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres. ___ **Cliffs:** Greater than 25 ft high and occurring below 5000 ft. ___ **Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acrethat are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter. ___ **Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest. ___ **Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community. ___ **Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs. ___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft, composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages ___ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%. ___ **Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development. ___ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres). If wetland has **2 or more** Priority Habitats **= 4 points** If wetland has **1** Priority Habitat **= 2 points** No Priority habitats = 0 points	4 2

Comments

H 2.4 Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 76)*** — The wetland 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	7 2
H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*	9
H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?	
H 3.1 Indicator of reduced habitat functions *(see p. 75)* Do the areas of open water in the wetland 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)* YES = **- 5 points** NO = 0 points	*Points will be subtracted* 0
Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1*	9

Comments

WETLAND RATING FORM – EASTERN WASHINGTON

Wetland Name: SW _____ **Date:** _____

Name of wetland (if known): Wetland F

Location: SEC: 27 TWNSHP: 20 RNGE: 25 (attach map with outline of wetland to rating form)

Person(s) Rating Wetland: EL Sack Affiliation: _____ Date of site visit: ___

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

Category I = Score >70	Score for "Water Quality" Functions: 6
Category II = Score 51-69	Score for Hydrologic Functions: 28
Category III = Score 30-50	Score for Habitat Functions: 18
Category IV = Score < 30	**TOTAL score for functions**: 57

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ **Does not Apply**___

Final Category (choose the "highest" category from above): 2

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	
Alkali		Riverine	✓
Natural Heritage Wetland		Lake-fringe	
Bog		Slope	
Forest			
None of the above			

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
A1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered plant or animal species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
A2. *Has the wetland been documented as habitat for any State listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database.		✓
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		✓
A4. Does the wetland have a **local significance** in addition to its functions. 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.		✓

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

Wetland Name: _____ **Date:** _____

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);
   ___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 wetland **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 wetland 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 wetland 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system. 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 being rated.

HGM Classes Within One Delineated Wetland Boundary	Class to Use in Rating if area of this class >10% total
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine (riverine is within boundary of depression)	Depressional
Depressional + Lake-fringe	Depressional

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

D	**Depressional Wetlands**	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
D	**D 1.0 Does the wetland have the potential to improve water quality?** *(see p. 32 in text)*	
D	D 1.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing , or highly constricted, outlet – points = 3 Wetland has a permanently flowing surface outlet – points = 1	
D	D 1.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES points = 3 NO points = 0	
D	D 1.3 Characteristics of persistent vegetation (**emergent, shrub, and/or forest**): Wetland has persistent, ungrazed, vegetation for > 2/3 of area points = 5 Wetland has persistent, ungrazed, vegetation from 1/3 to 2/3 of area points = 3 Wetland has persistent, ungrazed vegetation from 1/10 to < 1/3 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0	
D	D 1.4 Characteristics of seasonal ponding or inundation. *This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.* Area seasonally ponded is > ½ total area of wetland points = 3 Area seasonally ponded is ¼ - ½ total area of wetland points = 1 Area seasonally ponded is < ¼ total area of wetland points = 0 NOTE: *See text for indicators of seasonal and permanent inundation/flooding.*	
D	**Total for D 1** *Add the points in the boxes above*	
D	**D 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.38)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water from a stream or culvert flows into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier ____
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by the multiplier in D2 *Record score on p. 1 of field form*	

D	Depressional Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
D	**D 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** *(see p. 39)*	
D	D 3.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet — points = 8 Wetland has an intermittently flowing, or highly constricted, outlet — points = 4 Wetland has a permanently flowing surface outlet — points = 0	
D	D 3.2 Depth of storage during wet periods: *Estimate the height of ponding above the surface of the wetland (see text for description of measuring height). In wetlands with permanent ponding, the surface is the lowest elevation of "permanent" water)* Marks of ponding are at least 3 ft above the surface — points = 8 The wetland is a "headwater" wetland" *(see p. 39)* — points = 6 Marks are 2 ft to < 3 ft from surface — points = 6 Marks are 1 ft to < 2 ft from surface — points = 4 Marks are 6 in to < 1 ft from surface — points = 2 No marks above 6 in. or wetland has only saturated soils — points = 0	
D	**Total for D 3** *Add the points in the boxes above*	
D	**D 4.0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 42)* *Answer NO if the major source of water is groundwater, irrigation return flow, or water levels in the wetland are controlled by a reservoir.* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ YES multiplier is **2** NO multiplier is **1**	multiplier ____
D	**TOTAL - Hydrologic Functions** Multiply the score from D3 by the multiplier in D4 *Record score on p. 1 of field form*	

Comments

R	Riverine Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland functions to improve water quality	
R	**R 1.0 Does the wetland have the potential to improve water quality?** *(see p. 45)*	
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >1/3 area of wetland — points = 6 Depressions cover > 1/10 area of wetland — points = 3 Depressions present but cover < 1/10 area of wetland — points = 1 No depressions present — points = 0	1
R	R 1.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland — points = 10 Forest or shrub 1/3 – 2/3 area of the wetland — points = 5 Ungrazed, emergent plants > 2/3 area of wetland — points = 5 Ungrazed emergent plants 1/3 – 2/3 area of wetland — points = 2 Forest, shrub, and ungrazed emergent < 1/3 area of wetland — points = 0	5
R	**Total for R1** *Add the points in the boxes above*	6
R	**R 2.0 Does the wetland have the opportunity to improve water quality?** *(see p.46)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater flows into wetland — Tilled fields or orchards within 150 feet of wetland — Water flows into wetland from a stream or culvert that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential or urban areas are within 150 ft of wetland — The river or stream that floods the wetland has a contributing basin where human activities have raised the levels of sediment, toxic compounds or nutrients in the river water above water quality standards — Other_____ YES multiplier is **2** NO multiplier is **1**	multiplier 1
R	**TOTAL - Water Quality Functions** Multiply the score from R1 by the multiplier in R2 *Record score on p. 1 of field form*	6

Comments

R	Riverine Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
R	**R 3.0 Does the wetland have the potential to reduce flooding and erosion?** *(see p. 47)*	
R	R 3.1 Amount overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow of water and the width of the stream or river channel (distance between banks). Calculate the ratio: width of wetland/ width of stream.* If the ratio is 2 or more — points = 10 If the ratio is between 1 and < 2 — points = 8 If the ratio is ½ to < 1 — points = 4 If the ratio is ¼ to < ½ — points = 2 If the ratio is < ¼ — points = 1	8
R	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* Forest or shrub for more than 2/3 the area of the wetland. — points = 6 Forest or shrub for >1/3 area OR Emergent plants > 2/3 area — points = 4 Forest or shrub for > 1/10 area OR Emergent plants > 1/3 area — points = 2 Vegetation does not meet above criteria — points = 0	6
R	**Total for R3** *Add the points in the boxes above*	14
R	**R 4.0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 50)* *Answer NO if the major source of water is irrigation return flow or water levels are controlled by a reservoir.* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. — There are natural resources downstream (e.g. salmon redds) than can be damaged by flooding — Other_____ YES multiplier is 2 NO multiplier is 1	multiplier 2
R	**TOTAL - Hydrologic Functions** Multiply the score from R3 by the multiplier in R4 *Record score on p. 1 of field form*	28

Comments

L	Lake-fringe Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
L	**L 1.0 Does the wetland have the potential 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 — points = 6 Vegetation is between 16 ft (5m) and 33ft wide — points = 3 Vegetation is 6ft (2m) wide to < 16 ft wide — points = 1	
L	L 1.2 Characteristics of the vegetation in the wetland (*choose the appropriate description that results in the highest points, \and do not include any open water in your estimate of coverage). In this case the herbaceous plants can be either the dominant form (called emergent class) or as an understory in a shrub or forest community.* 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	
L	**Total for L1** *Add the points in the boxes above*	
L	**L 2.0 Does the wetland have the opportunity to improve water quality?** *(see p. 53)* 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. *Note which of the following conditions provide the sources of pollutants.* — 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 — 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 2 NO multiplier is 1	multiplier
L	**TOTAL - Water Quality Functions** Multiply the score from L1 by the multiplier in L2 *Record score on p. 1 of field form*	

Comments

S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
S	**S 3.0 Does the wetland have the potential to reduce flooding and stream erosion?** *(see p.59)*	
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland.* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows) points = 6 Dense, uncut, **rigid** vegetation > 1/2 – 90% area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 – 1/2 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	**Total for S3** *Add the points in the boxes above*	
S	**S 4. 0 Does the wetland have the opportunity to reduce flooding and erosion?** *(see p.61)* *Answer NO if the major source of water is irrigation return flow (e.g. a seep that is on the downstream side of a dam or at the base of an irrigated field.* Answer YES if the wetland is in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — Wetland has surface runoff that can cause flooding problems downgradient — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier _____
S	**TOTAL - Hydrologic Functions** Multiply the score from S3 by the multiplier in S4 ***Record score on p. 1 of field form***	

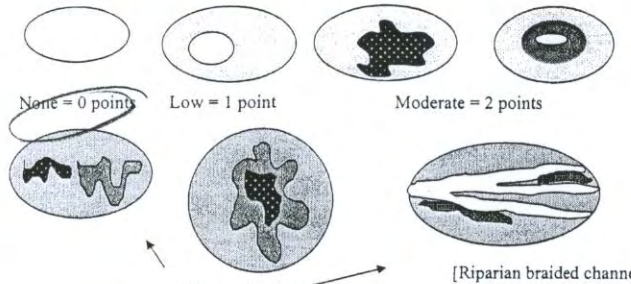
Comments

These questions apply to wetlands of all HGM classes.	Points
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	
H 1. Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p.62)* *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ___Aquatic bed ___Emergent plants 0-12 inches high (0 – 30 cm) ___Emergent plants >12 – 40 inches high (>30 – 100cm) ___Emergent plants > 40 inches high (> 100 cm) ___Scrub/shrub (areas where shrubs have >30% cover) _✓_Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	6
H 1.2. Is one of the vegetation types "aquatic bed?" *(see p .64)* YES = 1 point NO = 0 points	0
H 1.3. Surface Water *(see p.65)* H 1.3.1 Does the wetland have areas of "open" water (without emergent 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 H 1.3.2 Does the wetland have an intermittent or permanent stream within its boundaries, or along one side, that has an unvegetated bottom (*answer yes only if H 1.3.1 is NO*)? YES = 3 points NO = 0 points	3
H 1.4. Richness of Plant Species *(see p. 66)* Count the number of plant species in the wetland that cover at least 10 ft^2. *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 9 species points = 2 4-9 species points = 1 # of species ____ < 4 species points = 0 points	1

4

H 1.5. Interspersion of habitats *(see p. 67)*

Decided from the diagrams below whether interspersion between types of vegetation (described in H 1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points

High = 3 points [Riparian braided channel]

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

0

H 1.6. Special Habitat Features: *(see p. 68)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___Loose rocks larger than 4" **or** large, downed, woody debris (>4in. diameter) within the area of surface ponding or in stream.

___Cattails or bulrushes are present within the wetland.

✓ Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

___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.*

___Stable steep banks of fine material that might be used by beaver or muskrat for denning (>45 degree slope) OR signs of recent beaver activity

✓ Invasive species cover less than 20% in each stratum of vegetation

Maximum score possible = 6

2

TOTAL Potential to provide habitat
Add the scores in the column above

6

Comments

H 2.0 Does the wetland have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see p. 71)*

Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."

— 330ft (100 m) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. **(relatively undisturbed also means no-grazing)** **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**

If buffer does not meet any of the criteria above

— 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**

4

H 2.2 Wet Corridors *(see p. 72)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor at least ¼ mile long with surface water or flowing water throughout most of the year (> 9 months/yr)? *(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).*

YES = 4 points (go to H 2.3) NO = go to H 2.2.2

H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken, 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?

YES = 2 points (go to H 2.3) NO go to H 2.2.3

H 2.2.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (*do not include man-made ditches*)?

YES = 1 point NO = 0 points

4

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 74)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(see text for a more detailed description of these priority habitats)*	
✓ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ___ **Aspen Stands:** Pure or mixed stands of aspen greater than 2 acres. ___ **Cliffs:** Greater than 25 ft high and occurring below 5000 ft. ___ **Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 10 trees/acrethat are > 21 in dbh, and 1 - 3 snags/acre > 12-14 in diameter. ___ **Mature forests:** Stands with average diameters exceeding 21 in dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest. ___ **Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community. ___ **Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs. ___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft, composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages ___ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%. ___ **Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development. ___ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres). If wetland has **2 or more** Priority Habitats **= 4 points** If wetland has **1** Priority Habitat **= 2 points** No Priority habitats = 0 points	2

Comments

H 2.4 Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 76)***	
— The wetland 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	2
H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*	18
H 3.0 Does the wetland have indicators that its ability to provide habitat is reduced?	
H 3.1 Indicator of reduced habitat functions *(see p. 75)* Do the areas of open water in the wetland 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)* YES = **- 5 points** (NO = 0 points)	*Points will be subtracted* 0
Total Score for Habitat Functions – *add the points for H 1, H 2, and H 3 and record the result on p. 1*	18

Comments