BIG ROCK PARK MASTER PLAN

CITY OF SAMMAMISH

JULY 2014

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ACKNOWLEDGMENTS

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EXECUTIVE SUMMARY

Big Rock Park is an environmentally diverse landscape that was generously gifted to the City of Sammamish by Mary Pigott, a long-time resident, in 2010. The park is centrally located within the city just north of Pine Lake. The park provides a quiet recreational experience through a network of meandering trails, breathtaking views of the property and opportunities to observe wildlife in an open and peaceful setting.

Shortly after the "soft opening" of the park in late 2011, the Parks Planning Team started working on the master plan. The City's Model Master Plan Process was conducted from December 2011 to December 2012 to arrive at a preferred master plan for Big Rock Park. Community input was obtained through a web-based survey and four public meetings. Check-in meetings were also held with the Parks and Recreation Commission and the City Council at each stage of the process. A SEPA review of the master plan was completed and a determination of non-significance was issued in March 2014. The master plan for Big Rock Park was adopted by City Council at a Regular Meeting held on July 8, 2014.

The master plan celebrates the diverse ecology of the site, its central location and the opportunity to provide a distinctive experience for all park users. Big Rock Park is a passive park and provides environmental and heritage education, walking trails, informal play and enhancement and protection of the site's defining and valuable ecological character.

North Meadow along SE 8th Street, Site A

PROJECT BACKGROUND

The master plan process started in late 2011, with the park planning team compiling environmental and heritage information to prepare for the first of four public meetings with the City Council (1/10/12), the Parks and Recreation Commission (1/4/12) and the public (1/11/12).

Big Rock Park Master Plan

PROJECT BACKGROUND

Introduction

A total of $50,000 was allocated in the 2011-2012 Parks Capital Improvement Plan (CIP) for the Big Rock Park Master Plan. This amount was intended to fund site investigations, assessments and completion of the master plan by the City of Sammamish park planning team. The team completed the master plan in house.

Project Goals

The Big Rock Park Master Plan is the result of a multi-step process led by the City of Sammamish Parks and Recreation Department. With input and direction from the public, the City Council and the Parks and Recreation Commission, the guiding principles of this master plan were developed and are as follows:

A park that is inviting to the whole community

Providing a safe and accessible experience for all visitors so they have the ability to explore the natural and built systems within the park.

Enhance, protect and celebrate the natural systems

Through strategic planning and design, sensitive areas within the park will be protected, restored and/or enhanced providing critical wildlife habitat areas.

Provide outdoor opportunities for environmental and heritage education

Provide environmental and heritage educational opportunities through a network of interpretive trails and unique spaces that promote ecological and cultural stewardship.

Provide separation between the park and surrounding neighbors

Allow for adequate buffering, where achievable, along shared property lines and create a visual screen to help lessen the impact of park activity.

Allow for phased implementation

Provide a strategy for phased improvements, allowing the master plan to be implemented over time and as funding becomes available.

Big Rock Trail, Site A

Site Description

In 2010, Ms. Pigott generously gifted three parcels (Site A, B and C) totaling 51 acres to the City of Sammamish as part of a phased land donation agreement. The agreement between Ms. Pigott and the City of Sammamish states that the properties will be used as a park for the benefit of the community. The city and Ms. Pigott envision a park facilitating a variety of low impact active and passive activities that may include nature trails, open space and passive sport meadows. Additionally, the agreement specifies that the properties shall be developed in a manner that preserves the natural beauty. To achieve this, restrictions were put in place precluding any residential, commercial and industrial development, mining or construction of new buildings over 2,500 SF.

Location Map

Donation Map

PROJECT BACKGROUND

Site A and B Parcels

Big Rock Park (Site A) opened to the public in October 2011. Located in the heart of Sammamish, Big Rock Park is situated within a residential neighborhood approximately two miles southwest of City Hall. Site A is 16 acres and includes wood chipped trails traversing through open meadows, a babbling stream, coniferous and deciduous wooded areas and ecologically rich wetlands. The property was once residential with a single family home, detached garage and a barn. The 3,460 SF home and 600 SF garage were built in 1978 and have since been renovated. Both the home and garage are in excellent condition. The 2,074 SF barn is partially enclosed and was originally used to store property maintenance equipment and supplies.

Ms. Pigott graciously allowed the city to include Site B in the master planning process, although this parcel is not scheduled to transfer to the city until sometime in the future. The 20 acres that make up Site B include dense forest cover, meandering trails that navigate varying topography and open meadows. A single family home, also known as the Tanner House, was built on site in 1930 and is approximately 830 SF. Minor renovations have been made to the home and include the addition of a bathroom in 1956 as well as a metal roof, front porch and deck. In 1940, the homeowners added a 280 SF shed and carport. An accessory building was built in 1950 and in Scandinavian tradition, contained a sauna. On June 3, 2012 the Reard/Freed House was relocated to Site B near the existing buildings.

The final donation, Site C, is not included as part of this master plan as it will not transfer for 15-20 years. Site C is currently the private property and residence of Ms. Pigott.

Stream Crossing, Site B

Reard/Freed House

The Reard/Freed farmhouse was built in 1895 by Jacob and Emma Reard. The 1,515 SF Victoria style farmhouse contains a living and dining room, parlor, bathroom and two bedrooms on the second floor. Shortly after the house was constructed, a kitchen wing was added. In 1928, the house was purchased by Oscar Freed and his wife Dorothy. In 1945, Oscar Freed successfully campaigned for Water District 82, now known as Sammamish Plateau Water and Sewer District. The farmhouse became the district's first headquarters.

In 1996, the Freed family sold the property and farmhouse to a local developer who moved the building to a temporary location along 212th Ave SE. In 2001, the farmhouse was donated to the city and in 2011 became the first building in Sammamish to be listed on the King County Historic Resource Inventory as a registered landmark. Through thoughtful planning with Ms. Pigott and the Sammamish Heritage Society (SHS), SHS relocated the Reard/Freed House on June 3, 2012 to Site B and the city included the building in the master plan. It is now situated south of the Tanner House and is undergoing renovations.

The Reard-Freed House, c. 2013

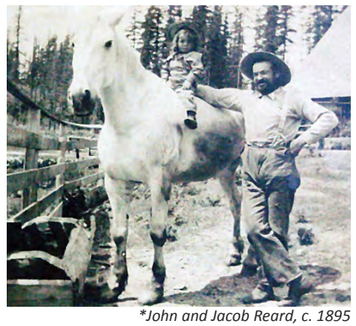
Reard-Freed House Timeline

1890
Jacob D. Reard purchased 80 acres near 212th Ave SE for $380 from the Northern Pacific Railroad.

*Jacob and Emma Reard, c. 1891

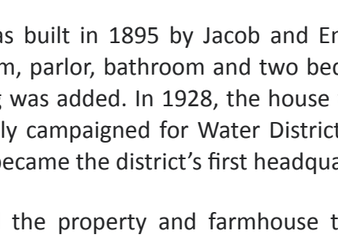
*Photo courtesy of the Sammamish Heritage Society

1895
Jacob and Emma Reard take out a mortgage for $900 to build the farmhouse and barn. Shortly thereafter a kitchen wing was added to the home.



*John and Jacob Reard, c. 1895

1905
The Reards sell the farm and the property goes through a series of owners until 1915 when Olaf L. Skogman, a Swedish immigrant, purchases the property. During the time the Skogmans lived on the property, the house was a community gathering place and dances were held in a larger room on the second floor of the house.



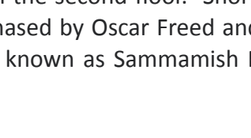
*The Skogmans, c. 1910

1928
Oscar and Dorothy Freed acquire the property as a result of a land trade with Skogman.

*The Reard-Freed House, c. 1940

1934
Prior to moving to the farm permanently the Freeds rented out the farm. One of their tenants built a still and though prohibition was in effect the bootleggers produced many gallons of whiskey.

1945
Oscar Freed proposes a water district and becomes the first Commissioner. The house serves as the district's office.



*Oscar Freed, c. 1978

*Photo, c. 1970s

1980
Act of Love starring Ron Howard and Mickey Rourke was filmed at the farmhouse which was painted red for the movie.

1996
Under the burden of heavy property taxes the Freeds sold the property to a developer. The house was moved to a temporary location and donated to the city in 2001.

*Photo, c. 1980s

2001
The Reard-Freed House was donated to the city of Sammamish

Photo, c. 2009

2012
The house was moved again to Site B by the Sammamish Heritage Society and shortly thereafter renovation on the house began.

Moving the house to Site B, c. 2012

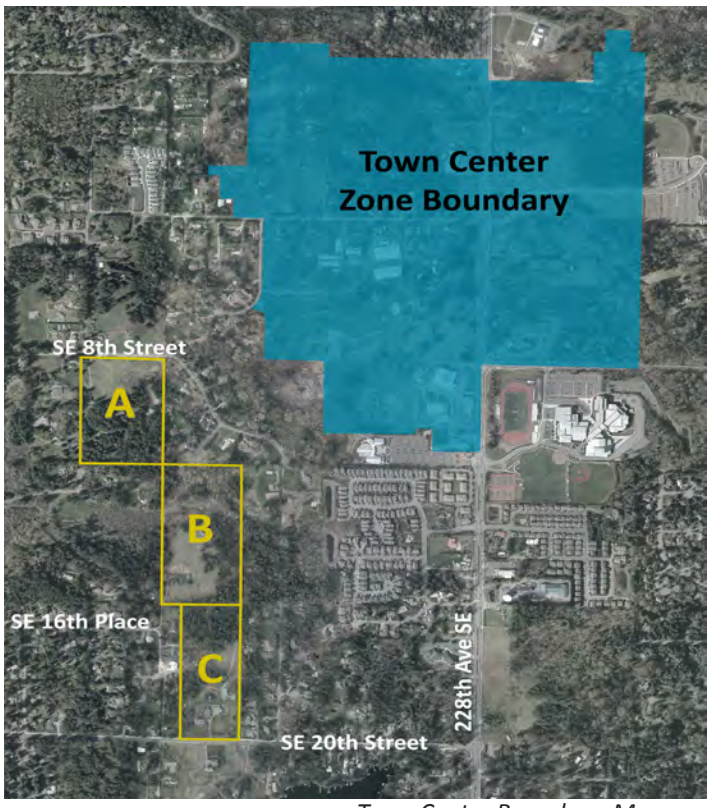
Today
To date the city and the Sammamish Heritage Society have added a foundation, new roof, siding, paint, windows and doors.

THE PLANNING PROCESS

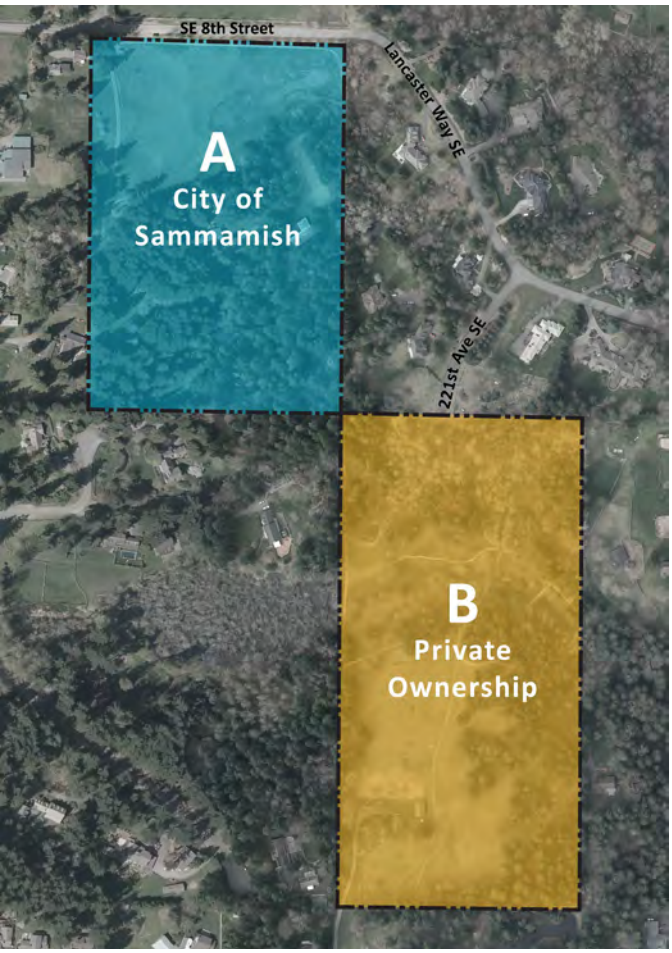
Three alternatives were developed after the inventory and analysis of the site were completed. Design suggestions from the community, the Parks and Recreation Commission and the City Council were incorporated into the alternatives. These alternatives were presented to the public (4/25/12), Parks and Recreation Commission (5/9/12 and 6/6/12) and the City Council (6/12/12 and 7/11/12).

Inventory and Analysis

The master plan process started with the inventory and analysis phase. During this phase, staff compiled general information from sources including the USDA Natural Resources Conservation Service and King County's online interactive mapping database (topography, sensitive areas and wildlife corridors). Many visits to the park site were completed to inventory the existing trail system and buildings. A wetland and stream reconnaissance; traffic count assessment; and, well and septic system evaluations were also completed as part of the initial planning process.



Town Center Boundary Map



Site A and B Map

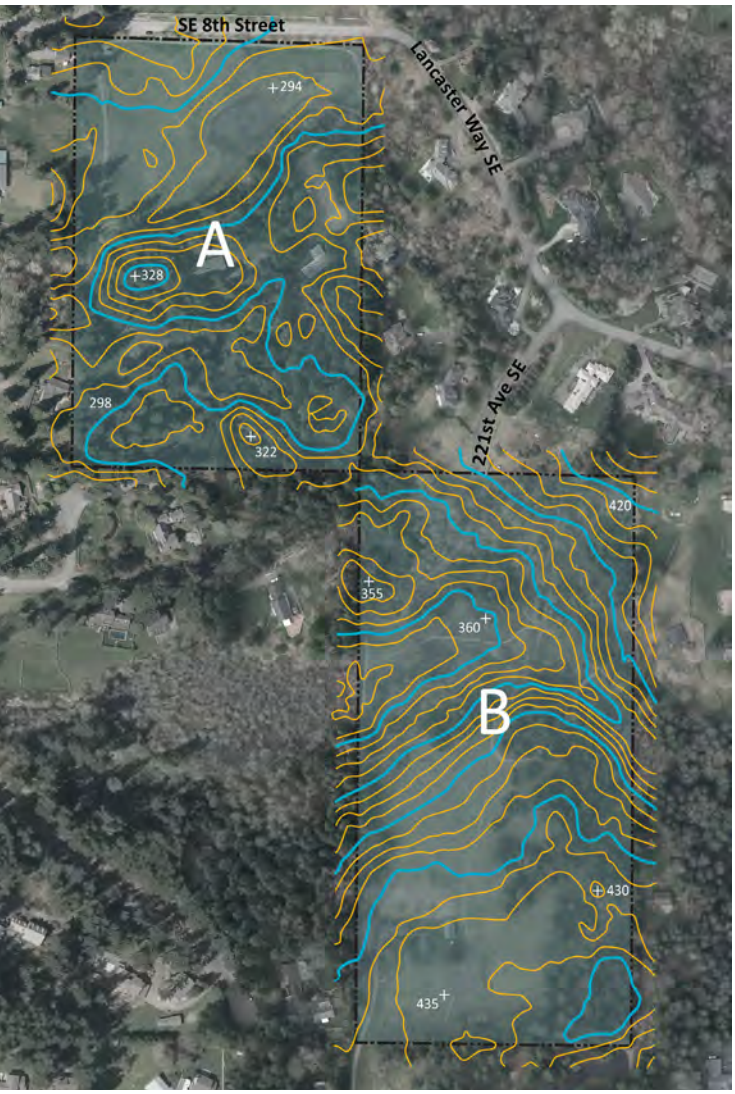
SITE CONTEXT

The Big Rock Park project site is centrally located within the city's core, with a potential connection to Sammamish's civic center, the Sammamish Commons. Though the park site is not within the zoned boundaries of the Town Center, it does tie in nicely with the development plan. A pedestrian connection between the Lower Sammamish Commons and Big Rock Park is budgeted in the 2013-2014 Parks CIP. The park planning team is reviewing different route options to make this connection.

The park site is currently zoned R-1 and R-6 and is surrounded by single family homes. The comprehensive plan designation is public/institutional.

LAND OWNERSHIP

The project site is a combination of properties owned by the City of Sammamish (Site A) and Mary Pigott (Site B). Site C is scheduled to transfer to the city in 15-20 years or at the discretion of Ms. Pigott and was not included in the master plan process. Together, these three parcels total 51 acres. For the purposes of this report, the master plan project area is comprised of Sites A and B only.



Site Topography and Soils Map

2' Major Contours

2' Minor Contours

TOPOGRAPHY

Based on GIS data, the site has varying topography with a total elevation difference of 36 feet on Site A and 70 feet on Site B between the highest and lowest points. The steepest slopes occur within the natural wooded areas varying between 15-36%. The meadow areas on both Site A and B are rolling with slopes averaging 5-15%. Though a majority of the proposed trail system for the park is ADA compliant (less than 5% grade) there are some trail links that will likely exceed 5%. The diversity of terrain allows for park visitors of different physical abilities to have varying experiences.

SOILS

The USDA Natural Resources Conservation Service online mapping service indicates soil types present on the park site are 93% Alderwood gravelly sandy loam (AgC) and 7% Seattle muck (Sk). The soils are rated according to limitations that affect their suitability for recreational uses such as picnic areas and trails. Both soil types found on site are categorized and range from "not limited" to "very limited" meaning limitations can be overcome or minimized by planning, design or construction. In the case of Big Rock Park, the majority of the site is Alderwood gravelly and does not limit proposed development of the park. The Seattle muck is very limiting and is mapped within wetland and buffer areas and little to no development (trails and boardwalks only) is planned within areas that contain Seattle muck.

CRITICAL AREAS

The park site has a variety of wetland and tributary types with varying degrees of ecological function. These include depressional or riverine wetlands and tributaries identified by the city as "streams of special significance."

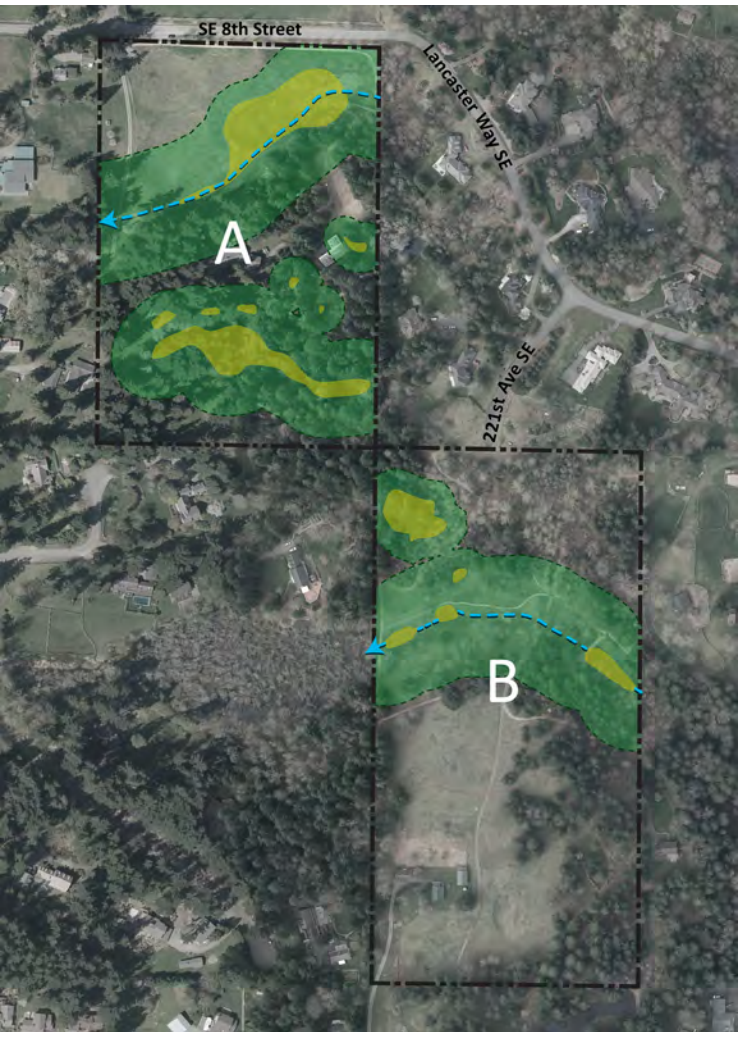
On Site A, eight wetlands were identified ranging from Type II-IV with buffers of 50-100 feet. For instance, Wetland C occupies much of the south-central portion of Site A and is considered a Type II wetland. Wetland C has a diverse plant community and has both permanently and seasonally ponded hydrologic regimes, all of which provide significant water quality, hydrology and wildlife habitat functions.

The Ebright Creek North Tributary is located on Site A. Identified as a "stream of special significance," the Ebright Creek North Tributary is located in the open meadow that fronts SE 8th Street. The stream travels through the property from the northeast to southwest and has been identified as permanently flowing based

on historic fish presence. The tributary is categorized as a Type F stream with a 150' buffer.

Site B contains five wetlands and one tributary. All of the wetlands on Site B are categorized as Type III with 50' buffers and are either classified as depressional or riverine wetlands. Depressional wetlands occur in topographic depressions (i.e., closed elevation contours) that allow the accumulation of surface water. Riverine wetlands are wetlands connected by rivers, streams or creeks. Wetlands J, K and M are all riverine wetlands and are associated with the South Ebright Creek Tributary. All three wetlands have been created or expanded as a result of small dams installed within the stream channel.

The South Ebright Creek Tributary is categorized as a Type F stream with a 150' buffer. The stream flows east to west through Wetlands J, K and M. The stream continues towards the western property boundary where it flows through two culverts beneath the berm/trail and discharges into a larger wetland complex on the adjacent property. As a primary contributor to Ebright Creek the stream will likely be considered a "stream of special significance" by the city.



Critical Area Map

Wetland

Wetland Buffer

Stream

More detailed information is provided in the *Wetland and Stream Reconnaissance Report* included in the appendix.

VEGETATION

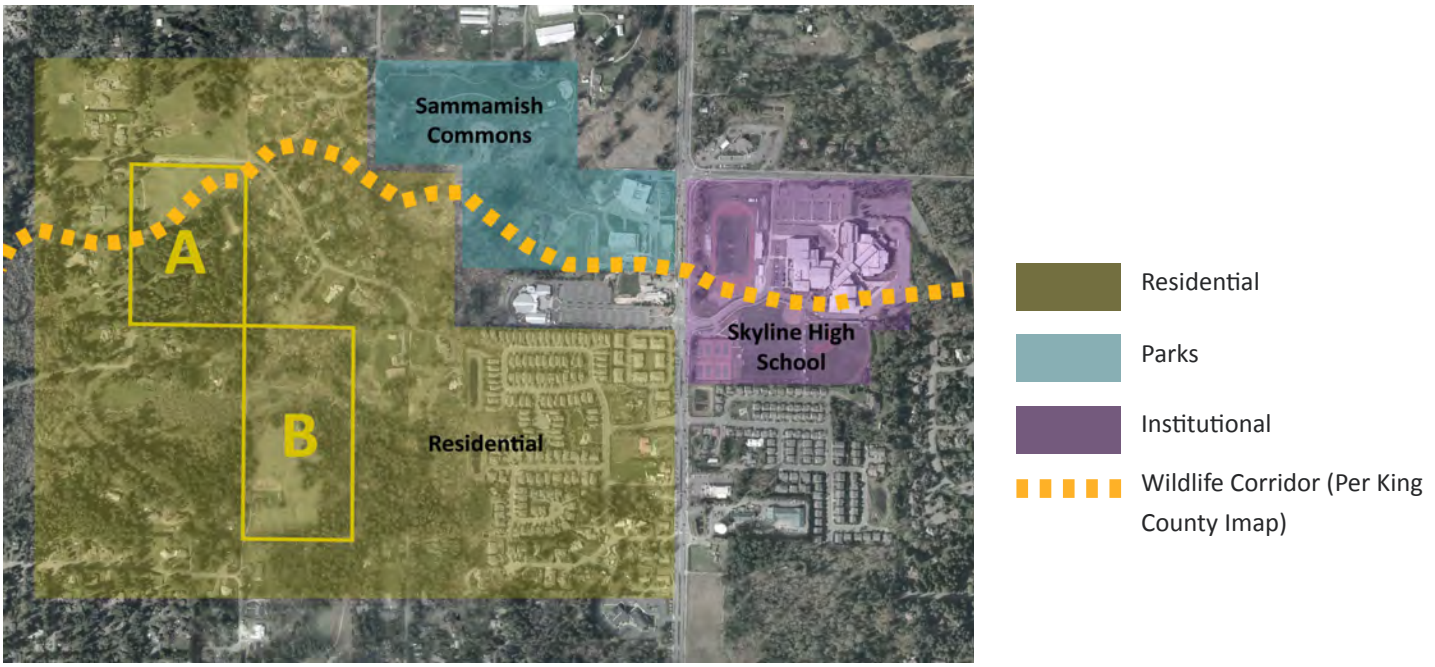
Much of the park site contains a relatively undisturbed wooded area and open meadows or pastures. The canopy layer includes a mix of conifers and deciduous trees such as Douglas fir, western red cedar, bigleaf maple, vine maple and Oregon ash. The understory is primarily composed of beaked hazelnut, salmonberry, red huckleberry, salal, sword fern and bracken fern. Both Site A and B contain open meadow with various field grasses.

WILDLIFE

Wildlife commonly seen at Big Rock Park include a variety of birds, owls, hawk, deer, coyote, bear and salamanders. A search of the Washington State Natural Heritage database and the Priority Habitats and Species (PHS) Program did not identify endangered species on or near the site. The Townsend's Big-eared Bat (Corynorhinus townsendii) is identified in an area that encompasses most of Sammamish and Issaquah including the park site. The Townsend's Big-eared Bat is a candidate for the Washington Department of Fish and Wildlife's Threatened and Endangered species list and is considered a species of concern by the US Fish and Wildlife Service. The Townsend's Big-eared Bat has not been confirmed or identified at Big Rock Park.

King County iMap indicates the presence of a wildlife habitat corridor generally following the North Ebright Creek Tributary on Site A. Site observation by city staff concluded that there is no open space or protected sensitive areas adjacent to the park as it is surrounded by residential development. This development isolates the onsite wildlife corridor and its potential to connect with the mapped system.

Wildlife typically seeks water and shelter in undisturbed natural areas. The limited development of the site will provide many opportunities for wildlife movement through the site's ecological system. Wildlife will continue to have ready access and movement from the existing wetlands on site as well as through undisturbed natural areas on adjacent properties.



Zoning and Wildlife Corridor Map

BUILDINGS

A building inventory was conducted for all structures on Site A and B. The table below documents the type, use and condition of the buildings onsite.

	Year Built	Square Footage	Foundation	Condition
Site A				
House	1978	3,460	Concrete Slab	Very Good
Garage	1978	600	Concrete Slab	Very Good
Barn	?	2,074	Concrete Slab	Good
Site B				
Sauna	1950	570	Concrete Slab	Good
Tanner House	1930	830	Cedar log	Fair
Reard/Freed House	1892-1895	151	Concrete Foundation	Under renovation
Garage	1940	280	Concrete Slab	Fair

House, Site A

Barn, Site A

Tanner House, Site B

Garage, Site B

UTILITIES: WATER

Prior to the transfer of Site A, the house and barn relied on two potable water sources. A private well served as the primary water source while water supplied by Sammamish Plateau Water and Sewer District was used as a secondary source once the well ran dry for the season. After the city took ownership of Site A, the well was disconnected from the buildings as required by the Washington State Department of Health. Although the well cannot be used for potable water it can be used for irrigation (up to 2,000 sf), which the city intends to utilize.

As with Site A, once Site B transfers to the city the existing well will be disconnected from the buildings and used for irrigation purposes only. Water is currently provided by the district at 220th Ave SE and a connection will be established upon construction of Site B facilities.

An inspection of the existing well on Site A was performed on November 13 by JKA Well Drilling. The well is 3 ft. in diameter to a depth of approximately 52 ft., then an estimated 2 ft. in diameter

The Reard-Freed House, Site B

to a depth of 58 ft. The *Well Inspection and Recommendation Memo* notes that the existing pressure tank is too small for the pump size and that there is a hole in the well casing at approximately 4 ft. below grade that will need repair. For further information and recommendations regarding the existing well on Site A, please refer to the *Well Inspection and Recommendation Memo* included in the appendix.

The well on Site B will be evaluated and inspected upon the property's transfer to the city.

Well House, Site A

UTILITIES: SEWER

Site A and B also have existing septic systems. The septic system on Site A is located next to the garage and was evaluated by Huard Septic Design and Monitoring LLC on November 30, 2012. The existing system contains a 1,000 gallon septic tank, a distribution box and a gravity drain field. Huard Septic Design and Monitoring, LLC found that the system as a whole is in fairly good condition with the exception of the tank which is cracked and easily repairable in the interim while the house is not in use.

For purposes of public use the existing septic system is not compatible with the proposed usage or the anticipated number of maximum park visitors. The tank will need to be increased in size to meet park needs.

For more information regarding the existing septic system on Site A please refer to the *As-Built Reconciliation and Inspection Memo* prepared by Huard Septic Design and Monitoring, LLC included in the appendix.

The septic system on Site B will be evaluated and inspected upon the property's transfer to the city.

Existing Septic System Assessment, Site A

TRANSPORTATION

A traffic count and analysis was completed to address the potential increase in vehicular trips to the park site. Three Sammamish parks were studied as part of this analysis and included Beaver Lake Preserve, Ebright Creek Park and the Lower Sammamish Commons. The parks were selected to provide a broad range of traffic data representing low intensity to high intensity use. In addition, traffic counts were also taken at the corner of 216th Ave SE and SE 20th Street. This

intersection serves as the only improved access route linking SE 20th Street to Site B. The data collected from these traffic counts is included in the appendix.

It is anticipated that traffic will not increase significantly for Big Rock Park considering the current vehicular counts at similar Sammamish parks. SE 8th Street, 216th Ave SE and SE 16th Place, access routes to both Site A and B, are considered local neighborhood streets and designed to carry 400 to 2,000 vehicle trips per day. These roads also fall under the Neighborhood Traffic Management Program, a joint effort between residents, the Public Works Department and the Police Department to reduce the impact of traffic on neighborhoods.

Community outreach meeting

PUBLIC INVOLVEMENT

The City's Model Master Planning Process was used to gather comments, feedback and direction from the public, the Parks and Recreation Commission and the City Council. Beginning in late 2011, park planning staff facilitated a four step process to develop a master plan for the park. A project website and the department's Facebook page kept everyone updated on the process and provided information and dates of upcoming meetings.

Community workshop discussion

The initial phase of the planning process included inventorying and evaluating existing site conditions of the park site. During this same time a survey was developed to solicit community input on desired features for the new park. The results of the site evaluations and survey were collected and used to prepare the agenda for the first round of meetings.

Staff met with the students at Samantha Smith Elementary and Discovery Elementary, spoke with citizens at the Farmers Market, and met with the Parks and Recreation Commission, the City Council, the Sammamish Youth Board and the Arts Commission to introduce them to the project and gather input.

Staff meeting with local students

Based on initial feedback, staff developed three design alternatives for the site. These alternatives were presented to the public, the Parks and Recreation Commission and the City Council during the second round of meetings. Shortly after the master plan alternatives

were presented, the City Council requested that staff review public safety, site access, parking and building uses. Staff hosted a third meeting with guest speakers from the Sammamish Public Works and Police Departments to discuss these issues. Staff utilized this data and feedback to modify the design and create the preferred design alternative. The preferred design was presented during the fourth round of meetings.

A SEPA Review of the master plan was completed and a determination of non-significance was issued in March 2014. The master plan was adopted by the City Council on July 8, 2014.

Public Meetings

Meeting #1: Hopes, Dream and Fears - January 11, 2012

Meeting #2: Review of Master Plan Alternatives - April 25, 2012

Meeting #3: Site Access, Parking and Building Uses - July 11, 2012

Meeting #4: Review of the Preferred Alternative - September 19, 2012

Parks and Recreation Commission Meetings

Hopes, Dreams and Fears: January 4, 2012

Review of Master Plan Alternatives: May 9, 2012

Review of Master Plan Alternatives: June 6, 2012

Review of Preferred Alternative Plan: October 3, 2012

Review of Preferred Master Plan: March 6, 2013

Review of Preferred Master Plan: June 5, 2013

Review of Preferred Master Plan: July 10, 2013

Reard/Freed House Vision: April 2, 2014

Review of Preferred Master Plan: May 7, 2014

Review of Preferred Master Plan: June 4, 2014

City Council Updates

Hopes, Dream and Fears: January 10, 2012

Review of Master Plan Alternatives: June 12, 2012

Review of the Preferred Alternative: November 13, 2012

Review of the Revised Preferred Alternative: February 19, 2013

Consensus to move into SEPA: February 19, 2013

Review of the Preferred Alternative: March 11, 2014

Adoption of the Master Plan: July 8, 2014

NAMING THE PARK

In the donation agreement, Ms. Pigott identified a process for naming the park which was temporarily referred to as "SE 8th Street Park." At the request of Ms. Pigott, the City partnered with the library and hosted a "park naming campaign." In addition, staff visited elementary schools and compiled a list of ideas from local youth.

In the fall of 2012, City Council appointed members of the community, the Sammamish Youth Board and staff to a committee to develop a list of potential park names following the naming campaign. The committee discussed and developed a recommended list that was presented to City Council in February 2013. Among the four options presented the City Council selected Big Rock Park.

Master Plan Section Map

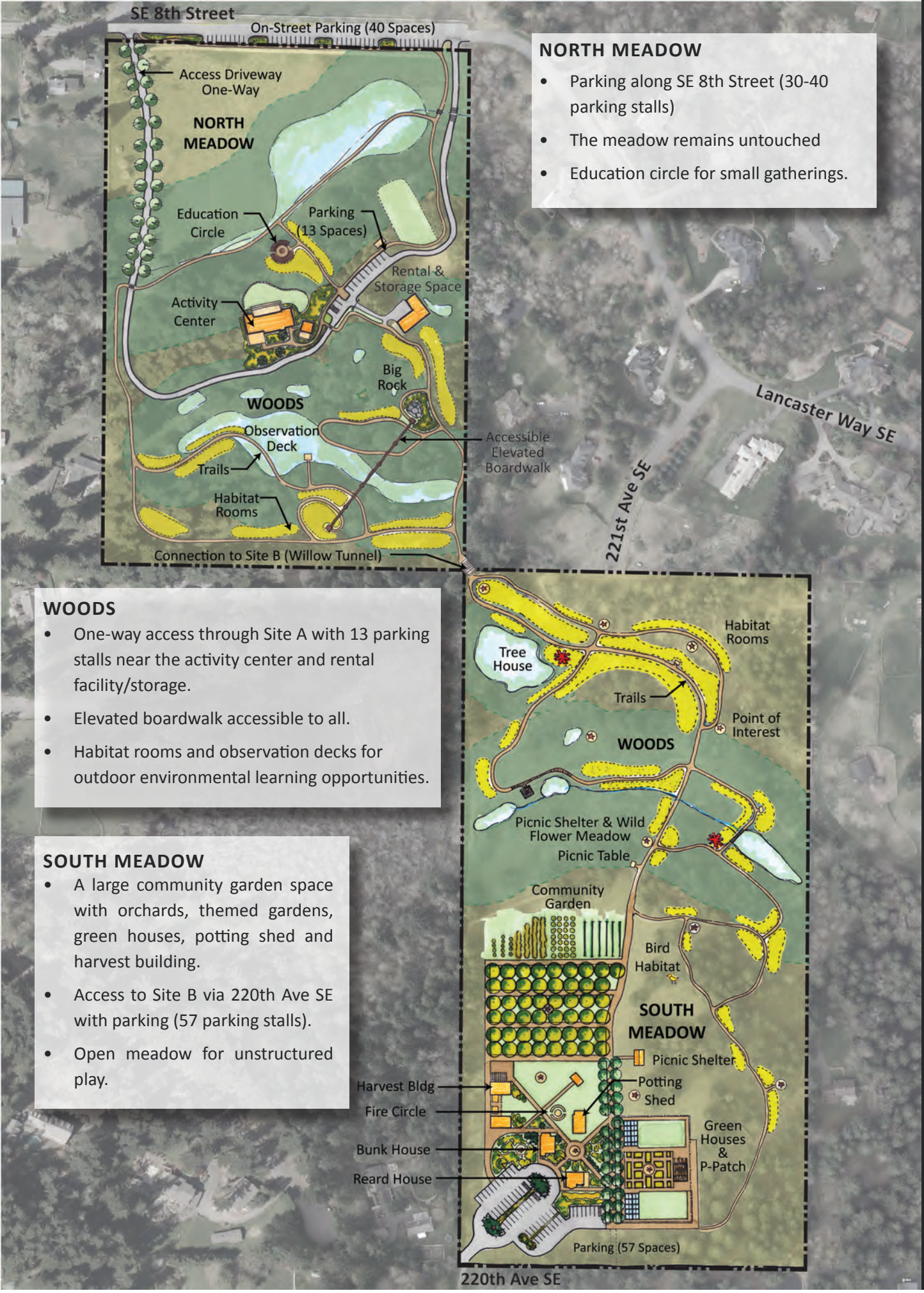
MASTER PLAN ALTERNATIVES

Three alternative master plans were generated for the site by incorporating ideas and input from the first round of meetings. The site inventory and analysis concluded that the site was suitable for varying levels of development depending on location within the park. For the purposes of the master plan, the park is divided into three sections; the North Meadow (Site A north), the Woods (Site A and B center) and the South Meadow (Site B south). These alternatives were presented to the public (public meeting #2), the City Council and the Parks and Recreation Commission for their review and comment.

All three alternatives included similar park elements such as an activity center, rental facilities, outdoor gathering spaces, canopy walks, tree houses, trails, a community garden and picnic areas in a slightly different design. Also included in each alternative was the opportunity for outdoor environmental and heritage education as well as incorporating elements of art, history and culture within the landscape. These overall themes were developed during the first round of public meetings.

Staff presented the design alternatives in the third round of meetings to the public, the City Council and the Parks and Recreation Commission. The general consensus was to focus on a lighter touch or a minimalist approach to park development. Concerns were voiced regarding privacy, vehicular and pedestrian access, vehicular circulation, on and off-site parking, public safety and development and maintenance costs. Council provided direction that the intense features (i.e. education circle and elevated boardwalk) should be located on Site A.

ALTERNATIVE 1



NORTH MEADOW

- Parking along SE 8th Street (30-40 parking stalls)
- The meadow remains untouched
- Education circle for small gatherings.

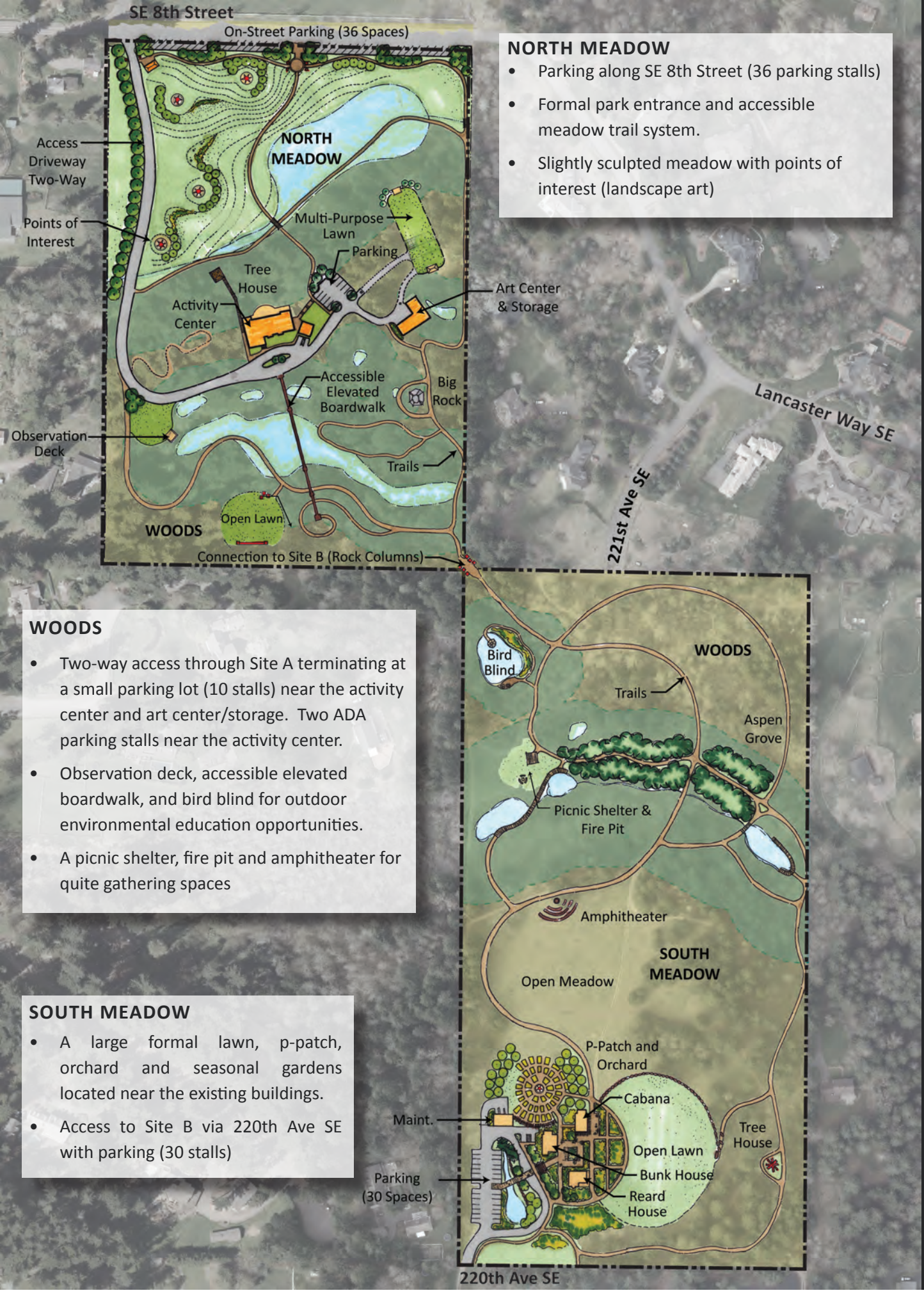
WOODS

- One-way access through Site A with 13 parking stalls near the activity center and rental facility/storage.
- Elevated boardwalk accessible to all.
- Habitat rooms and observation decks for outdoor environmental learning opportunities.

SOUTH MEADOW

- A large community garden space with orchards, themed gardens, green houses, potting shed and harvest building.
- Access to Site B via 220th Ave SE with parking (57 parking stalls).
- Open meadow for unstructured play.

ALTERNATIVE 2



NORTH MEADOW

- Parking along SE 8th Street (36 parking stalls)
- Formal park entrance and accessible meadow trail system.
- Slightly sculpted meadow with points of interest (landscape art)

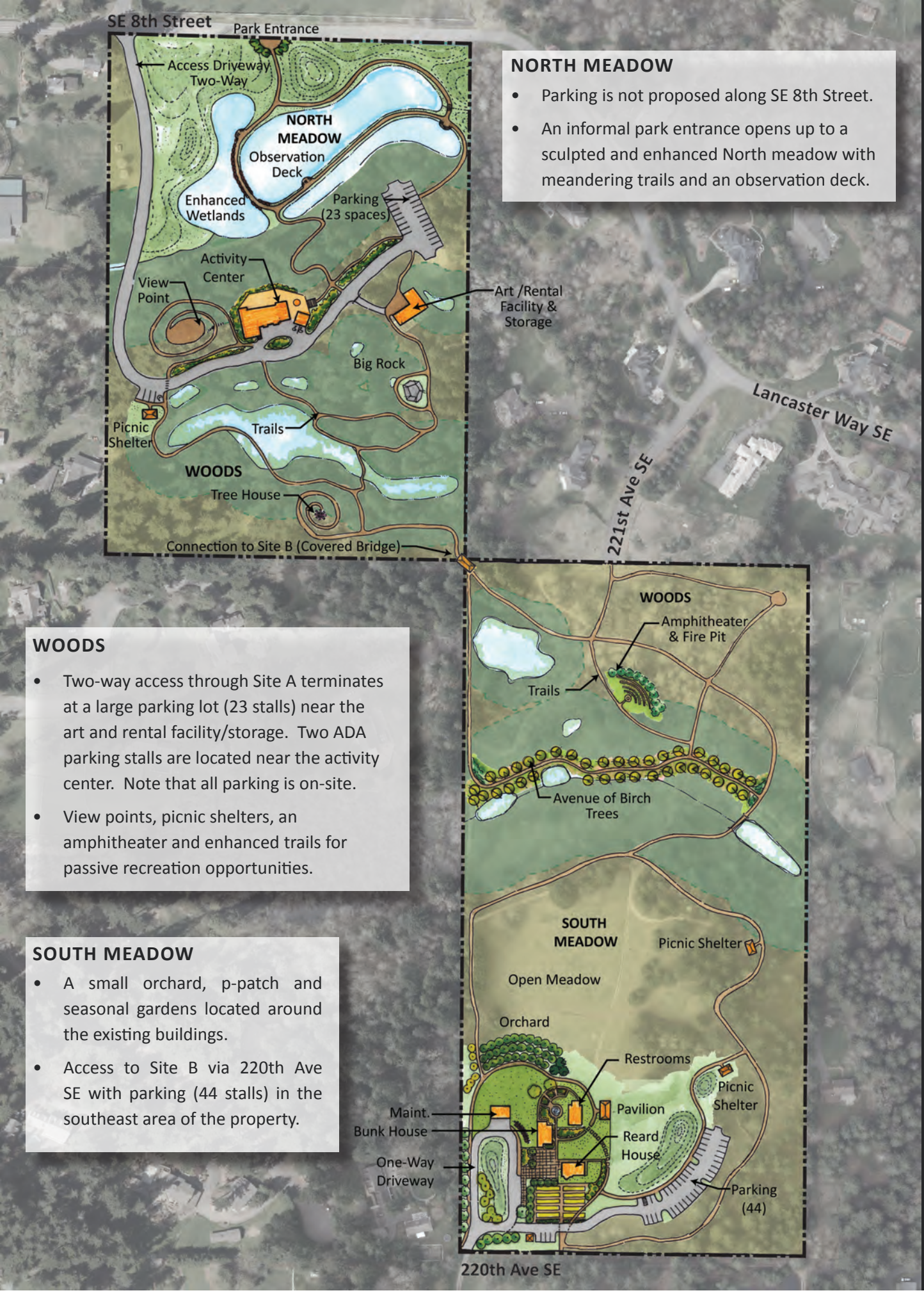
WOODS

- Two-way access through Site A terminating at a small parking lot (10 stalls) near the activity center and art center/storage. Two ADA parking stalls near the activity center.
- Observation deck, accessible elevated boardwalk, and bird blind for outdoor environmental education opportunities.
- A picnic shelter, fire pit and amphitheater for quite gathering spaces

SOUTH MEADOW

- A large formal lawn, p-patch, orchard and seasonal gardens located near the existing buildings.
- Access to Site B via 220th Ave SE with parking (30 stalls)

ALTERNATIVE 3



NORTH MEADOW

- Parking is not proposed along SE 8th Street.
- An informal park entrance opens up to a sculpted and enhanced North meadow with meandering trails and an observation deck.

WOODS

- Two-way access through Site A terminates at a large parking lot (23 stalls) near the art and rental facility/storage. Two ADA parking stalls are located near the activity center. Note that all parking is on-site.
- View points, picnic shelters, an amphitheater and enhanced trails for passive recreation opportunities.

SOUTH MEADOW

- A small orchard, p-patch and seasonal gardens located around the existing buildings.
- Access to Site B via 220th Ave SE with parking (44 stalls) in the southeast area of the property.

PREFERRED MASTER PLAN

In response to the feedback received from the second round of meetings, a preferred plan was developed. The preferred alternative was presented to the public (9/19/12), the Parks and Recreation Commission (10/3/12) and the City Council (11/13/12).

Big Rock Park Master Plan

PREFERRED MASTER PLAN

Through the development of the preferred master plan much effort was given to highlight the natural beauty of the park while expanding opportunities for passive recreation and environmental and heritage education.

Site A General Design

Environmental education was a strong theme that came forth during the public process. As a guiding design principle, the team incorporated opportunities for environmental education through learning, exploring and creating. These opportunities include a covered education circle designed as an informal meeting space, interpretive trails, a wetland observation deck and an elevated boardwalk. The ADA accessible elevated boardwalk is situated 15' above the ground and intertwines through the forested canopy.

Site A Parking

After considering a number of possible scenarios, the preferred alternative calls for two parking areas on Site A. Primary parking is proposed along SE 8th Street with secondary parking (if needed) proposed between the existing house and the barn. Access to the buildings and onsite parking is provided by improving the existing 9-foot wide gravel drive to a two-way asphalt driveway. The secondary parking area and the driveway improvements are only required if the house is activated for public use.

At full build out, the Site A plan calls for approximately 51-parking spaces, including ADA stalls.

Site A House and Barn

The house (3,500 SF) and garage (600 SF) on Site A are in good condition. If desired, the house and garage could be renovated and used as a public facility for a variety of uses including programs, classes and meetings.

With the opening of the Sammamish Community and Aquatic Center on the horizon, staff recommend development of the house for public use be deferred until future needs for additional public space can be understood and quantified.

The existing 2,074 SF barn is in fair condition and is currently used by park maintenance staff for storage of equipment and supplies. In addition, this space is also used as a volunteer work party staging area for tools, supplies and salvaged plant material. In the preferred master plan the barn will continue to be used in this manner with a portion of the space renovated for park restrooms. To accommodate the proposed restrooms, an existing septic system located near the garage will need to be replaced and designed for public use.

Site B General Design

Site B is intentionally more passive than Site A with design elements that include meandering trails and boardwalks. These amenities allow for an up-close and exploratory experience in support of outdoor education. A bird blind is proposed on Owl Pond as well as habitat restoration, preservation and enhancement throughout the site.

Additional site features proposed within Site B include a medium-sized picnic shelter that overlooks the open meadow. The proposed shelter is similar in size to the shelter at Pine Lake Park which can accommodate up to 4 picnic tables. In addition, a lawn area for picnicking and informal planting areas provide aesthetic connectivity between the existing buildings. Where possible, trails near the property edges have been removed to limit park use close to adjacent residences.

Access and Parking

Site B is accessible from the north via 221st Ave SE connecting Lancaster Ridge to the park. Three parallel parking spots are proposed within the 221st Ave SE right-of-way and adjacent to a city owned detention facility. Additional access is provided from the south via 220th Ave SE. 220th Ave SE, a public right-of-way, will need to be upgraded to accommodate public use. Further development could include asphalt overlay, a pedestrian walkway, and a drainage facility (such as a roadside ditch and landscaping).

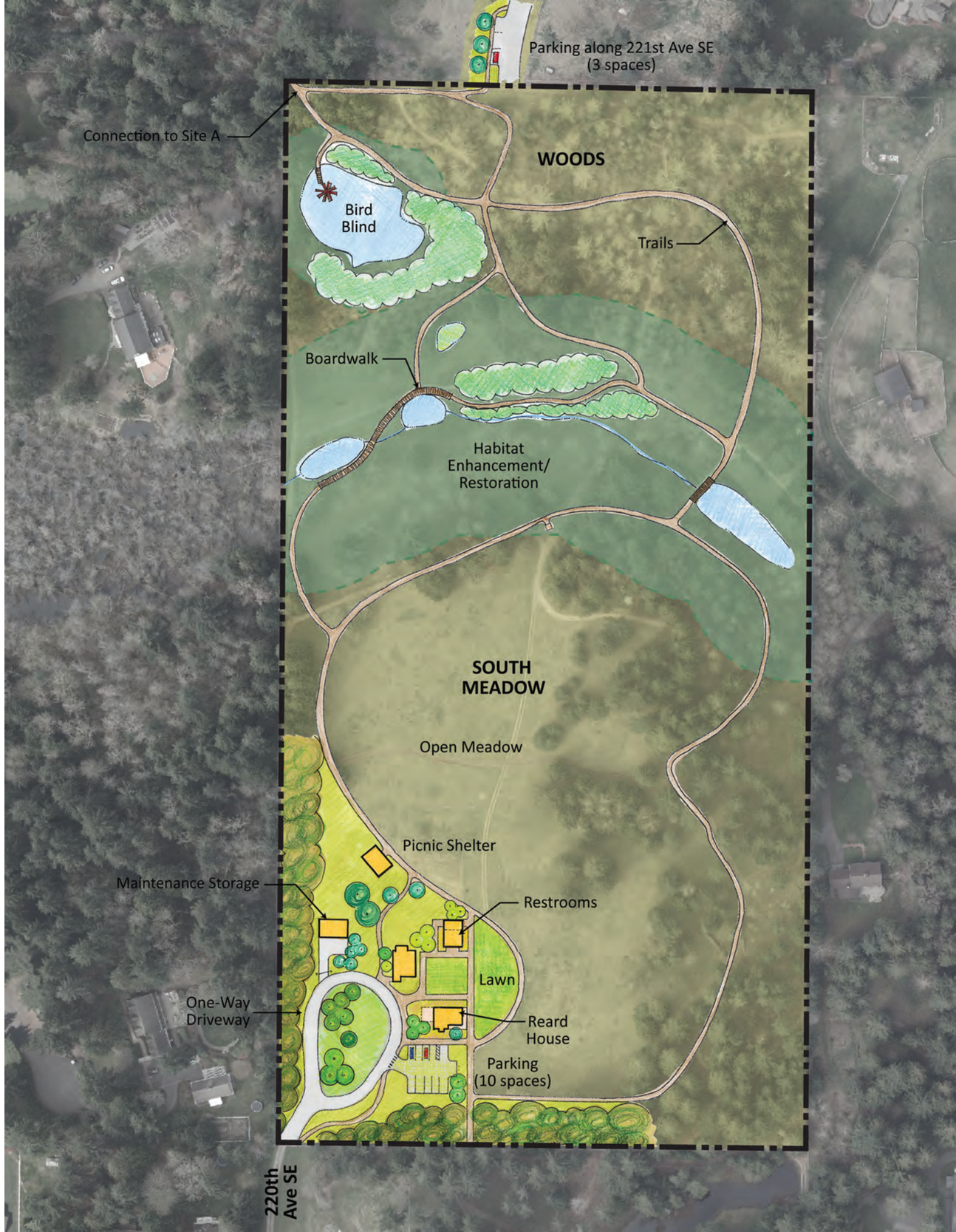
Onsite, a 10-stall grasscrete parking lot is proposed just south of the Reard/Freed House. Grasscrete is a plastic load bearing cellular paving material used as an alternative to traditional paving materials that has the look of an open lawn area. The intent is to provide parking but not at the aesthetic expense of disrupting the flow of the existing open meadow in the southern portion of the property.

Houses and Outbuildings

Limited development is proposed in the SW corner of the property, which is the location of existing and proposed structures. The Tanner House, built in 1930, is 830 SF and sits on a cedar log foundation. The house is limited in layout out and if intended for public use would require extensive and costly renovations. At this time, no public use is proposed for this house. It is likely this house would be considered for demolition once Site B transfers to the city.

The existing 570 SF outbuilding is currently used as a sauna and laundry room. The building is in good condition and is proposed to be converted to park restrooms and a storage room. The restrooms will be connected to an upgraded septic system and served by public water.

The Reard/Freed House, moved to the site in 2012, is intended to be used for heritage education in partnership with the Sammamish Heritage Society. The 2,130 SF, 2-story house is currently being renovated by the Sammamish Heritage Society. To date, the house has a new roof, siding, and exterior paint. Immediate plans call for the construction of a front porch and interior improvements that will reflect the character and history of the house.



FINAL MASTER PLAN

In response to feedback from the City Council, the preferred master plan was revised into the final master plan. The final master plan was presented at a joint meeting with City Council and the Parks and Recreation Commission on 6/10/14 and adopted by City Council on 7/8/14.

Big Rock Park Master Plan

FINAL MASTER PLAN

In response to feedback received from the March 11, 2014 City Council meeting, the preferred master plan was revised into the final master plan. City Council members were complimentary of the "lighter touch" applied to the preferred plan and asked staff to add a natural play area to the plan. They also asked that a fire pit be included within the education circle.

Staff went back to the drawing board and looked at ways to add these elements into the plan while maintaining the initial vision for the park. Presented below is the final recommendation for the Big Rock Park Master Plan.

Site A Programming & Site Features

Parking: Two parking areas are located on Site A. Primary parking (40 stalls) is proposed along SE 8th Street with secondary parking (11 stalls) proposed north of the barn.

Natural Play Area: A children's natural play area is proposed south of the parking area along SE 8th Street. Designed to be inclusive, the children's natural play area will provide highly creative, interactive play experiences with the purpose of connecting kids with nature. Climbing boulders, balancing logs, embankment slides and a kid's zipline (ages 4-9) are envisioned in the more active areas of the playground while sensory gardens, willow structures and a story circle allow for a more quiet play setting.

Nature play is an opportunity to educate and engage children with their surrounding environment. As desired by the community, the natural play area provides an environmental education program within a unique and creative setting.

Open Meadow: An extension of the natural play area, the open meadow provides opportunities for creative unstructured play, picnic spots and stops along the accessible trail loop.

Accessible Trail Loop: An accessible trail meanders around the open meadow and provides a route to the house, the restrooms and the education circle.

Education Circle: A covered education circle with a fire pit is proposed atop an existing knoll in the center of Site A. The education circle provides a space for small groups such as scout troops, elementary school classes and community organizations to meet in an outdoor setting. The fire pit will be available by reservation only and locked when not in use.

Meeting Space: The existing house may serve as a new community meeting space for small groups, once renovated to accommodate the public. Potential use of the house will be evaluated in the future.

Restrooms: The existing barn will be renovated to include park restrooms. It will also continue to serve as staging and storage space for volunteer work parties and maintenance equipment for the park.

Elevated Boardwalk: The ADA accessible elevated boardwalk is situated approximately 15' above the ground and intertwines through the natural park setting. When Site B transfers to the City, ADA alternatives will be evaluated considering either elevated boardwalk or extended trail connectivity.

Interpretive Trails, Observation Deck and Habitat Enhancement: Areas throughout the park have been identified for enhancement to increase habitat for native plant species and for associated wildlife. These enhanced areas will be accessed via interpretive trails and an observation deck.

Site B Programming and Site Features

In the final master plan for Site B, there are only minor changes from the preferred site plan. Such changes include relocating the bird blind and boardwalk upland from adjacent wetlands, identifying a tree house built by Mary Pigott, adding a community garden and defining a program for the Reard/Freed House.

Access and Parking: Access to Site B is provided off 221st Ave SE and 220th Ave SE. Three parallel parking spots are located within the 221st Ave. SE right-of-way and a grasscrete parking lot with 10-12 parking spots, accessible by 220th Ave SE, is located south of the Reard/Freed House.

Sauna and Tanner House: The existing building housing a sauna and a laundry room will be renovated into park restrooms and storage space. The Tanner House is limited in layout and is not intended for public use as it will require extensive renovation.

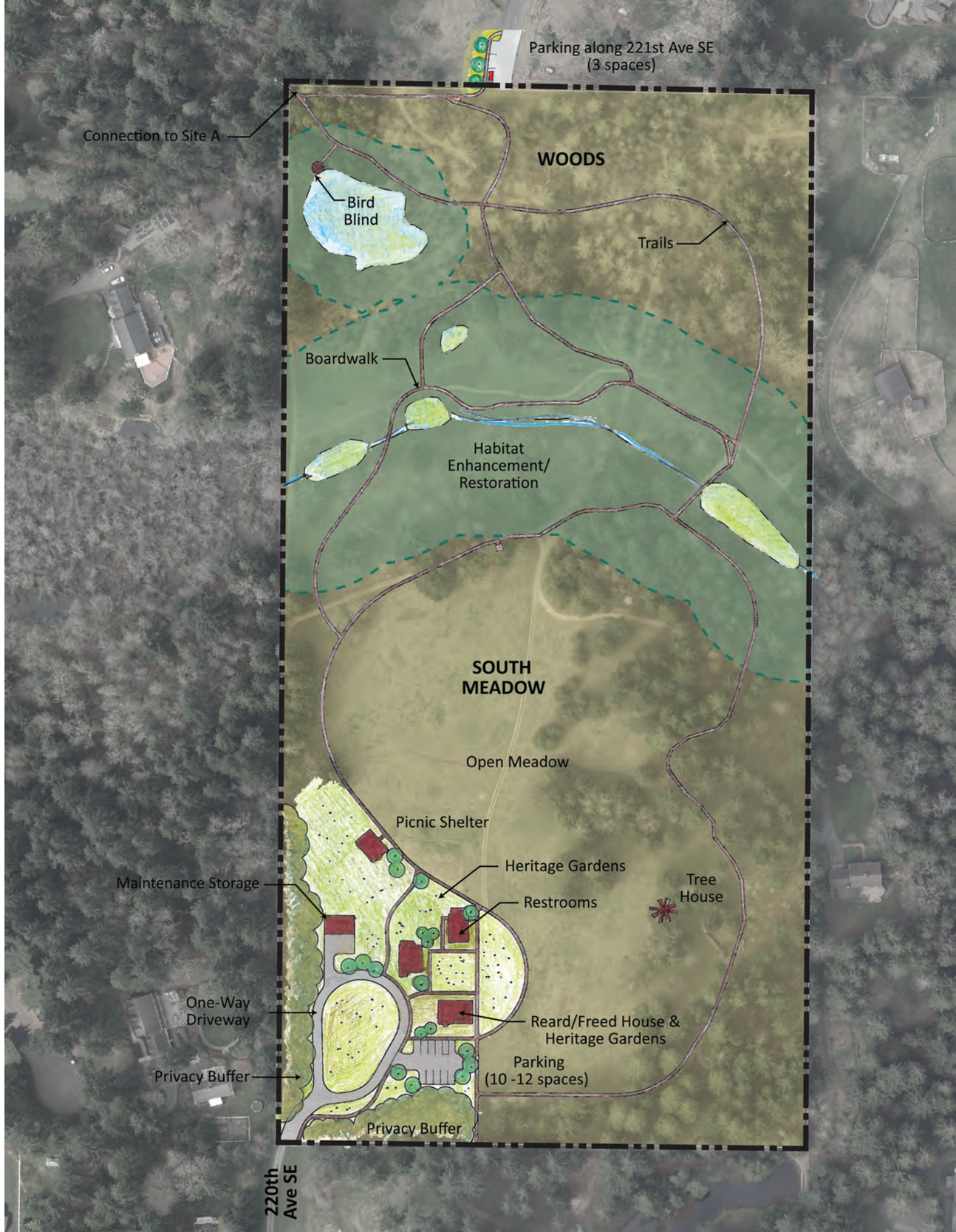
The Reard/Freed House: At the March 5, 2014 Parks and Recreation Commission meeting, the Sammamish Heritage Society presented their vision for the Reard/Freed House. This vision encompassed a fully renovated and functioning house surrounded by period landscaping designed to reflect the colorful and rich history of Sammamish. Once completed, the homestead would serve as a resource dedicated to heritage education and preserving Sammamish's history. House uses will include a small museum, storage space for historic relics and space on the second floor for administrative offices.

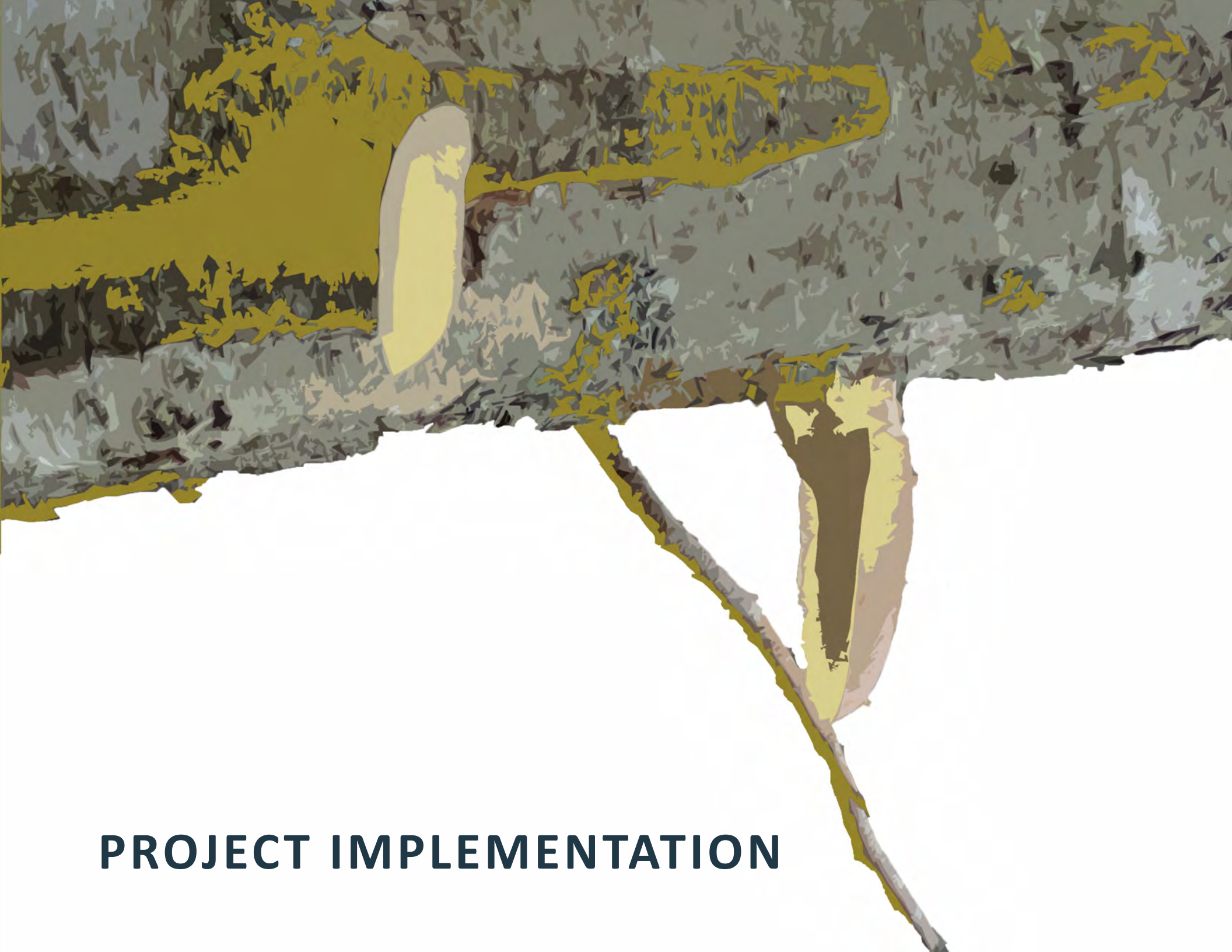
The area surrounding the Reard/Freed House, restrooms and Tanner House will be reflective of early 1900's landscape design. The heritage garden embraces nature with an emphasis on low maintenance landscaping, minimal use of lawn, winding pathways and the implementation of an asymmetric planting plan. A display space will be incorporated and as with the museum, would accommodate rotating exhibits reflecting the art and history of Sammamish.

The Heritage Society would offer walking tours of the park with a focus on heritage and environmental education.

Open Meadow and Picnic Shelter: A medium-sized picnic shelter similar in size to the medium shelter at Pine Lake Park is located just north of the Tanner House and overlooks the open meadow. The shelter will accommodate two to four picnic tables and will be available on a first-come, first-served basis.

Interpretive Trails, Bird Bind and Habitat Enhancement: As with Site A, interpretive trails are proposed throughout the site with amenities that include a bird blind, a serpentine boardwalk, picnic areas and a tree house constructed by Mary Pigott. Construction of the tree house began in early 2014 and was designed and engineered for public use.





PROJECT IMPLEMENTATION

Phasing Plan

This master plan identifies a series of park improvements that will likely be implemented over several years as funding allows. This phased plan includes proposals for new park elements and upgrades to existing features.

It is expected that the actual phases will be refined during each budget planning process and during grant application development. Some repackaging of phasing may be required to reflect future needs, changing priorities, availability of outside grants and city funding available at the time of implementation. The phasing plan is divided into eight phases. In general, the phasing is organized by location and is numbered based on recommended priority.

Phase 1: Site A

SE 8th Street parking within the Right-of-Way (30-40 spaces)

Storm drainage for street parking

Natural Play Area

Entry Sign

Park entrance and plaza

Removal of existing trails

New trail construction that may include boardwalks and/or pedestrian footbridges

Construct ADA trails adjacent to the parking lot and throughout the north meadow

Enhancement of existing trails to remain

Site furniture

Sani-can with enclosure

Irrigation (water is available from an existing well)

Plantings – property line buffer

Phase 2: Site A

Barn renovation to accommodate new park restrooms

Septic system upgrade

Observation deck (wetland C)

Removal of existing trails

New trail construction that may include boardwalks, puncheons, and/or pedestrian footbridges

Enhancement of existing trails to remain

Plantings – wetland restoration and enhancements

Plantings – property line buffer

Invasive removal

Informal lawn

Site furniture

Phase 3: Site B

On-street parallel parking on 221st Ave NE (3 parking spots)
On-site parking (10 stalls)
Access driveway
220th Ave SE ROW improvements
Entry sign
Utilities
Restrooms and park storage
Heritage garden
Construction of walkways between buildings
Construct ADA trails adjacent to the parking lot and throughout the south meadow
Trail enhancement improvements between Site A and B
Site furniture
Irrigation (water is available from an existing well)
Plantings – property line buffer

Phase 4: Site B

Picnic shelter
Bird blind
Removal of existing trails
New trail construction that may include boardwalks, puncheons, and/or pedestrian footbridges
Enhancement of existing trails to remain
South Ebright Creek Tributary enhancement and restoration
Habitat features such as song bird boxes, bat boxes, snag amphibian stick bundles, etc.
Invasive removal
Plantings - forest restoration and enhancement
Plantings – property line buffer

Phase 5: Site A

Education circle

North Ebright Creek Tributary enhancement and restoration

Habitat features such as song bird boxes, bat boxes, snag amphibian stick bundles, etc.

Habitat demonstration areas such as a butterfly garden, edible plants display, native plant showcase, wildlife attracting landscapes, etc.

Invasive removal

Meadow enhancement

Plantings – wetland restoration and enhancements

Plantings – buffer restoration and enhancement

Plantings - forest restoration and enhancement

Phase 6: Site A

On-site parking near the barn and garage (11 stalls)

Storm drainage for on-site parking (rain gardens)

Widen existing driveway for two-way access

House and garage renovation

Multi-purpose lawn with structural support such as grasscrete

Plantings – property line buffer

Phase 7: Site A

Elevated boardwalk

Habitat features such as song bird boxes, bat boxes, snag amphibian stick bundles, etc.

Habitat demonstration areas such as a butterfly garden, editable plants display, native plant showcase, wildlife attracting landscapes, etc.

Plantings - forest restoration and enhancement

Plantings – buffer restoration and enhancement

Invasive removal

Permitting

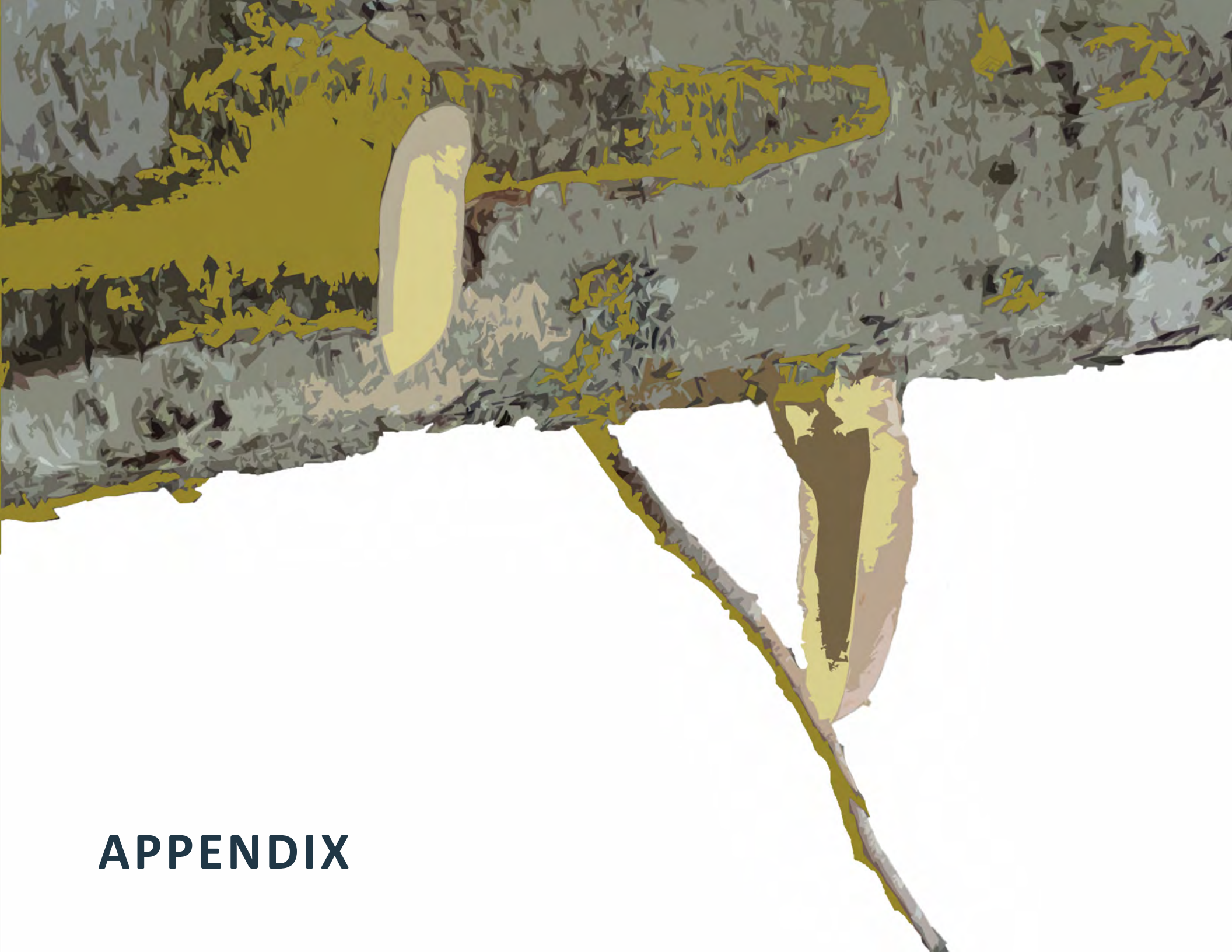
Construction of the master plan would necessitate permits at the City, County and State level. Some of these permits include:

- Building Permit – city of Sammamish
- Clearing and Grading Permit – city of Sammamish
- Storm Water Review – city of Sammamish
- OSS Construction Permit (septic system construction) – King County Department of Health
- Electrical Permit – WA Department of Labor and Industries
- Hydraulic Project Approval – Washington Department of Fish and Wildlife
- NPDES Construction Storm Water Permit – WA Department of Ecology
- Notice of Intent (well decommission) – WA Department of Ecology
- Notice of Intent (well construction) – WA Department of Ecology

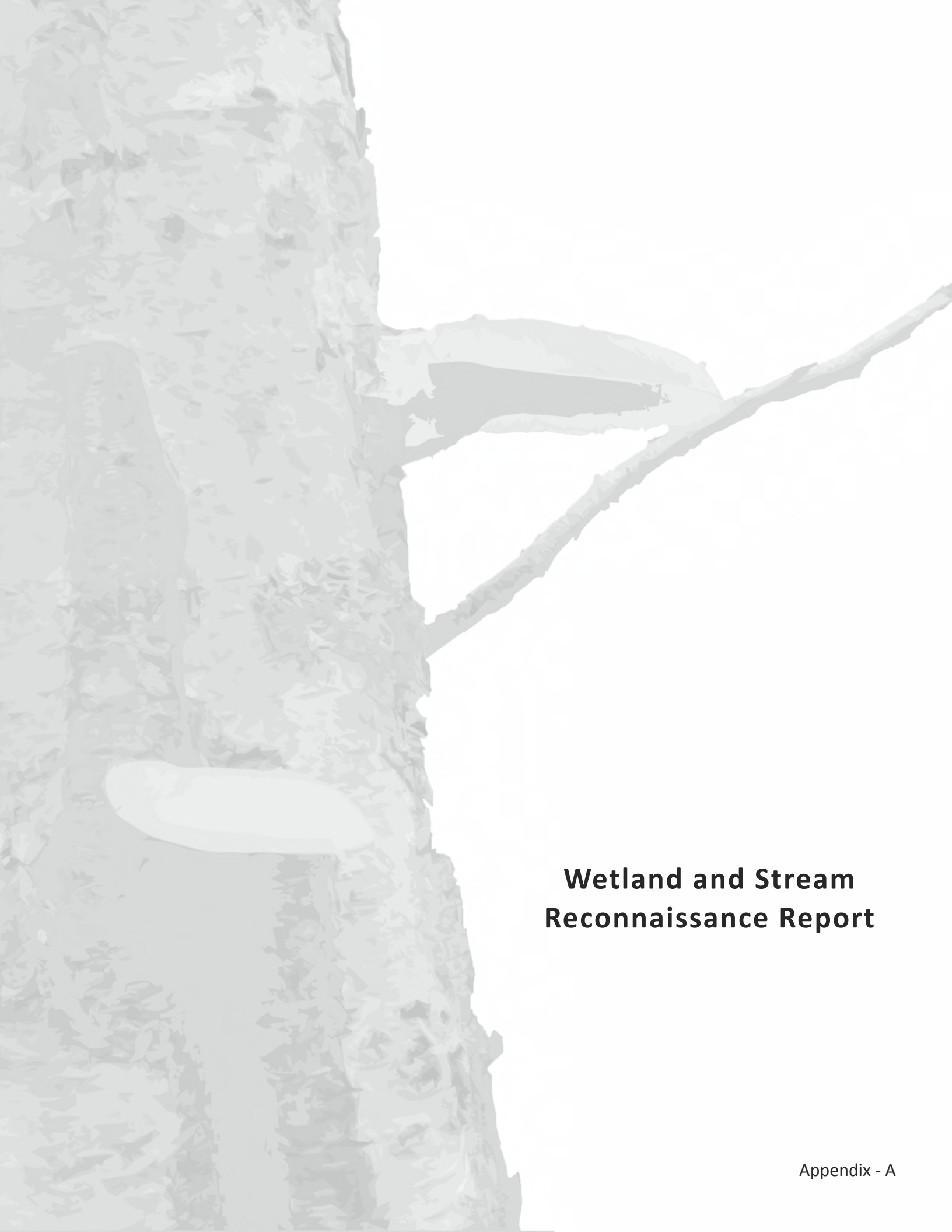
Cost Estimating

The probable cost of construction for the Preferred Master Plan is approximately $4.1 million. The costs are divided between Site A and B development. Per City Council direction in March 2014, the cost estimates were revised to reflect the addition of the new play area and the fire circle. Timing and elements of these phases are subject to change.

$527,000 is allocated in the 2013-2014 Parks Capital Improvement Plan budget for Phase I development. This includes design and construction. Staff recommend that phase I design and construction include parking along SE 8th Street (30-40 spaces), storm drainage for street parking, development of an ADA-accessible park entrance, a natural play area, an ADA trail that meanders throughout the north meadow and provides access to the other areas of the park, a sani-can with enclosure, site furniture, restoration planting and irrigation. The cost for Phase I construction is approximately $475,000. Phase I costs will depend largely on the final scope of the project including parking lot and storm drainage requirements.



APPENDIX



Wetland and Stream Reconnaissance Report

Appendix - A

November 14, 2011

Kevin Teague
City of Sammamish
801 228th Avenue SE
Sammamish, WA 98075

Re: SE 8th Street Park, Wetland and Stream Reconnaissance Report
The Watershed Company Reference Number: 110103.3

Dear Kevin:

On June 27, 2011, and November 8, 2011, I visited the 15.9-acre City of Sammamish property located at the intersection of SE 8th Street and 218th Avenue SE in Sammamish (parcels #0424069213 and #0424069129) (Area A). On November 8, 2011, I also visited the adjacent 20.4-acre property to the southeast (parcel #0424069019) (Area B). The purpose of my visits was to conduct a wetland and stream reconnaissance study on the subject properties. This letter summarizes the findings of this study and summarizes applicable federal, state, and local regulations. The following attachments are included:

- Wetland Reconnaissance Sketch
- Wetland Rating Forms

Methods

The study area was evaluated for wetlands using methodology from the *Washington State Wetlands Identification and Delineation Manual* (Manual) (Washington Department of Ecology [Ecology] 1997) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). Wetland determinations are made on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Manual and Regional Supplement were determined to be wetland. As this was a reconnaissance-level study only, wetland boundaries were not marked in the field. Instead, approximate wetland boundaries are indicated on the attached sketch.

Identified wetlands were classified using the *Western Washington Wetland Rating System* (Ecology, Aug 2004, version 2) (Rating System).

Findings

Area A

Much of the site contains a relatively undisturbed, mixed forest. The canopy layer includes a mix of mature conifers, mostly Douglas-fir and western red cedar, bigleaf maple and Oregon ash. The understory is primarily composed of vine maple, beaked hazelnut, salmonberry, red huckleberry, salal, sword fern, and bracken fern. The northwestern portion of the site contains an open meadow composed of various field grasses. Two existing structures are present within the study area. A barn-like structure is present on parcel #0424069213, and a single-family residence is located on parcel #0424069129. A total of eight wetlands and one stream (see below) were identified during my inspections.

Wetland A

Wetland A is a slope wetland with a palustrine emergent vegetation community. The entire wetland is located just east of the barn-like structure near the eastern property boundary. Primary vegetation in Wetland A is composed of periodically mowed creeping buttercup, lady fern, large-leaved avens, grasses, and curly dock. Hydrology for Wetland A is provided by a high groundwater table and is supplemented by precipitation. The ground was saturated at the surface during my inspection. The wetland indicator soil is an organic soil layer at a depth of five to ten inches below the soil surface. The organic soil present is a fibric peat soil. Since Wetland A is a mowed slope wetland, it provides very little water quality and hydrology function.

Wetland B

Wetland B is a small, depressional wetland containing palustrine emergent and scrub-shrub vegetation classes, with open water comprising a substantial portion of the wetland area. Wetland B is located approximately 150 feet southwest of the barn structure. The primary vegetation in Wetland B includes twinberry, salmonberry, Douglas spirea, lady fern, slough sedge, and bitter nightshade. Hydrology is provided by a high groundwater table and is supplemented by precipitation. Most of the wetland area is seasonally ponded, with approximately one foot of ponding present during my inspection. The wetland indicator soil is a black (10YR 2/1) loam with a high organic content. The black color of the soil is a result of accumulated organic matter masking the mineral soil, occurring as a result of prolonged saturation.

Wetland C

Wetland C is a depressional wetland with multiple vegetation communities. The wetland occupies much of the south-central portion of the site. Primary vegetation in

Wetland C includes Oregon ash, red alder, western red cedar, twinberry, salmonberry, slough sedge, lady fern, and reed canarygrass. Wetland C has both permanently- and seasonally-ponded hydrologic regimes. Observations of on-site soils indicated the presence of organic soils, which is also suggested by NRCS soil maps. Due to its size, landscape position, and diversity, Wetland C provides significant water quality, hydrology, and wildlife habitat functions.

Wetland D

Wetland D is a very small, depressional wetland located just west of Big Rock, approximately 150 feet south of the barn. Vegetation in Wetland D is limited to salmonberry, swamp gooseberry, slough sedge, and lady fern. Hydrology for Wetland D is provided by a high groundwater table, with occasional flooding likely during the rainy season. Due to its small size and lack of structural diversity, Wetland D provides little water quality and hydrology functions. However, its landscape position, being surrounded by a relatively undisturbed forest, allows Wetland D to provide moderate habitat functions.

Wetland E

Wetland E, located in the northern portion of the site, has characteristics of riverine and depressional wetlands, but is considered depressional for the purposes of rating. The vegetation is exclusively palustrine emergent, with reed canarygrass forming a monoculture over most of the wetland area. Ebright Creek (see below) flows along much of the southern boundary of Wetland A and, along with a high groundwater table, provides hydrology to the wetland. NRCS soil maps indicate the presence of Seattle muck, an organic soil, throughout Wetland E. Wetland E provides a moderate level of water quality functions but provides very little hydrology or wildlife habitat functions.

Wetland F

Wetland F is a depressional wetland located adjacent to a grassy lawn area in the southwest portion of the site. The vegetation consists of palustrine forested, scrub-shrub, and emergent vegetation communities. Common vegetation includes Oregon ash, Douglas spirea, salmonberry, reed canarygrass, creeping buttercup, and bitter nightshade. Hydrology for Wetland F is provided by a high groundwater table and precipitation. Wetland F does not provide substantial water quality or hydrology functions but provides moderate habitat functions.

Wetland G

Wetland G is a depressional wetland in the center of the site on the boundary of the two parcels in the study area. Vegetation in Wetland F is sparse but includes Douglas spirea,

salmonberry, lady fern, and bitter nightshade. Hydrology is provided by a high groundwater table and is supplemented by precipitation. Most of the wetland area is seasonally ponded, although no surface water was present at the time of my November inspection. Wetland G provides moderate water quality, hydrology, and wildlife habitat functions.

Wetland H

Wetland H is a depressional wetland approximately 50 feet west of Wetland G, near the boundary of the two parcels in the study area. Wetland H contains a scrub-shrub vegetation community dominated by Douglas spirea, twinberry, reed canarygrass, and Pacific dewberry. Hydrology is provided by a high groundwater table and is supplemented by precipitation. Wetland H provides moderate water quality functions but provides low hydrology and relatively low habitat functions.

Ebright Creek North Tributary

The north tributary of Ebright Creek flows through the property in a generally northeast to southwest direction, entering the property beneath a footbridge along the northeast corner and exiting the property through a 36-inch corrugated plastic culvert along the western property boundary. The north tributary of Ebright Creek is likely a permanently-flowing stream that has been identified by the City of Sammamish as a "stream of special significance" based on historic fish presence. The north tributary connects with the south tributary (see below) in a large wetland complex that begins approximately 500 feet southeast of the subject property (iMAP, King County's online GIS service). The main stem of Ebright Creek continues in a northwestern direction beyond the wetland area.

Area B

The southwestern portion of Area B contains open pasture. Forested areas dominated by western red cedar, red alder, bigleaf maple, and Douglas fir with an understory containing salmonberry, red elderberry, osoberry, and sword fern occupy most of the eastern and northern portions of the site. Several non-paved trails meander through the property. Five wetlands and one stream are located on the property.

Wetland I

Wetland I is a depressional wetland located in the northwest corner of the site. The wetland was originally part of a larger wetland directly west of the subject property. However a berm currently separates the two wetlands. A culvert connects the two features during periods of high water, but due to an unequal exchange of hydrology, Wetland I is considered a separate wetland unit. Wetland I primarily contains a palustrine emergent vegetation community with a palustrine forested community around the fringes. Common vegetation includes western red cedar, red alder,

salmonberry, water parsley, and lady fern. The soil in Wetland I is a very dark brown (7.5YR 2.5/2) organic soil. Hydrology is provided by a high groundwater table and is supplemented by precipitation. Wetland I provides moderate water quality and habitat functions but provides low hydrologic functions.

Wetlands J, K, and M

Wetlands J, K, and M are all riverine wetlands associated with the south tributary of Ebright Creek (see below). All three wetlands have been created or expanded as a result of small dams installed within the stream channel. The dams have caused three ponds of similar size and composition to form along the stream. Little vegetation is present in the ponds. However, the fringes contain mostly emergent areas and occasional forested and scrub-shrub areas. At the western end of Wetland J, the westernmost wetland, two culverts extend beneath a berm/trail and connect to a large wetland complex just west of the subject property.

Wetland L

Wetland L is a small, depressional wetland located in the northwest portion of the site, approximately 100 feet southeast of Wetland I. Wetland L contains a palustrine emergent vegetation community dominated by soft rush, daggerleaf rush, slough sedge, and creeping buttercup. Hydrology is provided by a high groundwater table and precipitation. Wetland L does not provide substantial water quality, hydrology, or wildlife functions.

Ebright Creek South Tributary

The south tributary of Ebright Creek flows through the property in a generally east to west direction. After flowing through Wetlands J, K, and M, the flow is piped in two culverts beneath the berm/trail along the western property boundary. The culverts discharge into the aforementioned wetland complex to the west. The south tributary of Ebright Creek connects with the north tributary of Ebright Creek in the wetland area. The main stem of Ebright Creek continues flowing west towards Lake Sammamish from the west end of the wetland area. Although it is only mapped as a tributary, the south tributary is a primary contributor to Ebright Creek and would likely be considered a "stream of special significance" by the City.

Local Regulations

Wetlands and streams in Sammamish are regulated under Chapter 21A of the Sammamish Municipal Code (SMC). Under the Code, wetlands are rated as one of four categories based on the Rating System, which assigns points based on water quality functions, hydrology functions, and habitat functions. According to the Rating System, Wetland A is considered a Category IV wetland, and Wetland C is considered a Category II wetland. All other observed wetlands are considered Category III wetlands.

Wetland buffers are determined based on a combination of the wetland category and the habitat score. See Table 1 for individual wetland scores and the associated buffer widths.

Table 1: On-site Critical Areas and Associated Buffer Widths

Name	Habitat Score	Total Score	Category	Standard Buffer Width
Wetland A	16 points	20 points	IV	50 feet*
Wetland B	18 points	48 points	III	50 feet*
Wetland C	23 points	65 points	II	100 feet*
Wetland D	16 points	36 points	III	50 feet*
Wetland E	13 points	43 points	III	50 feet*
Wetland F	19 points	43 points	III	50 feet*
Wetland G	17 points	47 points	III	50 feet*
Wetland H	13 points	37 points	III	50 feet*
Wetland I	19 points	43 points	III	50 feet*
Wetland J	17 points	45 points	III	50 feet*
Wetland K	17 points	45 points	III	50 feet*
Wetland L	12 points	34 points	III	50 feet*
Wetland M	17 points	41 points	III	50 feet*
Ebright Creek North Tributary	NA	NA	Type F	150 feet**
Ebright Creek South Tributary	NA	NA	Type F	150 feet**

*Per SMC 21A.50.290(1)
**Per SMC 21A.50.330(1)

Streams in Sammamish are rated as one of four types based on inventory status as "shorelines of the state" or "streams of special significance," salmonid use, and permanence of flow. Ebright Creek has been identified as a "stream of special significance" [SMC 21A.15.1240(1)(b)]. Therefore, Ebright Creek is considered a Type F stream. Type F streams are required to have a standard buffer width of 150 feet, as measured landward from the ordinary high water mark [SMC 21A.330(1)].

Provided no feasible alternative location is possible and that impacts have been minimized to the maximum extent possible, public and private trails may be allowed in wetland and stream buffers consistent with the standards and requirements in SMC 21A.50, the development standards in Chapter SMC 21A.30, and requirements elsewhere in the SMC. Proposals for constructing viewing platforms, associated access trails, and spur trails must be reviewed by a qualified professional and a critical areas study may be required. Unavoidable critical area or buffer impacts associated with trail construction shall be mitigated for in accordance with SMC 21A.50. Mitigation may include compensating for the adverse impact by enhancing critical areas and their buffers or creating substitute critical areas and their buffers.

State and Federal Regulations

Wetlands are also regulated by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. Any filling of Waters of the State, including wetlands (except isolated wetlands), would require notification and permits from the Corps. However, in general, neither the Corps nor Ecology regulates wetland buffers, unless direct impacts are proposed. We understand the project will not result in direct impacts to the wetlands. Provided no direct impacts to wetlands or streams occur, no state or federal wetland-related permitting would be triggered by the proposed improvements.

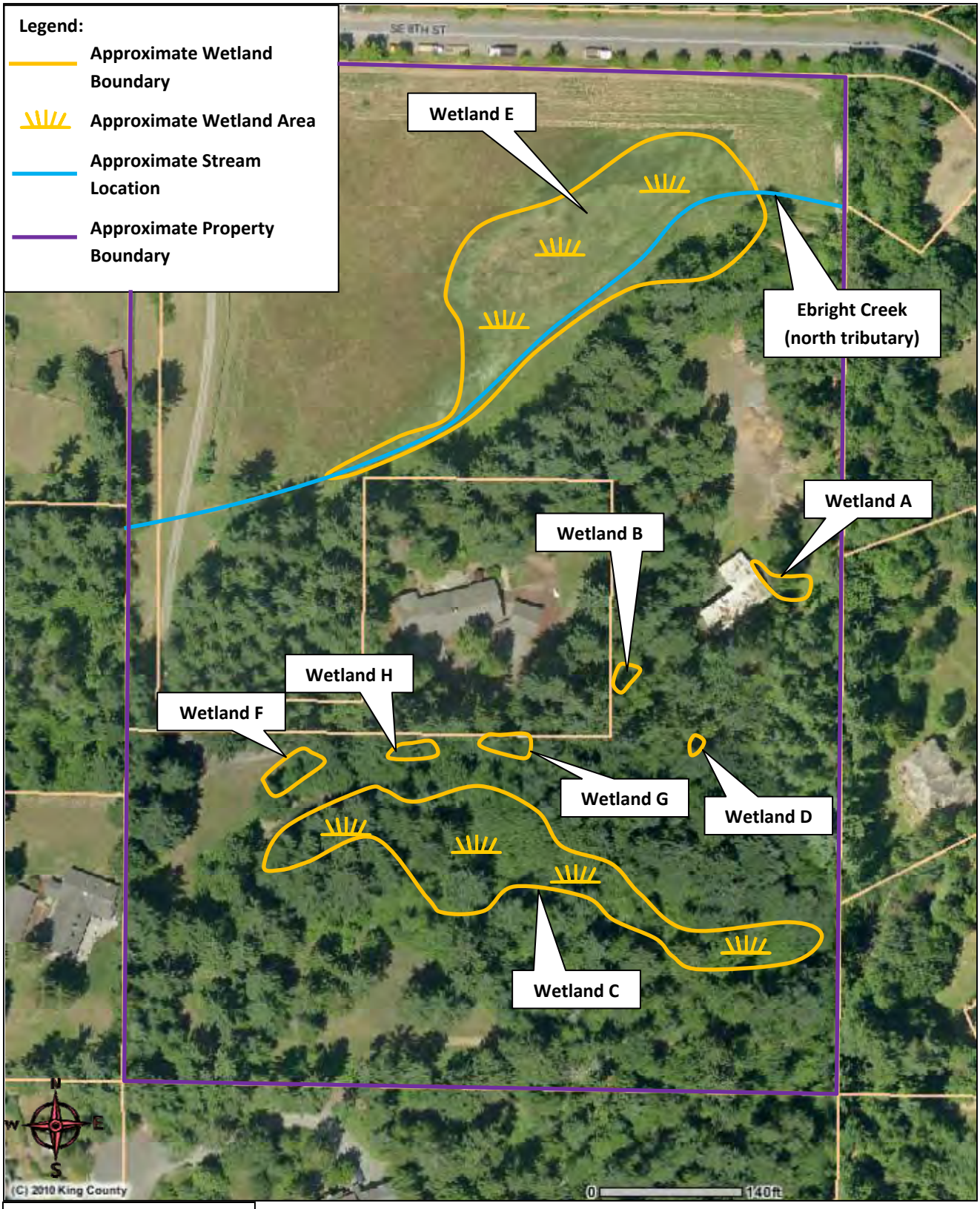
The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

Ryan Kahlo, WPIT
Ecologist

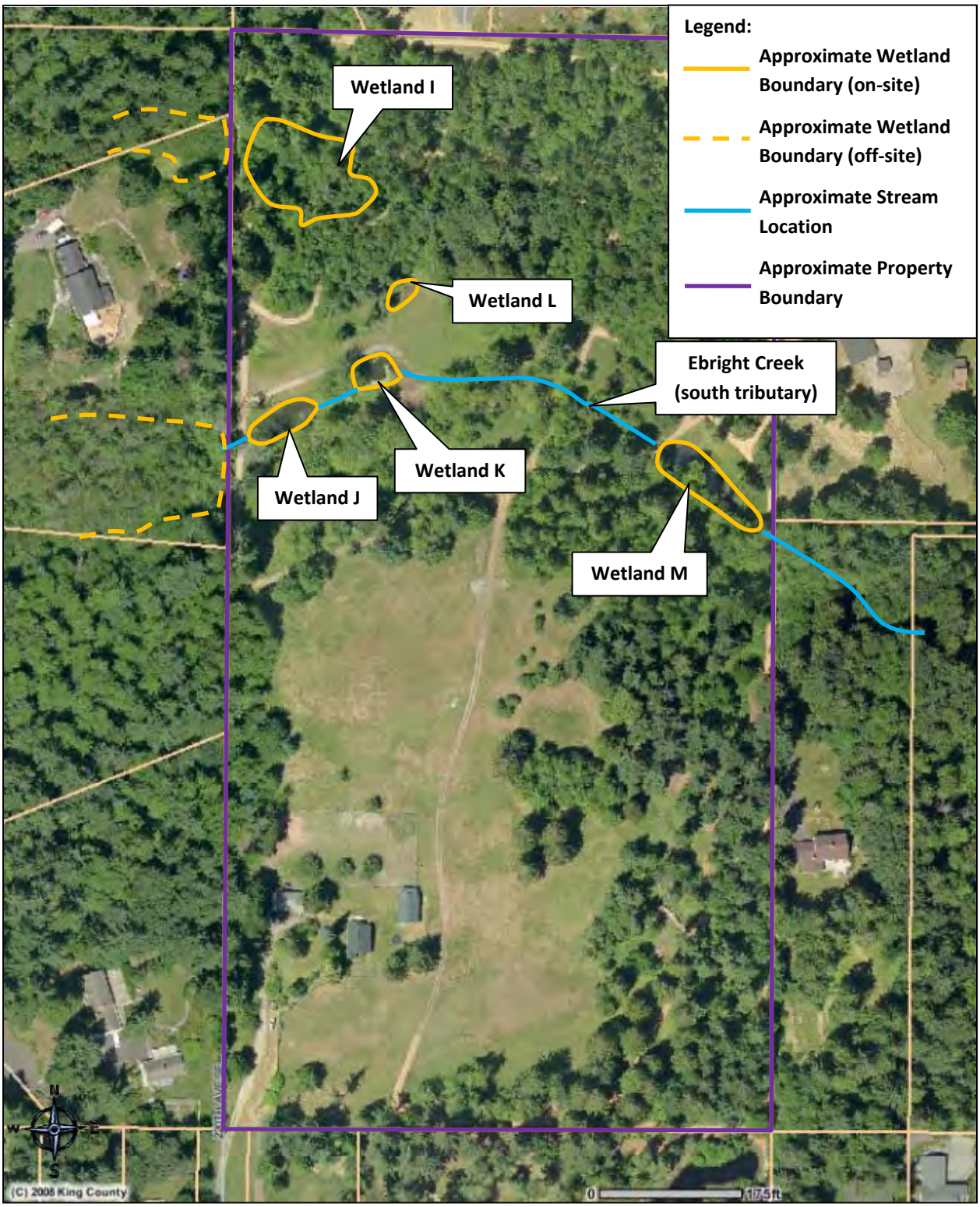
Enclosures



Note:
Features shown have not been delineated or surveyed. All locations are approximate and not to scale.

Wetland and Stream Reconnaissance Sketch
Parcel #0424069213 (Area A)
Sammamish, Washington
Prepared for Kevin Teague, City of Sammamish
November 10, 2011

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland, WA 98033
p **425 822-5242**
f **425 827-8136**
watershedco.com



Note:
Reconnaissance sketch only. Areas depicted have not been delineated or surveyed. All locations are approximate and not to scale.

Wetland and Stream Reconnaissance Sketch
Parcel #0424069019 (Site B), Sammamish, Washington
Prepared for Kevin Teague, City of Sammamish
November 10, 2011

THE WATERSHED COMPANY
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WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland A Date of site visit: 6/27/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

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	0
Score for Hydrologic Functions	4
Score for Habitat Functions	16
TOTAL score for functions	**20**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	**X**
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**X**	Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☒ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☐ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☐ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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. Does the wetland have the <u>potential</u> to improve water quality?**	***(see p. 64)***
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 horizontal distance) for every 100 ft* ..... points = 3 Slope is 1% - 2% ..... points = 2 Slope is 2% - 5% ..... points = 1 Slope is greater than 5% ..... points = 0	0
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)*. 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 fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover) and uncut means not grazed or mowed and plants are higher than 6 inches.* 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 vegetation ..... points = 0 **Wetland periodically mowed*	0
S	**Total for S 1** *Add the points in the boxes above*	0
S	**S 2. Does the wetland have the <u>opportunity</u> to improve water quality?** ***(see p. 67)*** 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.A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields, logging or orchards within 150 ft of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☒ Residential, urban areas, or golf courses are within 150 ft upslope of wetland ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier <u>2</u>
S	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from S 1 by S 2 ***Add score to table on p. 1***	**0**

S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
	S 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 68)***
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. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. ..... points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland ..... points = 3 Dense, uncut, **rigid** vegetation > 1/4 area ..... points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid ..... points = 0 **Wetland periodically mowed*	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	2
S	**Total for S 3** *Add the points in the boxes above*	2
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** ***(see p. 70)*** Is the wetland 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 drains to a river or stream that has flooding problems ☐ Other_____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	4

Comments

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☐ Scrub/shrub (areas where shrubs have >30% cover)
- ☒ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

1

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

0

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

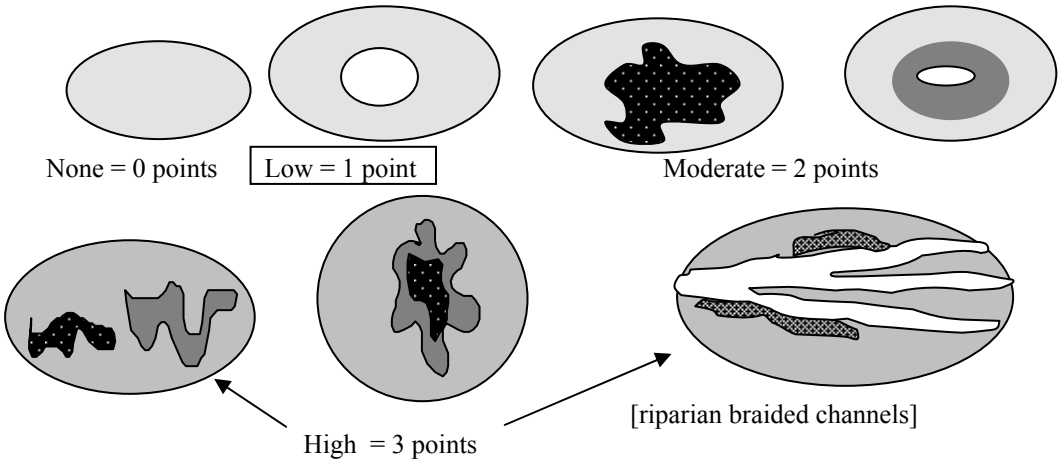
List species below if you want to:

THPL, RARE, ATFI, GEMA, POA, RUCR, Jewelweed

1

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



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

1

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ☒ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

4

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☒ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).

☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*

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

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)***	5
There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5	
There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3	
The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3	
There is at least 1 wetland within ½ mile. ..... points = 2	
There are no wetlands within ½ mile. ..... points = 0	
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
TOTAL for H1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*	
☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.*	
☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth	
YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	
YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	
☐The wetalnd is larger than 1/10 acre (4350 square feet)	
YES = Category I NO = Category II	**Cat. II**

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland B Date of site visit: 6/27/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

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	14
Score for Habitat Functions	18
TOTAL score for functions	**48**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**X**	Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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 and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	*(see p. 38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: [Unit is a depression with no surface water leaving it (no outlet)..... points = 3] Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 [NO points = 0]	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3 [Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1] Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	1
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* [Area seasonally ponded is > ½ total area of wetland..... points = 4] Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	4
D	**Total for D 1** *Add the points in the boxes above*	8
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**16**

D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)..... points = 4 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 The wetland is a "headwater" wetland" ..... points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 Marks of ponding less than 0.5 ft..... points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit ..... points = 5 The area of the basin is 10 to 100 times the area of the unit ..... points = 3 The area of the basin is more than 100 times the area of the unit ..... points = 0 Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	7
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**14**

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

1

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☐ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present..... points = 2
2 types present ..... points = 1
1 types present…….points = 0

0

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species..... points = 2
5 - 19 species..... points = 1
< 5 species ..... points = 0

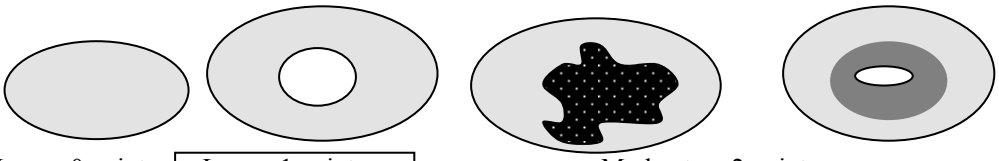
List species below if you want to:

FRLA, LOIN, RUSP, SPDO, SODU, ATFI, CAOB

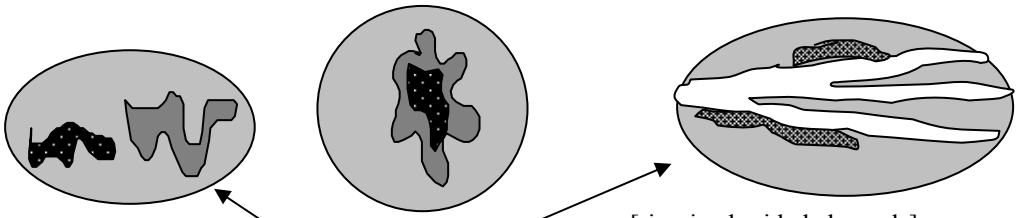
1

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



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



[riparian braided channels]

High = 3 points

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

1

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ☒ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

5

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☒ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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	3
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: the connections do not have to be relatively undisturbed)* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*) ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)* ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*) ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)* ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = **0 points** *Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.*	4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)***	5
There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5	
There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3	
The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3	
There is at least 1 wetland within ½ mile. ..... points = 2	
There are no wetlands within ½ mile. ..... points = 0	
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	13
TOTAL for H1 from page 14	5
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	18

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands ***(see p. 90)***

Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*

☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.
Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.

☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth

YES = Category 1 NO ☒ not a forested wetland with special characteristics

Cat. I

SC 5.0 Wetlands in Coastal Lagoons (see p. 91)

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.

☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon

Cat. I

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetalnd is larger than 1/10 acre (4350 square feet)

YES = Category I NO = Category II

Cat. II

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland C Date of site visit: 6/27/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

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	28
Score for Hydrologic Functions	14
Score for Habitat Functions	23
TOTAL score for functions	**65**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**X**	Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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.

Wetland name or number: C

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	*(see p. 38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: [Unit is a depression with no surface water leaving it (no outlet)..... points = 3] Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). [YES points = 4] NO points = 0	4
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 [Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3] Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	3
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* [Area seasonally ponded is > ½ total area of wetland..... points = 4] Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	4
D	**Total for D 1** *Add the points in the boxes above*	14
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 **(mowing)** ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**28**

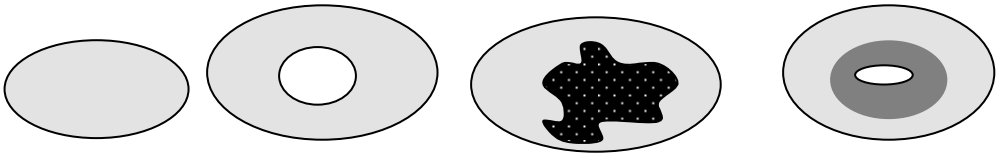
D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit [Unit is a depression with no surface water leaving it (no outlet)..... points = 4] Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 The wetland is a "headwater" wetland" ..... points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 [Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3] Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 Marks of ponding less than 0.5 ft..... points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit ..... points = 5 The area of the basin is 10 to 100 times the area of the unit ..... points = 3 [The area of the basin is more than 100 times the area of the unit ..... points = 0] Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	7
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**14**

Wetland name or number: C

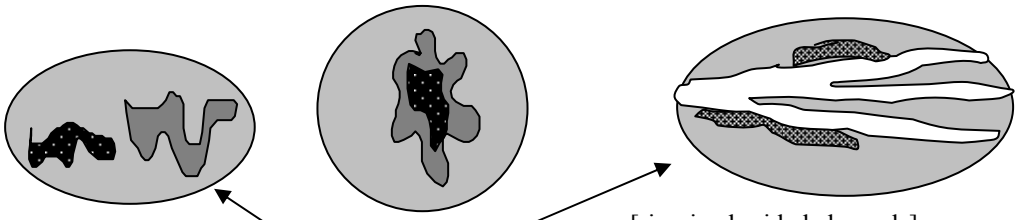
These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat**	
H 1. Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	
Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.	
☐ Aquatic bed	
☒ Emergent plants	
☒ Scrub/shrub (areas where shrubs have >30% cover)	
☒ Forested (areas where trees have >30% cover)	
☒ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	4
Add the number of vegetation types that qualify. If you have:	
4 structures or more ..... points = 4	
3 structures ..... points = 2	
2 structures ..... points = 1	
1 structure ..... points = 0	
H 1.2. Hydroperiods ***(see p. 73)***	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
☒ Permanently flooded or inundated — 4 or more types present ..... points = 3	
☐ Seasonally flooded or inundated — 3 types present ..... points = 2	
☒ Occasionally flooded or inundated — 2 types present ..... points = 1	1
☐ Saturated only — 1 types present……points = 0	
☐ Permanently flowing stream or river in, or adjacent to, the wetland	
☐ Seasonally flowing stream in, or adjacent to, the wetland	
☐ ***Lake-fringe wetland*** **= 2 points**	
☐ ***Freshwater tidal wetland*** **= 2 points**	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle	
If you counted: > 19 species ..... points = 2	
List species below if you want to: 5 - 19 species ..... points = 1	
< 5 species ..... points = 0	1
FRLA, ALRU, THPL, LOIN, RUSP, SPDO, ATFI, CAOB, LEMI, SODU, OESA, RARE	

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels]

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

3

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

☐ Standing snags (diameter at the bottom > 4 inches) in the wetland

☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)

☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present

☒ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*

☒ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

3

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

12

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☒ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).

☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*

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

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)

☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

3

Wetland name or number: C

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	5
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	11
TOTAL for H1 from page 14	12
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	23

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*	
☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.*	
☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth	
YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	
YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	
☐The wetalnd is larger than 1/10 acre (4350 square feet)	
YES = Category I NO = Category II	**Cat. II**

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland D Date of site visit: 6/27/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

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	12
Score for Hydrologic Functions	8
Score for Habitat Functions	16
TOTAL score for functions	**36**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**X**	Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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 and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	*(see p. 38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: [Unit is a depression with no surface water leaving it (no outlet)..... points = 3] Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 [NO points = 0]	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 [Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3] Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	3
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland..... points = 4 Area seasonally ponded is > ¼ total area of wetland..... points = 2 [Area seasonally ponded is < ¼ total area of wetland..... points = 0] NOTE: *See text for indicators of seasonal and permanent inundation.*	0
D	**Total for D 1** *Add the points in the boxes above*	6
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**12**

D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)..... points = 4 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 The wetland is a "headwater" wetland" ..... points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 Marks of ponding less than 0.5 ft..... points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit ..... points = 5 The area of the basin is 10 to 100 times the area of the unit ..... points = 3 The area of the basin is more than 100 times the area of the unit ..... points = 0 Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**8**

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☐ Scrub/shrub (areas where shrubs have >30% cover)
- ☒ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

1

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☒ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

1

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

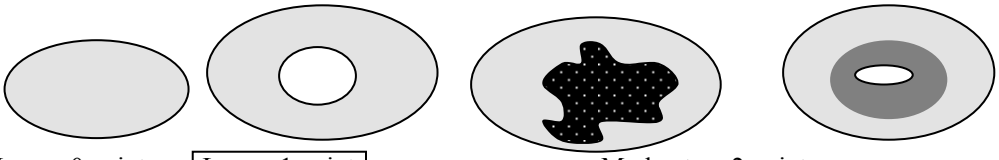
List species below if you want to:

RUSP, RIBR, CAOB, ATFI

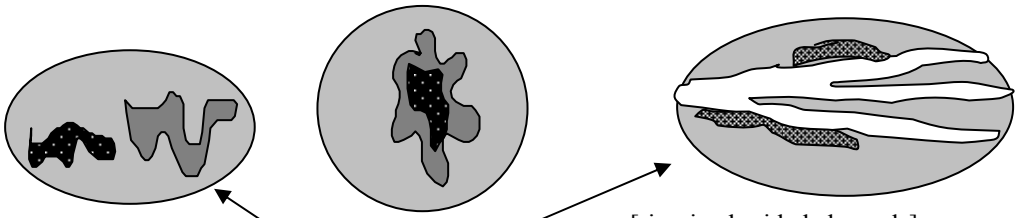
0

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



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



[riparian braided channels]

High = 3 points

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

1

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ☒ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

5

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☒ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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	3
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: the connections do not have to be relatively undisturbed)* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*) ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)* ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*) ☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)* ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = **0 points** *Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.*	2

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	5
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	11
TOTAL for H1 from page 14	5
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*	
☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.*	
☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth	
YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	
YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	
☐The wetalnd is larger than 1/10 acre (4350 square feet)	
YES = Category I NO = Category II	**Cat. II**

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland E Date of site visit: 6/27/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: ____ TWNSHP: ____ RNGE: ____ Is S/T/R in Appendix D? Yes ☐ No ☐

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☐ III ☒ IV ☐

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

Score for Water Quality Functions	24
Score for Hydrologic Functions	6
Score for Habitat Functions	13
TOTAL score for functions	**43**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**X**	Check if unit has multiple HGM classes present	**X**

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☒ NO – go to 7 ☐ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☒ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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 and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	*(see p. 38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet)..... points = 3 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	1
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 NO points = 0	4
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	5
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland..... points = 4 Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	2
D	**Total for D 1** *Add the points in the boxes above*	12
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☒ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**24**

D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)..... points = 4 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	0
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 The wetland is a "headwater" wetland" ..... points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 Marks of ponding less than 0.5 ft..... points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit ..... points = 5 The area of the basin is 10 to 100 times the area of the unit ..... points = 3 The area of the basin is more than 100 times the area of the unit ..... points = 0 Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	3
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**6**

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☐ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

0

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland*** **= 2 points**
- ☐ ***Freshwater tidal wetland*** **= 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

1

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

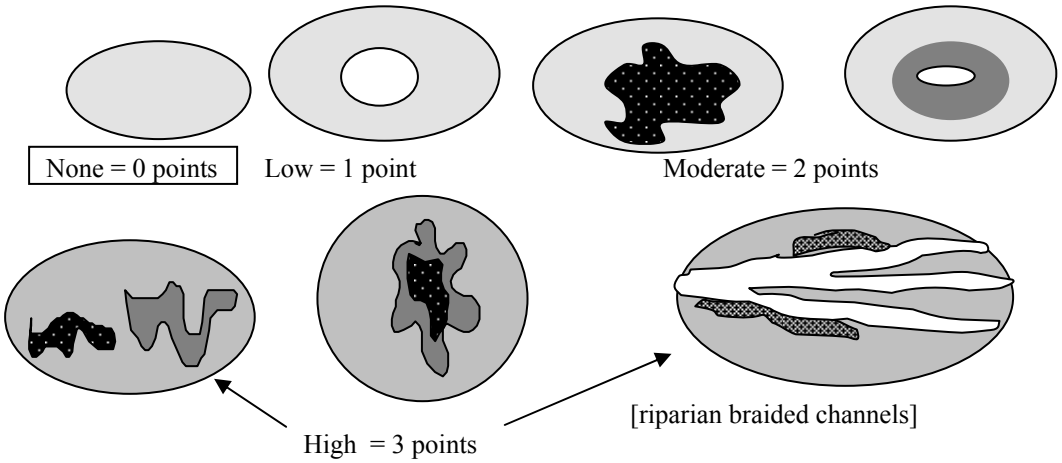
List species below if you want to:

JUEN, RARE, ALPR, Grass, (PHAR)

0

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



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

0

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

1

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☒ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*
- ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)***	5
There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5	
There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3	
The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3	
There is at least 1 wetland within ½ mile. ..... points = 2	
There are no wetlands within ½ mile. ..... points = 0	
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
TOTAL for H1 from page 14	1
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	13

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)***

Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*

S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐

YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?

YES = Category I NO ☐ Not a Heritage Wetland

Cat. I

SC 3.0 Bogs ***(see p. 87)***

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

1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)
   Yes - go to Q.3 NO - go to Q.2
2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?
   Yes - go to Q.3 NO ☒ is not a bog for purpose of rating
3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)?
   Yes – Is a bog for purpose of rating NO - go to Q.4
   NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.
4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)?
   YES = Category I NO ☐ is not a bog for purpose of rating

Cat. I

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*	
☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.*	
☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth	
YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	
YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	
☐The wetalnd is larger than 1/10 acre (4350 square feet)	
YES = Category I NO = Category II	**Cat. II**

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland F Date of site visit: 11/8/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

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	8
Score for Habitat Functions	19
TOTAL score for functions	**43**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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 and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	***(see p. 38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet)..... points = 3 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	3
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland..... points = 4 Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	2
D	**Total for D 1** *Add the points in the boxes above*	8
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	***(see p. 44)*** multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**16**

D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit ☒ Unit is a depression with no surface water leaving it (no outlet) ..... points = 4 ☐ Unit has an intermittently flowing, or highly constricted permanently flowing outlet ..... points = 2 ☐ Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) . points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are at least 3 ft or more above the surface or bottom of outlet ..... points = 7 ☐ The wetland is a "headwater" wetland" ..... points = 5 ☐ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet ..... points = 5 ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 ☐ Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 ☒ Marks of ponding less than 0.5 ft ..... points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit ..... points = 5 ☐ The area of the basin is 10 to 100 times the area of the unit ..... points = 3 ☒ The area of the basin is more than 100 times the area of the unit ..... points = 0 ☐ Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**8**

These questions apply to wetlands of all HGM classes.
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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☒ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

2

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☒ Occasionally flooded or inundated
- ☐ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

1

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

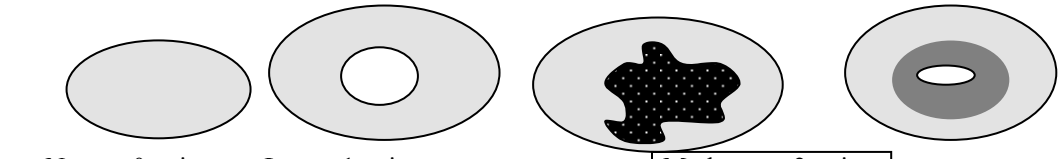
List species below if you want to:

OESA, RARE, FRLA, SPDO, ALRU, SODU, RUSP, (PHAR)

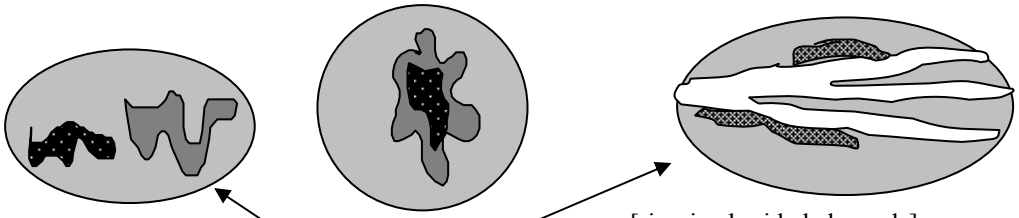
1

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels]

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

2

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated*.(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

7

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: the connections do not have to be relatively undisturbed)* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*) ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)* ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*) ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)* ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = **0 points** *Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.*	4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	5
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
TOTAL for H1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	19

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*	
☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.*	
☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth	
YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	
YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	
☐The wetalnd is larger than 1/10 acre (4350 square feet)	**Cat. II**
YES = Category I NO = Category II	

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland G Date of site visit: 11/8/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

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	14
Score for Habitat Functions	17
TOTAL score for functions	**47**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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.

Wetland name or number: G

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	***(see p. 38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet)..... points = 3 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	1
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland..... points = 4 Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	4
D	**Total for D 1** *Add the points in the boxes above*	8
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	***(see p. 44)*** multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**16**

Wetland name or number: G

D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit ☒ Unit is a depression with no surface water leaving it (no outlet)..... points = 4 ☐ Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 ☐ Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 ☐ The wetland is a "headwater" wetland" ..... points = 5 ☐ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 ☒ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 ☐ Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 ☐ Marks of ponding less than 0.5 ft..... points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit ..... points = 5 ☐ The area of the basin is 10 to 100 times the area of the unit ..... points = 3 ☒ The area of the basin is more than 100 times the area of the unit ..... points = 0 ☐ Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	7
D	**D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier <u>2</u>
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**14**

These questions apply to wetlands of all HGM classes.
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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

1

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☐ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

0

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

List species below if you want to:

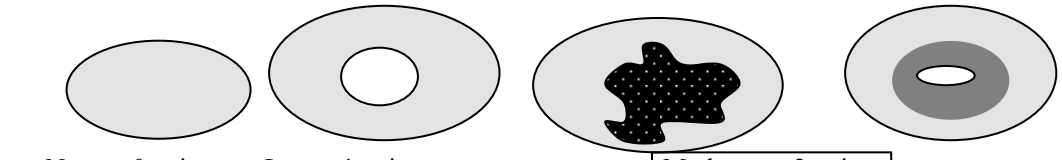
POBA, SPDO, RUSP, ATFI, SODU

1

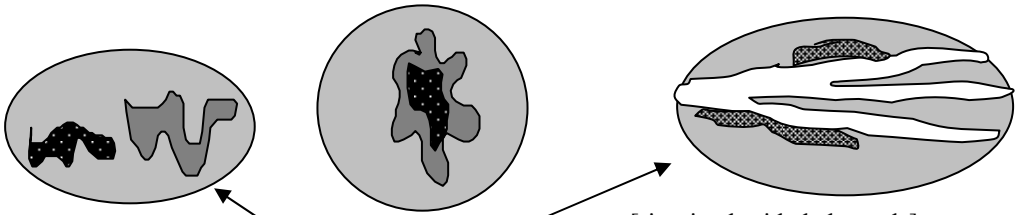
Wetland name or number: G

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels]

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

2

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

5

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*
- ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

4

Wetland name or number: G

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits*) ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	5
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
TOTAL for H1 from page 14	5
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	17

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* ☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.* ☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*) YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐The wetalnd is larger than 1/10 acre (4350 square feet) YES = Category I NO = Category II	**Cat. II**

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

Wetland name or number: H

WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Wetland H Date of site visit: 11/8/2011

Rated by: Kahlo, R Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

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	8
Score for Habitat Functions	13
TOTAL score for functions	**37**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number: H

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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.

Wetland name or number: H

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	***(see p. 38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet)..... points = 3 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	5
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland..... points = 4 Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	0
D	**Total for D 1** *Add the points in the boxes above*	8
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	***(see p. 44)*** multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**16**

Wetland name or number: H

D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)..... points = 4 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 The wetland is a "headwater" wetland" ..... points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 Marks of ponding less than 0.5 ft..... points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit ..... points = 5 The area of the basin is 10 to 100 times the area of the unit ..... points = 3 The area of the basin is more than 100 times the area of the unit ..... points = 0 Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier <u>2</u>
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**8**

Wetland name or number: H

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☐ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

0

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland*** **= 2 points**
- ☐ ***Freshwater tidal wetland*** **= 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

0

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

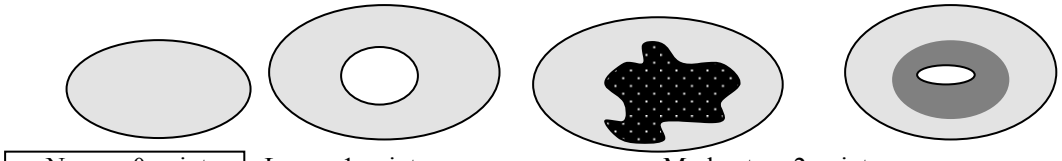
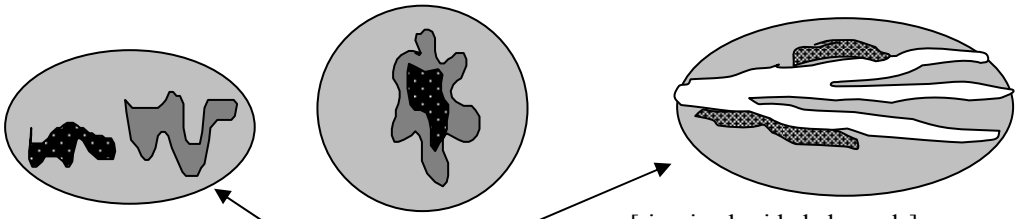
If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

List species below if you want to:

SPDO, LOIN, RUUR, RARE, ATFI, (PHAR)

1

Wetland name or number: H

H 1.4. Interspersion of habitats ***(see p. 76)*** Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels] NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".	0
H 1.5. Special Habitat Features: ***(see p. 77)*** *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.* ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *Note: The 20% stated in early printings of the manual on page 78 is an error.*	0
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	1

Wetland name or number: H

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Wetland name or number: H

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).

☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*

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

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

4

Wetland name or number: H

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	5
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	12
TOTAL for H1 from page 14	1
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	13

Wetland name or number: H

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands ***(see p. 90)***

Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*

☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.
Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.

☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth

YES = Category 1 NO ☒ not a forested wetland with special characteristics

Cat. I

SC 5.0 Wetlands in Coastal Lagoons (see p. 91)

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.

☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon

Cat. I

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetalnd is larger than 1/10 acre (4350 square feet)

YES = Category I NO = Category II

Cat. II

SC 6.0 Interdunal Wetlands (see p. 93)

Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)?

YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas: − Long Beach Peninsula – lands west of SR 103 − Grayland-Westport – lands west of SR 105 − Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

Wetland name or number __Wetland I____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland I Date of site visit: 11/8/11

Rated by: RK Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

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	20
Score for Hydrologic Functions	4
Score for Habitat Functions	19
TOTAL score for functions	**43**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**X**	Check if unit has multiple HGM classes present	**X**

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X*
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

*On-line WDFW Priority Habitat and Species Data reviewed as part of this study.

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. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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.

Wetland name or number __Wetland I____

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	***(see p. 38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet)..... points = 3 Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	2
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 NO points = 0	4
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0	0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland..... points = 4 Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	4
D	**Total for D 1** *Add the points in the boxes above*	10
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☒ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	***(see p. 44)*** multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**20**

Wetland name or number __Wetland I____

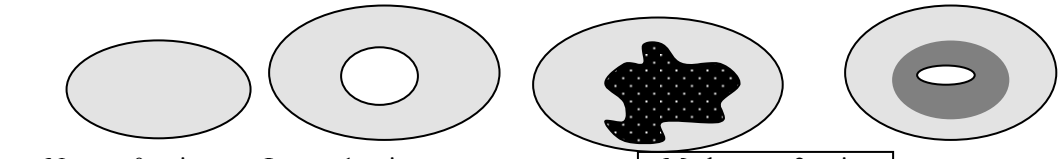
D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit ~~Unit is a depression with no surface water leaving it (no outlet)..... points = 4~~ Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 The wetland is a "headwater" wetland" ..... points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 Marks of ponding less than 0.5 ft..... points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit ..... points = 5 The area of the basin is 10 to 100 times the area of the unit ..... points = 3 The area of the basin is more than 100 times the area of the unit ..... points = 0 Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	2
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**4**

Wetland name or number __Wetland I____

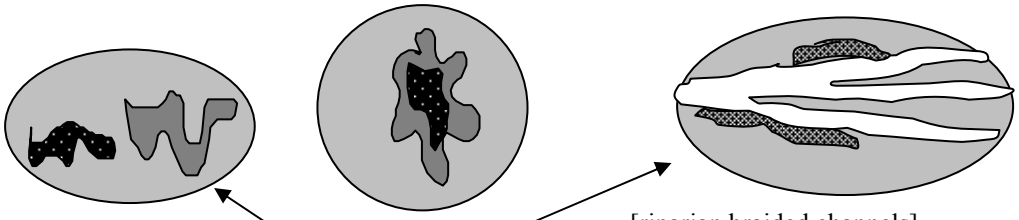
These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat**	
H 1. Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.* ☐ Aquatic bed ☒ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☒ Forested (areas where trees have >30% cover) ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more ..... points = 4 3 structures ..... points = 2 **2 structures ..... points = 1** 1 structure ..... points = 0	1
H 1.2. Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)* ☒ Permanently flooded or inundated — 4 or more types present ..... points = 3 ☐ Seasonally flooded or inundated — **3 types present ..... points = 2** ☒ Occasionally flooded or inundated — 2 types present ..... points = 1 ☒ Saturated only — 1 types present……points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland* = 2 points** ☐ ***Freshwater tidal wetland* = 2 points**	2
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle* If you counted: *List species below if you want to:* > 19 species ..... points = 2 **5 - 19 species ..... points = 1** < 5 species ..... points = 0 THPL, ALRU, SPDO, RUSP, OESA, ATFI, RARE	1

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels]

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

2

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

☐ Standing snags (diameter at the bottom > 4 inches) in the wetland

☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)

☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present

☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated*.(structures for egg-laying by amphibians)*

☒ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

8

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☒ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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	3
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: the connections do not have to be relatively undisturbed)* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*) ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)* ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*) ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)* ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = **0 points** *Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.*	4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	11
TOTAL for H1 from page 14	8
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	19

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*	
☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.*	
☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth	
YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	
YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	
☐The wetalnd is larger than 1/10 acre (4350 square feet)	**Cat. II**
YES = Category I NO = Category II	

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: – Long Beach Peninsula – lands west of SR 103 – Grayland-Westport – lands west of SR 105 – Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland J Date of site visit: 11/08/11

Rated by: RK Trained by Ecology? Yes ☒ No ☐ Date of Training 3/09

SEC: 4 TWNSHP: 24N RNGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

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	12
Score for Habitat Functions	17
TOTAL score for functions	**45**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	**x**
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**x**	Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X*
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

* *Washington Department of Fish and Wildlife Priority Habitats and Species Data have not been requested in the course of this initial review for this project.*

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. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☒ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☒ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☐ NO - go to 6 ☒ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☐ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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 and Freshwater Tidal Fringe Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
R	**R 1. Does the wetland have the potential to improve water quality?**	*(see p. 52)*
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland ..... points = 8 Depressions cover > 1/2 area of wetland ..... points = 4 Depressions present but cover < 1/2 area of wetland ..... points = 2 No depressions present ..... points = 0	8
R	R 1.2 Characteristics of the vegetation in the wetland (areas with > 90% cover at person height): Forest or shrub > 2/3 the area of the wetland ..... points = 8 Forest or shrub > 1/3 area of the wetland ..... points = 6 Ungrazed, emergent plants > 2/3 area of wetland ..... points = 6 Ungrazed emergent plants > 1/3 area of wetland ..... points = 3 Forest, shrub, and ungrazed emergent < 1/3 area of wetland ..... points = 0	0
R	**Total for R 1** *Add the points in the boxes above*	8
R	**R 2. Does the wetland have the opportunity to improve water quality?** ***(see p. 53)*** 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 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
R	**TOTAL - Water Quality Functions** Multiply the score from R 1 by R 2 ***Add score to table on p. 1***	**16**

Comments

R	Riverine and Freshwater Tidal Fringe Wetlands	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
	R 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 54)***
R	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow 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 more than 20 ..... points = 9 If the ratio is between 10 – 20 ..... points = 6 If the ratio is 5- <10 ..... points = 4 If the ratio is 1- <5 ..... points = 2 If the ratio is < 1 ..... points = 1	6
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.* (polygons need to have >90% cover at person height NOT Cowardin classes) Forest or shrub for >1/3 area OR Emergent plants > 2/3 area ..... points = 7 Forest or shrub for > 1/10 area OR Emergent plants > 1/3 area ..... points = 4 Vegetation does not meet above criteria ..... points = 0	0
R	**Total for R 3** *Add the points in the boxes above*	6
R	**R 4. Does the wetland have the opportunity to reduce flooding and erosion?** ***(see p. 57)*** 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) that can be damaged by flooding ☐ Other_____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
R	**TOTAL - Hydrologic Functions** Multiply the score from R 3 by R 4 ***Add score to table on p. 1***	12

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☐ Scrub/shrub (areas where shrubs have >30% cover)
- ☒ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

1

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☒ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☒ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present..... points = 2
2 types present ..... points = 1
1 types present…….points = 0

2

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

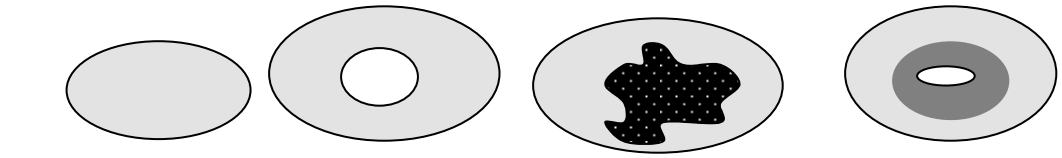
List species below if you want to:

FRLA, ALRU, SALU, SASI, TYLA, RARE, (PHAR)

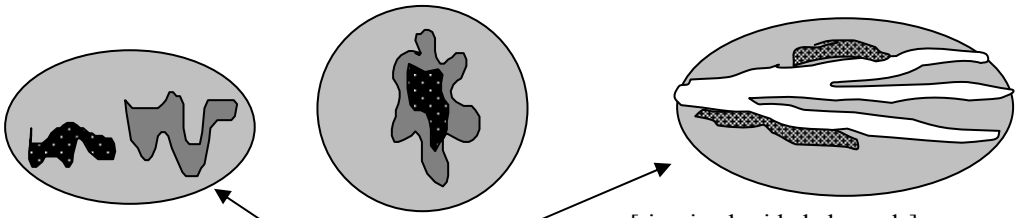
1

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



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



[riparian braided channels]

High = 3 points

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

2

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

7

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*
- ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	10
TOTAL for H1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	17

Wetland name or number Wetland K

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland K Date of site visit: 11/08/11

Rated by: RK Trained by Ecology? Yes ☒ No ☐ Date of Training 3/09

SEC: 4 TWNSHP: 24N RNGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

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	12
Score for Habitat Functions	17
TOTAL score for functions	**45**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	**x**
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**x**	Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X*
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

* *Washington Department of Fish and Wildlife Priority Habitats and Species Data have not been requested in the course of this initial review for this project.*

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. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☒ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☒ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☐ NO - go to 6 ☒ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☐ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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 and Freshwater Tidal Fringe Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
R	**R 1. Does the wetland have the potential to improve water quality?**	*(see p. 52)*
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland ..... points = 8 Depressions cover > 1/2 area of wetland ..... points = 4 Depressions present but cover < 1/2 area of wetland ..... points = 2 No depressions present ..... points = 0	8
R	R 1.2 Characteristics of the vegetation in the wetland (areas with > 90% cover at person height): Forest or shrub > 2/3 the area of the wetland ..... points = 8 Forest or shrub > 1/3 area of the wetland ..... points = 6 Ungrazed, emergent plants > 2/3 area of wetland ..... points = 6 Ungrazed emergent plants > 1/3 area of wetland ..... points = 3 Forest, shrub, and ungrazed emergent < 1/3 area of wetland ..... points = 0	0
R	**Total for R 1** *Add the points in the boxes above*	8
R	**R 2. Does the wetland have the opportunity to improve water quality?** *(see p. 53)* 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 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
R	**TOTAL - Water Quality Functions** Multiply the score from R 1 by R 2 ***Add score to table on p. 1***	**16**

Comments

R	**Riverine and Freshwater Tidal Fringe Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
	R 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 54)***
R	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow 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 more than 20 ..... points = 9 If the ratio is between 10 – 20 ..... points = 6 If the ratio is 5- <10 ..... points = 4 If the ratio is 1- <5 ..... points = 2 If the ratio is < 1 ..... points = 1	6
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.* (polygons need to have >90% cover at person height NOT Cowardin classes) Forest or shrub for >1/3 area OR Emergent plants > 2/3 area ..... points = 7 Forest or shrub for > 1/10 area OR Emergent plants > 1/3 area ..... points = 4 Vegetation does not meet above criteria ..... points = 0	0
R	**Total for R 3** *Add the points in the boxes above*	6
R	**R 4. Does the wetland have the opportunity to reduce flooding and erosion?** ***(see p. 57)*** 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) that can be damaged by flooding ☐ Other_____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
R	**TOTAL - Hydrologic Functions** Multiply the score from R 3 by R 4 ***Add score to table on p. 1***	12

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

1

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☒ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☒ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present..... points = 2
2 types present ..... points = 1
1 types present…….points = 0

2

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

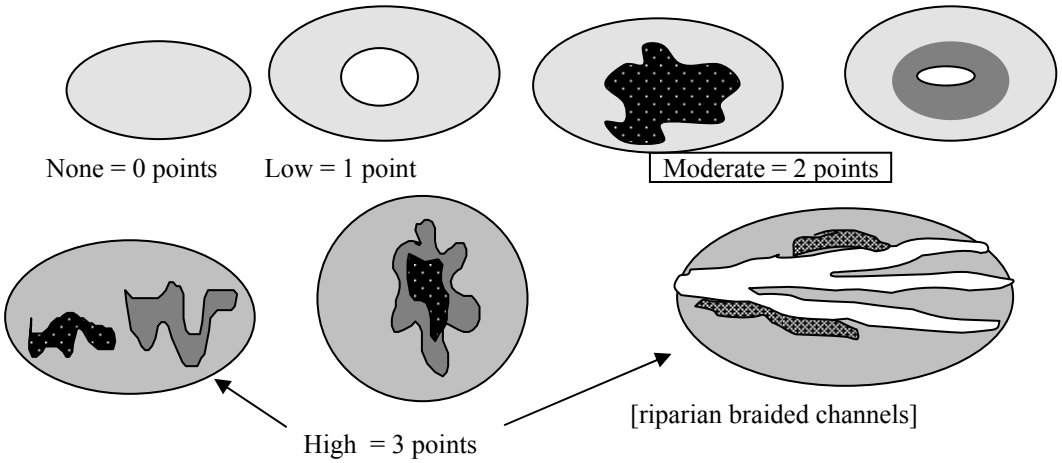
Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

List species below if you want to:

SALU, ALRU, RARE, GRASS, EPCI, COsp, LOIN, (PHAR)

1

H 1.4. Interspersion of habitats ***(see p. 76)*** Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".	2
H 1.5. Special Habitat Features: ***(see p. 77)*** *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.* ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *Note: The 20% stated in early printings of the manual on page 78 is an error.*	0
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	7

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*
- ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	10
TOTAL for H1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	17

Wetland name or number __Wetland L____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland L Date of site visit: 11/8/11

Rated by: RK Trained by Ecology? Yes ☒ No ☐ Date of Training 3/2009

SEC: 4 TWNSHP: 24N RNGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

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	14
Score for Hydrologic Functions	8
Score for Habitat Functions	12
TOTAL score for functions	**34**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	**X**
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**X**	Check if unit has multiple HGM classes present	**X**

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X*
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

*On-line WDFW Priority Habitat and Species Data reviewed as part of this study.

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. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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.

Wetland name or number __Wetland L____

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
D	**D 1. Does the wetland have the potential to improve water quality?**	***(see p. 38)***
D	D 1.1 Characteristics of surface water flows out of the wetland: [Unit is a depression with no surface water leaving it (no outlet)..... points = 3] Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")*	3
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*). YES points = 4 [NO points = 0]	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area ..... points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 [Wetland has persistent, ungrazed vegetation <1/10 of area..... points = 0]	0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* [Area seasonally ponded is > ½ total area of wetland..... points = 4] Area seasonally ponded is > ¼ total area of wetland..... points = 2 Area seasonally ponded is < ¼ total area of wetland..... points = 0 NOTE: *See text for indicators of seasonal and permanent inundation.*	4
D	**Total for D 1** *Add the points in the boxes above*	7
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** 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. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☒ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other_____ **YES** multiply score in D 1. **by 2** **NO** multiply score in D 1. **by 1**	***(see p. 44)*** multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	**14**

Wetland name or number __Wetland L____

D	**Depresssional and Flats Wetlands**	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	
	D 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 46)***
D	D 3.1 Characteristics of surface water flows out of the wetland unit ☒ Unit is a depression with no surface water leaving it (no outlet)..... points = 4 ☐ Unit has an intermittently flowing, or highly constricted permanently flowing outlet..... points = 2 ☐ Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*. points = 1 ☐ Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet**, and/or outlet is a man-made ditch ..... points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing")* ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7 ☐ The wetland is a "headwater" wetland" ..... points = 5 ☐ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet..... points = 5 ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet ..... points = 3 ☐ Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1 ☒ Marks of ponding less than 0.5 ft..... points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit ..... points = 5 ☐ The area of the basin is 10 to 100 times the area of the unit ..... points = 3 ☒ The area of the basin is more than 100 times the area of the unit ..... points = 0 ☐ Entire unit is in the FLATS class ..... points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit 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. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *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**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	**8**

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☐ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

0

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☐ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland*** **= 2 points**
- ☐ ***Freshwater tidal wetland*** **= 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

0

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

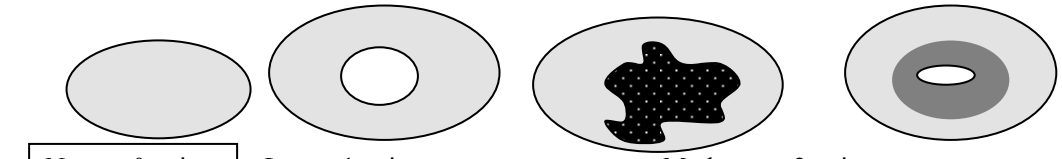
List species below if you want to:

1

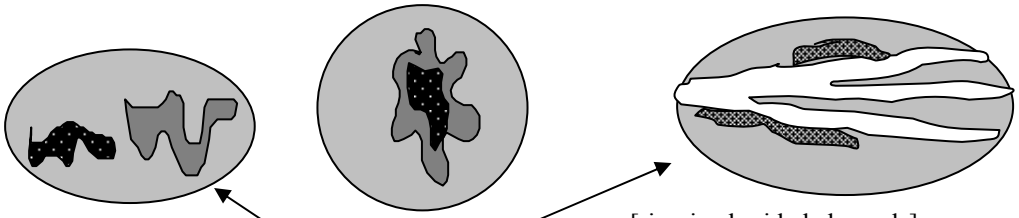
JUEF, JUEN, FRLA, SASI, CAOB, RARE

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels]

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

0

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated*.(structures for egg-laying by amphibians)*
- ☒ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

2

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: the connections do not have to be relatively undisturbed)* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*) ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)* ☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*) ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)* ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = **0 points** *Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.*	4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	10
TOTAL for H1 from page 14	2
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	12

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*see p. 86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☐NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☐NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ YES☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ☐ Not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs ***(see p. 87)*** Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.* 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ☒ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes – Is a bog for purpose of rating NO - go to Q.4 *NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.* 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)? YES = Category I NO ☐ is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*	
Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*	
☐ Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. *Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.*	
☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth	
YES = Category 1 NO ☒ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	
YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon	**Cat. I**
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	
☐The wetalnd is larger than 1/10 acre (4350 square feet)	**Cat. II**
YES = Category I NO = Category II	

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☒ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its functions.* In practical terms that means the following geographic areas: - Long Beach Peninsula – lands west of SR 103 - Grayland-Westport – lands west of SR 105 - Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categorie, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	NA

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland M Date of site visit: 11/08/11

Rated by: RK Trained by Ecology? Yes ☒ No ☐ Date of Training 3/09

SEC: 4 TWNSHP: 24N RNGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

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	8
Score for Habitat Functions	17
TOTAL score for functions	**41**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	**x**
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	**x**	Check if unit has multiple HGM classes present	

Does the wetland unit 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 May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X*
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit 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.		X

* *Washington Department of Fish and Wildlife Priority Habitats and Species Data have not been requested in the course of this initial review for this project.*

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. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

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

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

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

NOTE: *Surface water does not pond in these types 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 5 ☐ **YES –** The wetland class is **Slope**

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

☒ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☒ The overbank flooding occurs at least once every two years

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☐ NO - go to 6 ☒ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☐ **YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES –** The wetland class is **Depressional**

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

HGM classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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 and Freshwater Tidal Fringe Wetlands**	**Points**
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
R	**R 1. Does the wetland have the potential to improve water quality?**	***(see p. 52)***
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland ..... points = 8 Depressions cover > 1/2 area of wetland ..... points = 4 Depressions present but cover < 1/2 area of wetland ..... points = 2 No depressions present ..... points = 0	8
R	R 1.2 Characteristics of the vegetation in the wetland (areas with > 90% cover at person height): Forest or shrub > 2/3 the area of the wetland ..... points = 8 Forest or shrub > 1/3 area of the wetland ..... points = 6 Ungrazed, emergent plants > 2/3 area of wetland ..... points = 6 Ungrazed emergent plants > 1/3 area of wetland ..... points = 3 Forest, shrub, and ungrazed emergent < 1/3 area of wetland ..... points = 0	0
R	**Total for R 1** *Add the points in the boxes above*	8
R	**R 2. Does the wetland have the opportunity to improve water quality?** ***(see p. 53)*** 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 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges 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 ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
R	**TOTAL - Water Quality Functions** Multiply the score from R 1 by R 2 ***Add score to table on p. 1***	**16**

Comments

R	Riverine and Freshwater Tidal Fringe Wetlands	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
	R 3. Does the wetland have the potential to reduce flooding and erosion?	***(see p. 54)***
R	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow 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 more than 20 ..... points = 9 If the ratio is between 10 – 20 ..... points = 6 If the ratio is 5- <10 ..... points = 4 If the ratio is 1- <5 ..... points = 2 If the ratio is < 1 ..... points = 1	4
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.* (polygons need to have >90% cover at person height NOT Cowardin classes) Forest or shrub for >1/3 area OR Emergent plants > 2/3 area ..... points = 7 Forest or shrub for > 1/10 area OR Emergent plants > 1/3 area ..... points = 4 Vegetation does not meet above criteria ..... points = 0	0
R	**Total for R 3** *Add the points in the boxes above*	4
R	**R 4. Does the wetland have the opportunity to reduce flooding and erosion?** ***(see p. 57)*** 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) that can be damaged by flooding ☐ Other_____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
R	**TOTAL - Hydrologic Functions** Multiply the score from R 3 by R 4 ***Add score to table on p. 1***	8

These questions apply to wetlands of all HGM classes.

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. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more ..... points = 4
3 structures ..... points = 2
2 structures ..... points = 1
1 structure ..... points = 0

1

H 1.2. Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

- ☒ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☒ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present……points = 0

2

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted:
> 19 species ..... points = 2
5 - 19 species ..... points = 1
< 5 species ..... points = 0

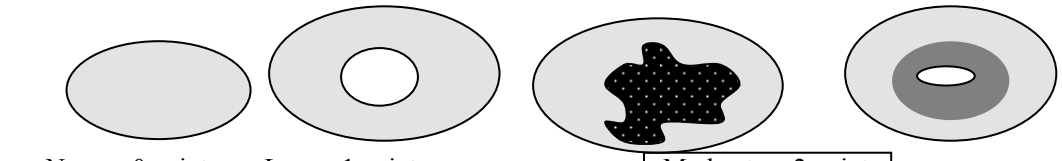
List species below if you want to:

ALRU, LOIN, RUSP, RARE, RUAR

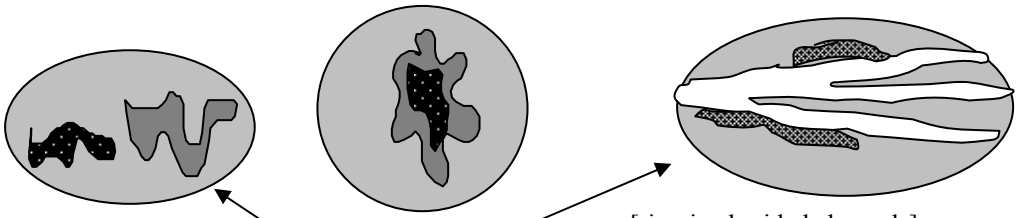
1

H 1.4. Interspersion of habitats ***(see p. 76)***

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated 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 channels]

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

2

H 1.5. Special Habitat Features: ***(see p. 77)***

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.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

7

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *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."* ☐ 100 m (330ft) 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 ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... Points = 4 ☐ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference..... Points = 4 ☐ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... Points = 3 ☐ 50 m (170ft) 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 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐ No paved areas or buildings within 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 <2m wide (6.6ft) 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 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors*, *heavily used gravel roads*, *paved roads, 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 (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

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

Which of the following priority habitats are within 330ft (100m) of the wetland?
(NOTE: the connections do not have to be relatively undisturbed)

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres).

☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*)

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158.)*

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

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*)

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point**
No habitats = **0 points**

Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.

4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	10
TOTAL for H1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	17

Well Inspection and Recommendation Memo

Appendix - B

JKA Well Drilling
21703 195th AVE SE
Monroe, WA 98272
(360) 794-7300
www.jkawelldrilling.com

December 7th, 2012

TO: Kellye Hilde, PLA, ASLA
City of Sammamish Parks & Recreation Department
801 228th AVE SE
Sammamish, WA 98075

FROM: Pierce Kiltoff, CWD/PI
PO BOX 310
Monroe, WA 98272-8831

RE: Water Well Inspection & Recommendations,

Dear Ms. Hilde,

The existing well was found to be 3ft in diameter to a depth of approximately 52 feet, then an estimated 2 feet in diameter to a depth of 58 feet. The existing pump appears to be a 25 GPM 1-1/2 HP submersible Goulds well pump, installed in 2004 by B&J Drilling of Issaquah, Washington. The well was pumped for ½ hour at 15 GPM (through the relief valve at the top of the well), and drew down 3 feet to a pumping level of 53 feet. Both representatives of the city on site reported to me that the prior owners/neighbors talked about the well going dry during the summer, not an unusual occurrence for dug well like this. The existing pressure tank is also too small for the pump size.

Of particular concern is the fact that there is a hole in the well casing at approximately 4 feet below grade.

Given the above information, I have determined that there are a few options for your future irrigation system using a water well as the source.

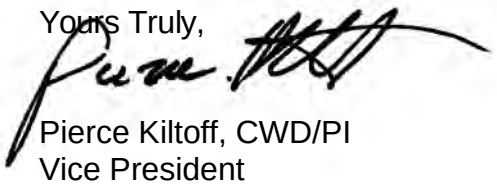
Option #1: Continue using this well. Address the wiring concerns by pulling the well pump and properly bonding the motor to the controls, per NEC requirements. Also, install a motor control system that automatically shuts pump down & turns pump back on after a specific period of time, and prevents rapid cycling of pump, in the event that the pump runs dry or otherwise encounters and under-load/overload situation. We would not be able to address the hole in the well casing, and it's likely that this well will be effected quite heavily by seasonal water table variations.

Option #2: Decommission the existing well, then drill a new well near the existing well, providing power from the old well house.

Option #3: Fill the existing well with concrete from the bottom up, then drill a new well from the surface through the concrete seal, and install a new drilled well within the boundary's of the existing well. This would technically be considered a deepening of the well. Use the existing well electrical circuits to power the new well.

I've provided three estimates along with this letter. Please understand that drilling is not an exact science, and many costs can only be estimated until the actual well is being drilled.

Yours Truly,



Pierce Kiltoff, CWD/PI
Vice President
JKA Well Drilling

Estimate No. 20353
Customer No. 2561

JKA Well Drilling
PO Box 310
Monroe, WA 98272-8831
(360) 794-7300 (425) 577-7266
Fax (866) 826-3165
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Follow Us:

License # JKENTI*945QC

801 228th AVE SE
Sammamish, WA 98075

Contact: #
Ph: 425-295-0582
Alt. Ph:

City of Sammamish, Parks Department
21805 SE 8th ST
Sammamish, WA 98075

Scheduled Start Date: 12/11/2012 | Job #20353 | Sales Rep: Pierce K

Provide drilling & services to complete a 5-7/8" drilled water well with 6" steel casing to an estimated depth of 200 feet for the Total Estimated Costs, below, plus or minus **$42 per foot** of depth. Company shall bill for a minimum of 60 feet of drilling. Note that the total actual costs may change due to unknown subsurface conditions.

Company additionally agrees to install & develop a 5 foot section of stainless steel wire wrapped well screen, or 20 foot section of PVC machine slotted sand screen if the well is completed in a bedrock formation. Company shall install & develop the screen assembly at the rate of $350 per hour.

Company shall perform a one hour draw down pumping test using company owned pumps to determine flow rate & recovery of well. Additionally, company shall draw and deliver water samples to a state certified laboratory for bacteriological & inorganic testing.

All of the pricing/costs for the above works are based on the line items detailed below. Additional costs, while unlikely during the drilling process, may apply due to unknown subsurface conditions.

Total does NOT include a well pump, water filters, well house, water treatment, etc.

Description	Quantity	Per Unit	Total
5-7/8" Diameter Bore Hole Drilling (per vertical foot) and 6" steel well casing OR 4" PVC well casing, as necessary. Price includes overburden drilling system for boulders. Company shall bill for a minimum of 60 feet of drilling.	200.0	$42.00	$8,400.00
10" Surface Seal, "Ecology Seal", Bentonite Clay	1.0	$450.00	$450.00
Mobilization Flat Rate, including drilling rig, drilling support truck, daily driver, welder, 4-1/2" drill pipe, 6" drill bits, 10" drill bits, up to 20ft of temporary 10" well casings, 200ft of 6" well casing, 5ft of sand screens, and additional materials included herein.	1.0	$450.00	$450.00
6" Well Cap/Seal, 6" Hardened Steel Drive Shoe, and Unique Well Tag ID	1.0	$325.00	$325.00
Washington State Department of Ecology: Notice of Intent #	1.0	$200.00	$200.00
6" Telescopic Sand Screen - 30 Slot Stainless Steel Sand Screen - 5" ID x 5' L	1.0	$835.00	$835.00

Drilling is anticipated to be completed in an overburden material, a Stainless Steel Sand Screen will likely be used, at a cost of $750 per 5ft length, plus a Figure K Packer at $85 each. If necessary, a PVC screen replaces the stainless steel screen(s) in bedrock formations, as described below.

IF bedrock is encountered and the well is finished in an a rock formation, a PVC screen & liner will be installed within the rock

formation. PVC Screens are 20ft long and billed at $32 per foot, plus a shale trap, at $85 each.			
Sand Screen (and/or PVC well casing) Installation & Development (per hour)	3.0	$350.00	$1,050.00
Provide one hour draw down pumping test of well, water sample collection, and test pump installation & removal.	1.0	$750.00	$750.00
Complete In-Organic Compound Testing 31 compounds specified by the EPA as Primary & Secondary Drinking Water Contaminants Includes Arsenic, Lead, Mercury, Iron, Sodium, Copper, etc.	1.0	$400.00	$400.00
Water System Bacteriological Analysis for Coliform & eColi Bacteria	1.0	$46.00	$46.00

Subtotal:	**$12,906.00**
Tax:	**$1,226.07**
Total Estimated Costs:	**$14,132.07**

Required Deposit: $7,066.04

Total actual costs may vary due to unknown subsurface conditions or other variables as specified in the description of Work(s) above and/or the attached contract. Estimate is for informational purposes only & is valid for 30 days beyond Scheduled Start Date (above).

The undersigned Customer(s) accepts and agrees to the above and to the Terms & Conditions set forth herein (see attached).

Customer(s) - Please Sign & Date
By _____ Date _____
[print name/company] _____

By _____ Date _____
on behalf of JKA Well Drilling & Pumps

Estimate No. 20354
Customer No. 2561

JKA Well Drilling
PO Box 310
Monroe, WA 98272-8831
(360) 794-7300 (425) 577-7266
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Follow Us:

License # JKENTI*945QC

801 228th AVE SE
Sammamish, WA 98075

Contact: #
Ph: 425-295-0582
Alt. Ph:

City of Sammamish, Parks Department
21805 SE 8th ST
Sammamish, WA 98075

Scheduled Start Date: 12/11/2012 | Job #20354 | Sales Rep: Pierce K

Company shall provide labor & materials to decommission existing dug well. Company shall remove pump & equipment from existing well house, pull top concrete tile(s) as necessary for soil exposure, and pump concrete from the bottom of the well to surface level. Company shall not be require to remove electrical components or piping outside of the well. Company shall dispose of left over well equipment/casing as necessary. Company shall not be obligated to perform landscape restoration beyond rough grade.

Description	Quantity	Per Unit	Total
Mobilize Drilling Machinery to Job Site & Setup (lump sum)	1.0	$500.00	$500.00
5 Sack Concrete w/ 3/4" Aggregate (per yard)	16.0	$191.80	$3,068.80
Kubota Mini Excavator w/ Thumb (Hourly, 4 Hour Minimum Charge)	4.0	$55.00	$220.00
Pump Hoist Truck (per hour, port to port)	2.0	$150.00	$300.00
General Labor Involved In Decommissioning (per man, per hour):	12.0	$125.00	$1,500.00
Washington State Department of Ecology Notice of Intent / NOI #	1.0	$50.00	$50.00

Subtotal: **$5,638.80**
Tax: **$535.69**
Total Estimated Costs: **$6,174.49**

Required Deposit: $3,087.25

Total actual costs may vary due to unknown subsurface conditions or other variables as specified in the description of Work(s) above and/or the attached contract. Estimate is for informational purposes only & is valid for 30 days beyond Scheduled Start Date (above).

The undersigned Customer(s) accepts and agrees to the above and to the Terms & Conditions set forth herein (see attached).

Customer(s) - Please Sign & Date
By _____ Date _____
[print name/company] _____

By _____ Date _____
on behalf of JKA Well Drilling & Pumps

Estimate No. 20355
Customer No. 2561

JKA Well Drilling
PO Box 310
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Alt. Ph:

City of Sammamish, Parks Department
21805 SE 8th ST
Sammamish, WA 98075

Scheduled Start Date: 12/11/2012 | Job #20355 | Sales Rep: Pierce K

Company shall remove pump & equipment from existing well house, demolish existing structure as necessary, install concrete from the bottom of the existing well to surface level, and construct well drilling pad as necessary to drill a new 6" well down the center of the existing dug well.

Provide drilling & services to complete a 5-7/8" drilled water well with 6" steel casing to an estimated depth of 200 feet for the Total Estimated Costs, below, plus or minus **$42 per foot** of depth. Well surface seal shall extend through existing dug well to a below ground depth of 71 feet. Company shall bill for a minimum of 131 feet of drilling. Note that the total actual costs may change due to unknown subsurface conditions.

Company additionally agrees to install & develop a 5 foot section of stainless steel wire wrapped well screen. Company shall install & develop the screen assembly at the rate of $350 per hour.

Company shall perform a one hour draw down pumping test using company owned pumps to determine flow rate & recovery of well. Additionally, company shall draw and deliver water samples to a state certified laboratory for bacteriological & inorganic testing.

All of the pricing/costs for the above works are based on the line items detailed below. Additional costs, while unlikely during the drilling process, may apply due to unknown subsurface conditions.

Total does NOT include a well pump, water filters, well house, water treatment, site restoration, landscape restoration, etc.

Description	Quantity	Per Unit	Total
5 Sack Concrete w/ 3/4" Aggregate (per yard)	16.0	$191.80	$3,068.80
Kubota Mini Excavator w/ Thumb (Hourly, 4 Hour Minimum Charge)	6.0	$55.00	$330.00
Pump Hoist Truck (per hour, port to port)	2.0	$150.00	$300.00
General Labor involved in filling well & constructing well pad (per man, per hour):	36.0	$95.00	$3,420.00
Washington State Department of Ecology Notice of Intent / NOI #	1.0	$50.00	$50.00
Concrete pumper to pump concrete from bottom of well up	1.0	$1,500.00	$1,500.00
9-7/8" Diameter Bore Hole Drilling (per vertical foot)	73.0	$50.00	$3,650.00
5-7/8" Diameter Bore Hole Drilling (per vertical foot)	127.0	$30.00	$3,810.00
6" ID Steel Well Casing	200.0	$13.50	$2,700.00
Mobilization Flat Rate, including drilling rig, drilling support truck, daily driver, welder, 4-1/2" drill pipe, 6" drill bits, 10" drill bits, up to 20ft of temporary 10" well casings, 200ft of 6" well casing, 5ft of sand screens, and additional materials included herein. Additionally includes 10" overburden drilling system, 70 feet of 10" well casing, and 10" drilling tools.	1.0	$1,500.00	$1,500.00
Bentinite Clay (50lb bag)	48.0	$17.99	$863.52

6" Well Cap/Seal, 6" Hardened Steel Drive Shoe, and Unique Well Tag ID	1.0	$325.00	$325.00
Washington State Department of Ecology Notice of Intent / NOI #	1.0	$200.00	$200.00
6" Telescopic Sand Screen - 30 Slot Stainless Steel Sand Screen - 5" ID x 5' L	1.0	$835.00	$835.00
Drilling is anticipated to be completed in an overburden material, a Stainless Steel Sand Screen will likely be used, at a cost of $750 per 5ft length, plus a Figure K Packer at $85 each. If necessary, a PVC screen replaces the stainless steel screen(s) in bedrock formations, as described below. IF bedrock is encountered and the well is finished in an a rock formation, a PVC screen & liner will be installed within the rock formation. PVC Screens are 20ft long and billed at $32 per foot, plus a shale trap, at $85 each.			
Sand Screen (and/or PVC well casing) Installation & Development (per hour)	3.0	$350.00	$1,050.00
Provide one hour draw down pumping test of well, water sample collection, and test pump installation & removal.	1.0	$750.00	$750.00
Complete In-Organic Compound Testing 31 compounds specified by the EPA as Primary & Secondary Drinking Water Contaminants Includes Arsenic, Lead, Mercury, Iron, Sodium, Copper, etc.	1.0	$400.00	$400.00
Water System Bacteriological Analysis for Coliform & eColi Bacteria	1.0	$46.00	$46.00
2" x 1-1/4" Crushed Rock	100.0	$10.50	$1,050.00
Hauling of aggregate (per hour)	8.0	$85.00	$680.00

Subtotal:	**$26,528.32**
Tax:	**$2,520.19**
Total Estimated Costs:	**$29,048.51**

Required Deposit: $14,524.26

Total actual costs may vary due to unknown subsurface conditions or other variables as specified in the description of Work(s) above and/or the attached contract. Estimate is for informational purposes only & is valid for 30 days beyond Scheduled Start Date (above).

The undersigned Customer(s) accepts and agrees to the above and to the Terms & Conditions set forth herein (see attached).

Customer(s) - Please Sign & Date

By _____ Date _____

[print name/company] _____

By _____ Date _____

on behalf of JKA Well Drilling & Pumps

Estimate No. 20356
Customer No. 2561

JKA Well Drilling
PO Box 310
Monroe, WA 98272-8831
(360) 794-7300 (425) 577-7266
Fax (866) 826-3165
www.jkawelldrilling.com

Follow Us:

License # JKENTI*945QC

801 228th AVE SE
Sammamish, WA 98075

Contact: #
Ph: 425-295-0582
Alt. Ph:

City of Sammamish, Parks Department
21805 SE 8th ST
Sammamish, WA 98075

Scheduled Start Date: 12/11/2012 | Job #20356 | Sales Rep: Pierce K

Company shall pull existing well pump, correct wiring issues, re-install pump, and install new pump protection circuit in well house.

Description	Quantity	Per Unit	Total
Pump Service Labor, Licensed Tech (per hour, port to port) Overtime charges apply after 5PM, before 7AM, and on Saturday, Sunday, & Holidays.	8.0	$95.00	$760.00
Pump Hoist Truck (per hour, port to port)	3.0	$150.00	$450.00
#12 Submersible Pump Wire & Motor Lead Flat Jacket, PVC Coating, 4 wire	60.0	$1.99	$119.40
Heat Shrink Kits	1.0	$10.01	$10.01
Wire Wing Nut, Tan	4.0	$0.36	$1.44
Splicing Tape	1.0	$10.25	$10.25
Goulds Aquavar Solo Controler, 3AS20	1.0	$1,533.75	$1,533.75
Miscellaneous brass, bronze, stainless, & PVC fittings	1.0	$150.00	$150.00
Electrical subcontractor work performed at cost + 20%, unless otherwise agreed upon	1.0	$500.00	$500.00

Subtotal:	**$3,534.85**
Tax:	**$335.81**
Total Estimated Costs:	**$3,870.66**

Required Deposit: $1,935.33

Total actual costs may vary due to unknown subsurface conditions or other variables as specified in the description of Work(s) above and/or the attached contract. Estimate is for informational purposes only & is valid for 30 days beyond Scheduled Start Date (above).

The undersigned Customer(s) accepts and agrees to the above and to the Terms & Conditions set forth herein (see attached).

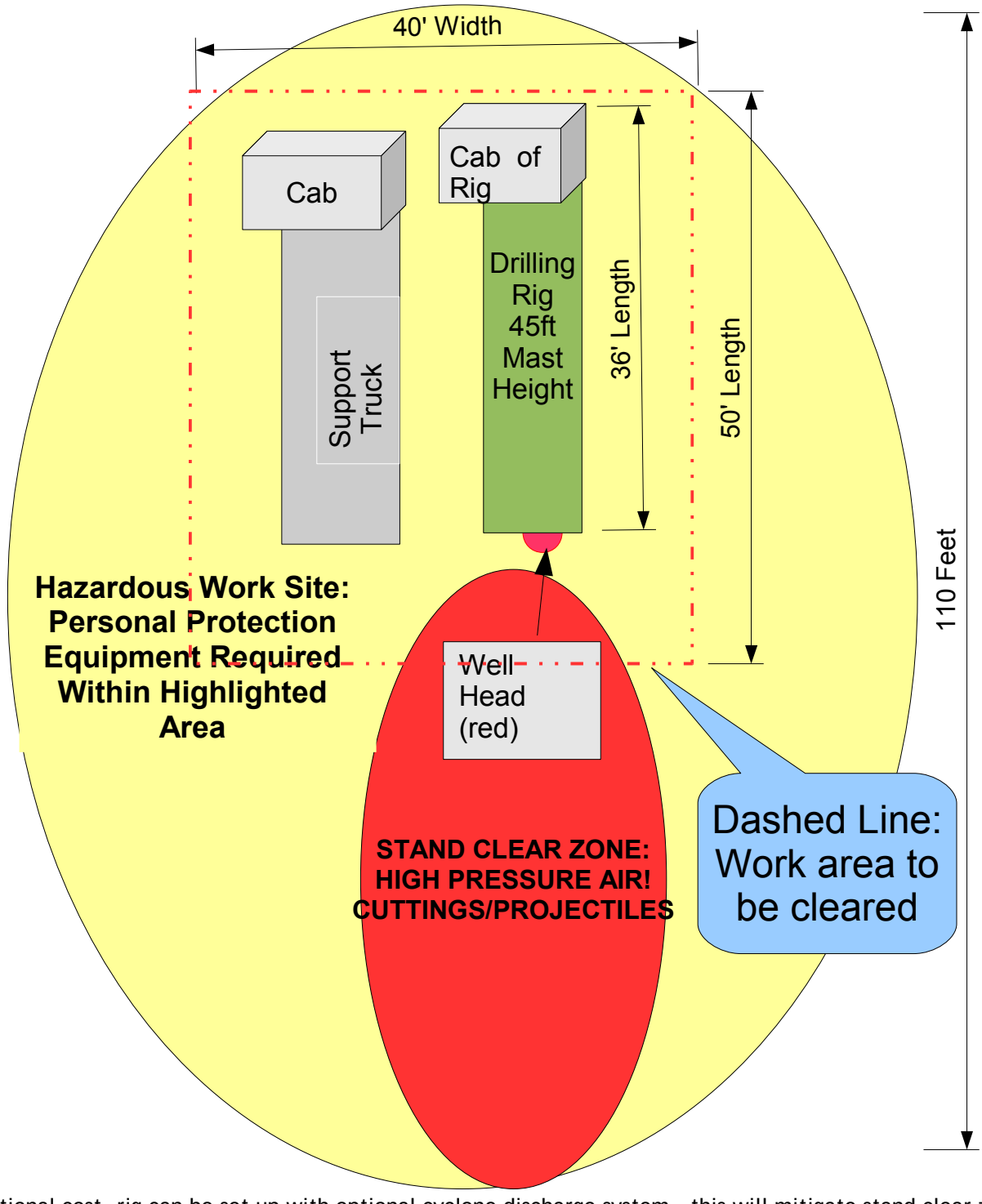
Customer(s) - Please Sign & Date
By _____ Date _____
[print name/company] _____

By _____ Date _____
on behalf of JKA Well Drilling & Pumps

Drilling Machine Site Requirements

Equipment on Site: 1 Drill Rig
1 Support Truck
1 Daily Driver Pickup Truck

The well site must be firm & stable. Drilling machines & support trucks combined weigh in excess of 110,000lbs, not including additional equipment that may be necessary. As such, a level firm base is required. Elevation changes across the length of the drilling machine can not exceed ±20 inches, or 16 inches across width of machines. Geo textile fabric with 1-1/2" minus rock on top of fabric required on wet sites. Adequate room must be left available for maneuvering rigs into & out of position. The rigs can be backed end to end, or offset facing opposite directions, if required. Road should be at least 12 feet wide with 15 feet of over head clearance.



For additional cost, rig can be set up with optional cyclone discharge system - this will mitigate stand clear zone & projectiles.

JKA Well Drilling
21703 195th AVE SE
Monroe, WA 98272-8831
(360) 794-7300 (425) 577-7266 (800) 870-3288
www.jkawelldrilling.com

Why Do We Pump Test Wells?

CASE STUDY: Well Draw Down Testing Gains in Pump Longevity & Electrical Costs

We've just drilled an irrigation well and the user needs it to supply 6000 gallons of water per day. The designed irrigation system runs from 12 AM to 6 AM, every day, providing just 17 Gallons Per Minute (GPM). The well is 200 feet deep, with a Static Water Level (SWL) of 150 feet (this is the depth that the water comes up to when the well is not pumping). The owner already owns an 85 gallon pressure tank with 20 gallons of usable draw down, and a 30/50 PSI pressure switch (the pressure drops to 30 PSI, turns the pump on, and when the pressure comes back to 50 PSI, the switch turns the pump off, and the 'cycle' repeats).

Not performing a test, the installer looked at the drill log & made an assumption that the well would draw down completely at 17 GPM, thereby requiring that the 19 GPM pump be driven by a 2 HP motor – this is a normal & legitimate assumption. This pump operates on a specific 'Pump Curve', which in this case results in the pump having a cycle time of 3 minutes of on time, and 40 seconds of off time, which repeats over and over again during every period of continuous running. During the 6 hour irrigation period, this 2 HP pump would run for a total of 294 minutes, and be off for 64 minutes, and go through a total of 98 on-off cycles.

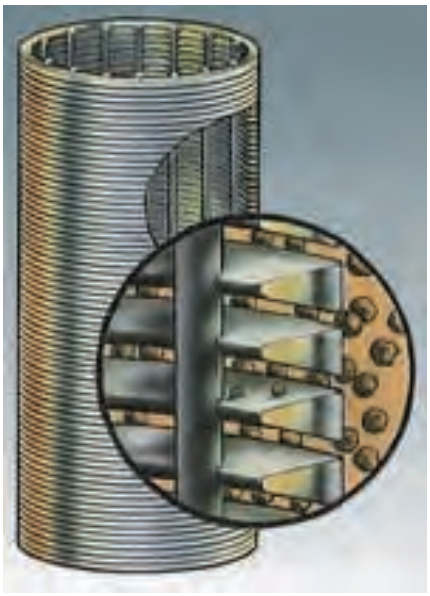
Now, assume that testing the well for 4 hours determined that the well could make 17 GPM with 10 feet of Draw Down, or in other words, you could pump 17 GPM, and the water level in the well would go from 150 feet to 160 feet during a 4 hour period. This would allow us to lower the size of the motor on the pump from 2 HP to 1 ½ HP. If a 19 GPM Single Phase 1½ HP Pump was installed, and the irrigation system was running at the same average of 40 PSI with 20 gallons of draw down in the pressure tank, the pump would turn on and run for 12 minutes, shut off for 1.25 minutes, then repeat. The 1 ½ HP pump would run for 326 minutes, be off for 34 minutes, and go through only 27 start cycles.

	Constant Pressure Pump	**1-1/2 HP Pump**	**2 HP Pump**
Daily Start Cycles	n/a	27	98
Power Use (KWH)	0.66	1.1	1.5
Cost per Day ($0.10 per KW)	$0.40	$0.66	$0.90
Cost per Year*	$146.00	$240.90	$328.50

*Assumes 365 days per year of operation

The 1 ½ HP pump would see 71 less start cycles per evening, resulting in the motor theoretically lasting 3.6 times longer in this application. Also, a 1 ½ HP motor can have up to 19% more length in the same size running wire, compared to a 2 HP motor. Obviously, if you're just using water in the house, there is less water being used, and less cost savings in power. However, the well pump will still start up to 360% fewer times, probably increasing the life of the pump by more than 3 times.

Alternatively, using a constant pressure pump controller, the system would be running in the middle of the curve during an irrigation cycle, using roughly 3.96 KW (3960 watts) during the whole cycle. At $0.10 per KW, this system would cost $0.40 per 6 hour irrigation cycle, which is $94.90 per year cheaper than even the 1.5 HP pump.



Drawing of a stainless steel sand screen & v-shaped wires.

What is Water Well Sand Screen?

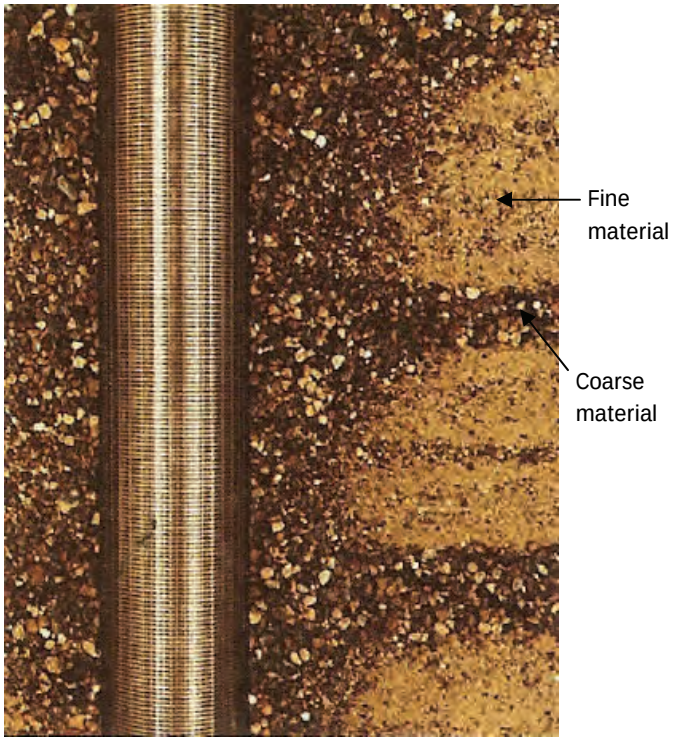
A well screen is a manufactured Stainless Steel or PVC product that allows water in and keeps unwanted materials out. The basic job of any screening device is to keep sand/gravel/shale out of the well while letting the maximum amount of water in. Ground water is found in the tiny spaces between the particles of rock, sandstone, sand, or gravel beds beneath the surface. Sands and Gravel beds are called "unconsolidated aquifers". Rocks and sandstones are called "consolidated aquifers".

The things that affect well screen design are:

- Required Well Production (in Gallons Per Minute) & Required Water Quality matched to intended uses—Human Consumption, Agricultural, Industrial, Irrigation, etc.
- Well Depth—Feet below surface determines radial and axial pressure.
- Production Zone Thickness—Total vertical feet of drilling that has entered the usable part of aquifer.
- Porosity of Production Zone—How Coarse, Sharp, Tight, or Homogeneous the Production Layer is.
- Casing Diameter—Water wells typically have a telescoping screen, where the screen must fit down the center of the well casing.
- Cost benefit ratio: Increasing amounts of money required VS. Resultant production & water quality gains. The more money you spend on development & screening will result in a better producing, more reliable, and cleaner well.

Entrance Velocity

Entrance velocity is the speed of the water as it passes through the screen slots. If the entrance velocity is too high, the water will undergo a pressure drop. This can cause dissolved minerals to precipitate out of solution. The resulting calcium or magnesium carbonate can encrust the screen, creating what is known as "calcification", block the openings, and lead to reduced production or total well failure. High entrance velocity can also speed up erosion of the screen (widening of slots) resulting in sand or gravel production causing early pump failure. The solution to these problems is to keep the entrance velocity low - about 0.1 feet per second. This is possible only if the screen has a very large amount of open area (large Slot Size in well screens).



A fully developed well screen—notice the Fine material has been pulled through the screen and left the large coarse material around the screen.

Screen Porosity

The exact size of the screen slot is determined by analyzing the formation samples brought up during the drilling process. We want to maximize the screen porosity by making the slot as wide as possible without letting more than a certain percentage of the formation materials through (typically we WANT 60% of the formation to come through). Well Screens can be made with slot increments as small as 0.001 inch allowing much flexibility to produce the exact slot opening your well needs.

By allowing a larger percentage of the formation to pass through the screen, porosity becomes less dependent on screen sizing and more dependent on Development of the well. The longer that you develop the screen in the well, the more fine material you pull through the screen, resulting in a screen with large coarse material packed around it. This creates even larger surface areas and higher porosity, resulting in even lower intake velocities.

Screen strength is important, too. The screen takes a lot of punishment during installation, and has to resist crushing and collapse pressures, which, in a deep well, can be very high. Screen size is another consideration. The longer the screen the more water it's able to take in, but you obviously don't want to install more screen than necessary. Because of their high open area, screens 4 to 5 inches in diameter, 5 to 20 feet long are suitable for most household wells.

Screen Material and Construction

Water well screens have been made of many materials. The most common materials are stainless steel, galvanized steel, PVC, and fiberglass. Stainless steel screens and PVC coated wrapped-on-pipe screens are normally produced by wrapping stainless or PVC coated ribbon around stainless steel rods, hole-punched PVC pipe, hole-punched stainless steel pipe, or hole-punched galvanized-steel pipe. PVC pipe slotted, galvanized pipe slotted, and fiberglass pipe slotted screens are usually have multiple slots cut in many different arrangements with slot thickness ranging from .004" to .060", and spacing between slots ranging from 1/8"to 1". Some new and innovative screens are Pre-Packed Gravel Double Walled Stainless Steel Screens and Stainless Steel Mesh Screens.

All screens are generally sized by the Slot Size—a measure of the height of the opening that water/material can come through. A 0.004" (4 thousandths of an inch) screen opening is called a 4 Slot screen, a 0.040" (40 thousandths of an inch, or 4 hundredths of an inch) is called a 40 Slot screen.

Rod Based Stainless Steel Screens vs. PVC Slotted Screens

JKA Enterprises, Inc. mainly uses these two types of screens. Rod based stainless steel screens and PVC slotted screens both can have slot sizes narrow enough to keep very fine-grain sand out while producing adequate volumes of water. S.S. screens are made with one continuous triangle-shaped ribbon spiraling around multiple axial rods throughout the full length of the screen. PVC screens are simply pipe with fine slits throughout the entire length of the screen. Therefore, S.S. screens are much tougher than PVC screens. S.S. screens are rated for much deeper depths than PVC screens (we typically will not set a PVC screen in depths exceeding 500'). Encrustation & Calcification is more of a problem in S.S. screens because calcium or magnesium carbonate can encrust the crystalline structure of the S.S. screen much easier than the amorphous structure of the PVC screen. The open surface area/foot ratio for S.S. screens ranges between 2 to 5 times higher than PVC screens. However, S.S. screens are normally 2 to 10 times more expensive than PVC screens. Each of these screens have strengths and weaknesses. It is our job to decide which of these screens is most practical and beneficial to use for each well we drill. In unconsolidated formations, 99.99% of the time, we'll specify a Stainless Steel Sand Screen.

Development

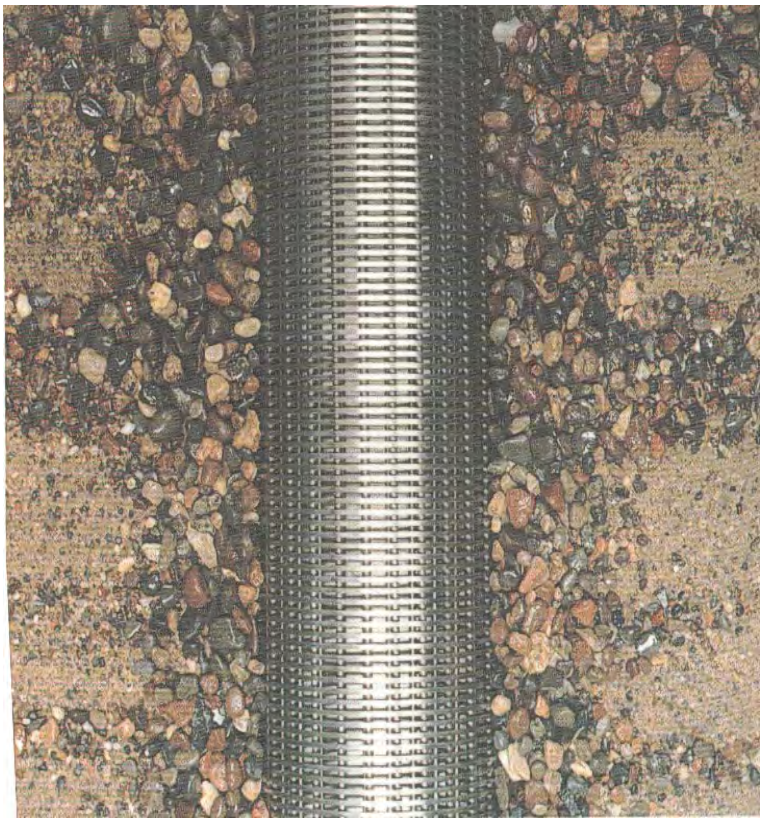
Well screen development is the next most important thing, besides just installing a sand screen in the first place. Proper well development creates a filter pack around the well, creates lower intake velocities, and creates longer lasting cleaner running screens.

How much development is necessary? It's dependent upon the screens & formations. In the residential market, we've seen competitors use screens that are typically 5 to 15 slot, and then they don't charge for development time (probably because with such a small slot size, they can't get any of the formation through anyway). We typically size screens between 20 and 40 slot, with development time taking anywhere from 30 minutes to 4 hours. Municipal well screens are often sized in the 50 to 100 slot range, requiring up to and in excess of 2 WEEKS of development time.

Sand, screens, & open area

Once water is discovered, it becomes drillers job to determine where the best place in the aquifer is to get the water. There's no such thing as an underground 'lake' in unconsolidated materials (sands, gravels, clay, etc) – all the aquifers are made up of sand & gravel formations with water in them, and gravel works better than sand as a transmissive medium (meaning that the water moves through gravel faster & better than sand).

In these situations, drillers using casing hammer drilling technology will telescope a screen down the inside diameter of the well – most often by pulling the bit out of the well and dropping the screen down the inside of the well. Following placement, the driller will put the drill string back in the well to hold the screen on the bottom, then pull back the casing to expose the screen to the aquifer. Once the screen has been exposed, the driller will use the air compressor on the rig, or a bailer, to 'develop' the screen. Development is the process of surging a fluid through the screen to force the fine particulates in the formation to come through the screen and into the well, where it can then be removed from the well prior to placing the well into operation. This technique, known as a "naturally developed" screening process uses the formations own material to create a filter pack around the screen. The picture on this page is of a naturally developed well screen, photo courtesy of Johnson Screens.



Screens are sized by 'slot' size, equal to one thousandth of an inch (0.001 inches), which is the distance between each V-shaped wire wrapped horizontally around the screens skeleton. Typically, residential wells have anywhere from 12 to 35 slot screens installed (though we use 25 to 35 slot screens 95% of the time). The 'old' technique for sizing well screens was to allow for 60% of the formation to actually go through the screen. Once the screen was in place, it was developed until the sand no longer showed up in the surged water.

Notice in the above picture (probably of a 40 slot screen) how their well screen has gravel packed around it, but the formation is mostly sand as you look further away from the screen – this is because during the development time, the sand was surged out of the formation.

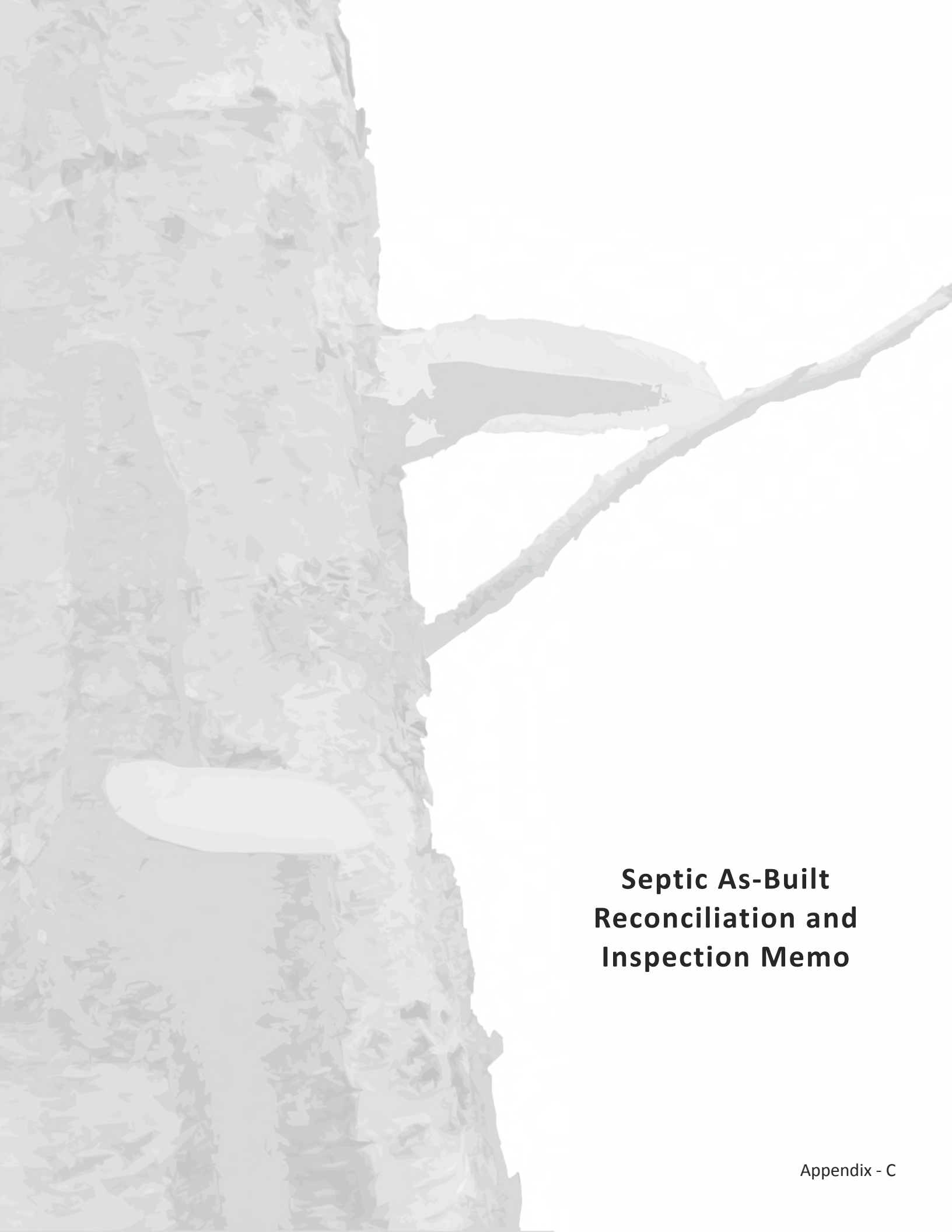
Slot size means almost as much as putting a screen in in the first place. If we size the screen too small, the well doesn't make as much water as it could, if we size it too big, it will take FOREVER to develop the fine particles out of the well. But, we have found that in most areas, a fine balance can be established with 20 to 35 slot sand screens (2 to 3 times larger slot sizes than our competitors typically run).

To emphasize the difference between all these options – remember that a well only takes in water through the bottom of the well or through a screened opening. An open bottom well has only 28 square inches of surface area, while a 6" diameter well with a 10 slot screen, five feet long, will have

151 square inches of surface area, but a 30 slot screen will have over 350 square inches of open area. This means, all else equal, a 30 slot screen has more than 12 times the open water producing area of an open bottom screen-less well. In fact, a 30 slot screen has more than DOUBLE the open area of a 10 slot screen!

Additionally, by sizing, installing, and developing screens this way, the wells 'intake' from the formation is effectively moved out to the outer radius of the developed portion of the formation – which means that the surface area from which the well is collecting water is much greater, **resulting in reduced intake velocities and increased yield.**

As time has passed, drilling companies have moved towards using smaller and smaller screens – mainly because it results in much less development time, thereby costing them less money – we've steadfastly refused to decrease screen sizes to increase profits. For the best well you can buy, call JKA Well Drilling today!



Septic As-Built Reconciliation and Inspection Memo

Appendix - C

Huard Septic Design & Monitoring, LLC
PO Box 2243
North Bend, WA 98045
Contractor License # HUARDSD992B3
www.septicdesign.net

December 3, 2012

Kellye Hilde
City of Sammamish
801 228th AVE SE
Sammamish, WA 98075

Re: As Built reconciliation & inspection of OSS tax parcel #042406-9213

Dear Kellye,

On Friday November 30th, 2012 I conducted an inspection of the on-site sewage disposal system for the above-described lot; the following were the conditions found:

- Existing 1000 gallon septic tank
  - Tank was found to be half full of sludge and effluent, this would indicate that the tank is cracked.
  - Inlet baffle condition good.
  - Outlet baffle in good condition (Zabel A100 effluent filter baffle).
- Distribution box
  - Distribution box in working condition; concrete lid was replaced with piece of metal.
- Gravity drainfield
  - Drainfield appears to be in working condition at this time.
  - Drainfield comprised of washed gravel and black corrugated perforated drainfield piping.
  - Found approximately 130 lineal feet drainfield.
- Soil test pit excavated near drainfield revealed the following:
  - Soil Log #1 0-10" fill, 10-22" light brown loamy sand (type 3-4), 22-65"+ gray medium sand (type 3).
- Based on the approximate drainfield length and soil type present, it would appear that the system would support a maximum wastewater load of 208 gallons per day. As I am unclear what the proposed change in use would be for the building, I don't know if this would support the proposed use.
- The minimum required septic tank capacity per the 2009 Title 13 code change is 1500 gallons.

HSDM
Phone: 425 831-1781
Fax: 425 888-2866

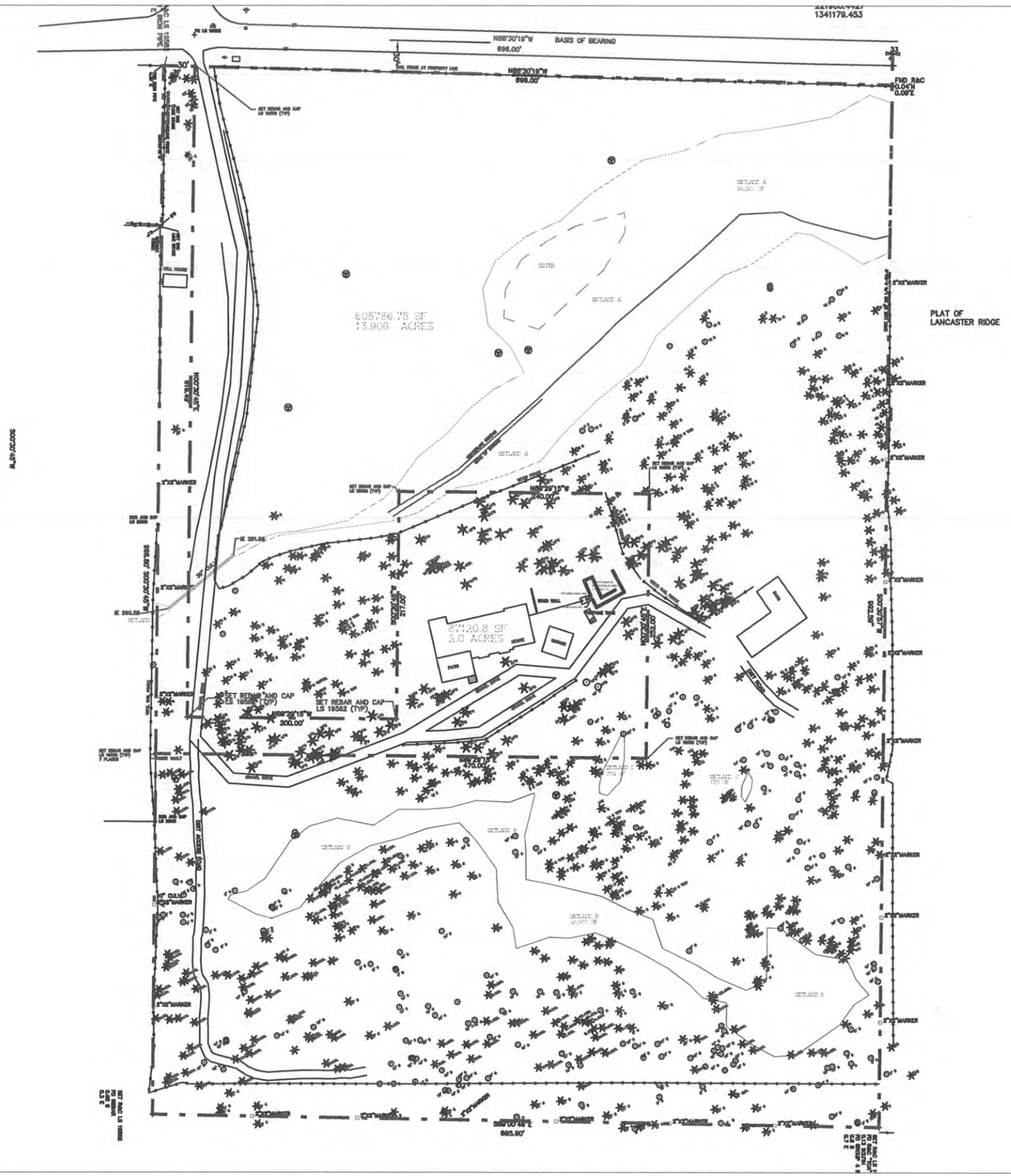
Huard Septic Design & Monitoring, LLC
PO Box 2243
North Bend, WA 98045
Contractor License # HUARDSD992B3
www.septicdesign.net

Please call if you have any questions

Thank you,

Dave Huard
Licensed Designer

HSDM
Phone: 425 831-1781
Fax: 425 888-2866



AS BUILT

Reconcilation
On-Site Sewage Disposal

Notes to Homeowner:
-READ YOUR HOMEOWNERS MANUAL
failure of this system can occur, be sure to:
-stay within water use limits
-stay within typical residential sewage waste strengths.
-minimize garbage grinder use
-Avoid traffic over drainfield and tank areas
-Do not allow pasture or large animals onto drainfield and reserve areas.
-Maintain a monitoring program

This drawing is not a survey

SCALE
1"=120'

Legend
soil log
drainfield trench
reserve trench
water line
Drainage
large trees
cleanout

ONSITE WASTEWATER TREATMENT SYSTEM
STATE OF WASHINGTON
S1000122
DAVID W HUARD
LICENSED DESIGNER
EXPIRES 08/01/14
12/3/12

Huard Septic Design & Monitoring, LLC
PO BOX 2243 North Bend, WA 98045
425.831.1781phone/fax 425.888.2866
dave@septicdesign.net

As Built-reconcilation
21805 SE 8th St.
Sammamish, WA 98075
Tax parcel #042406-9213
12-3-12

Dave Huard
Licensed Designer

AS BUILT

Reconcilation
On-Site Sewage Disposal

Notes to Homeowner:
-READ YOUR HOMEOWNERS MANUAL failure of this system can occur, be sure to:
-stay within water use limits
-stay within typical residential sewage waste strengths.
-minimize garbage grinder use
-Avoid traffic over drainfield and tank areas
-Do not allow pasture or large animals onto drainfield and reserve areas.
-Maintain a monitoring program

This drawing is not a survey

SCALE
1"=30'

Legend
soil log
drainfield trench
reserve trench
water line
Drainage
large trees
cleanout

ONSITE WASTEWATER TREATMENT
STATE OF WASHINGTON
20022
DAVID W. HUARD
LICENSED DESIGNER
EXPIRES 08/01/14
12/3/12

Huard Septic Design & Monitoring, LLC
PO BOX 2243 North Bend, WA 98045
425.831.1781phone/fax 425.888.2866
dave@septicdesign.net

As Built-reconcilation
21805 SE 8th St.
Sammamish, WA 98075
Tax parcel #042406-9213
12-3-12
Dave Huard
Licensed Designer

AS BUILT

Reconcilation
On-Site Sewage Disposal

Notes to Homeowner:
-READ YOUR HOMEOWNERS MANUAL
failure of this system can occur, be sure to:
-stay within water use limits
-stay within typical residential sewage waste strengths.
-minimize garbage grinder use
-Avoid traffic over drainfield and tank areas
-Do not allow pasture or large animals onto drainfield and reserve areas.
-Maintain a monitoring program

This drawing is not a survey

SCALE
1"=20'

Legend
soil log
drainfield trench
reserve trench
water line
Drainage
large trees
cleanout

ONSITE WASTEWATER TREATMENT SYSTEM
STATE OF WASHINGTON
30122
DAVID W. HUARD
LICENSED DESIGNER
EXPIRES 08/01/14
2/3/17

Huard Septic Design & Monitoring, LLC
PO BOX 2243 North Bend, WA 98045
425.831.1781phone/fax 425.888.2866
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As Built-reconcilation
21805 SE 8th St.
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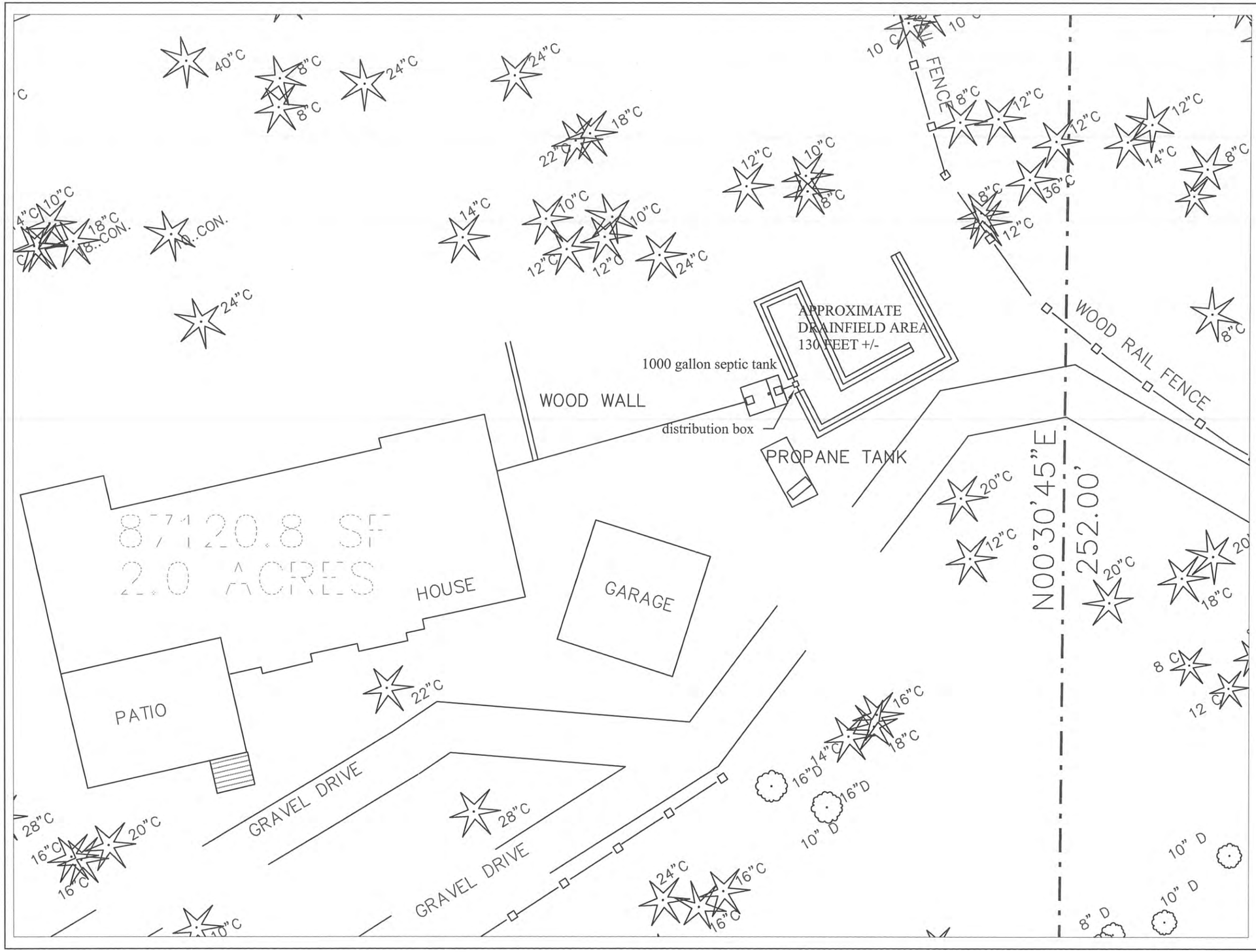
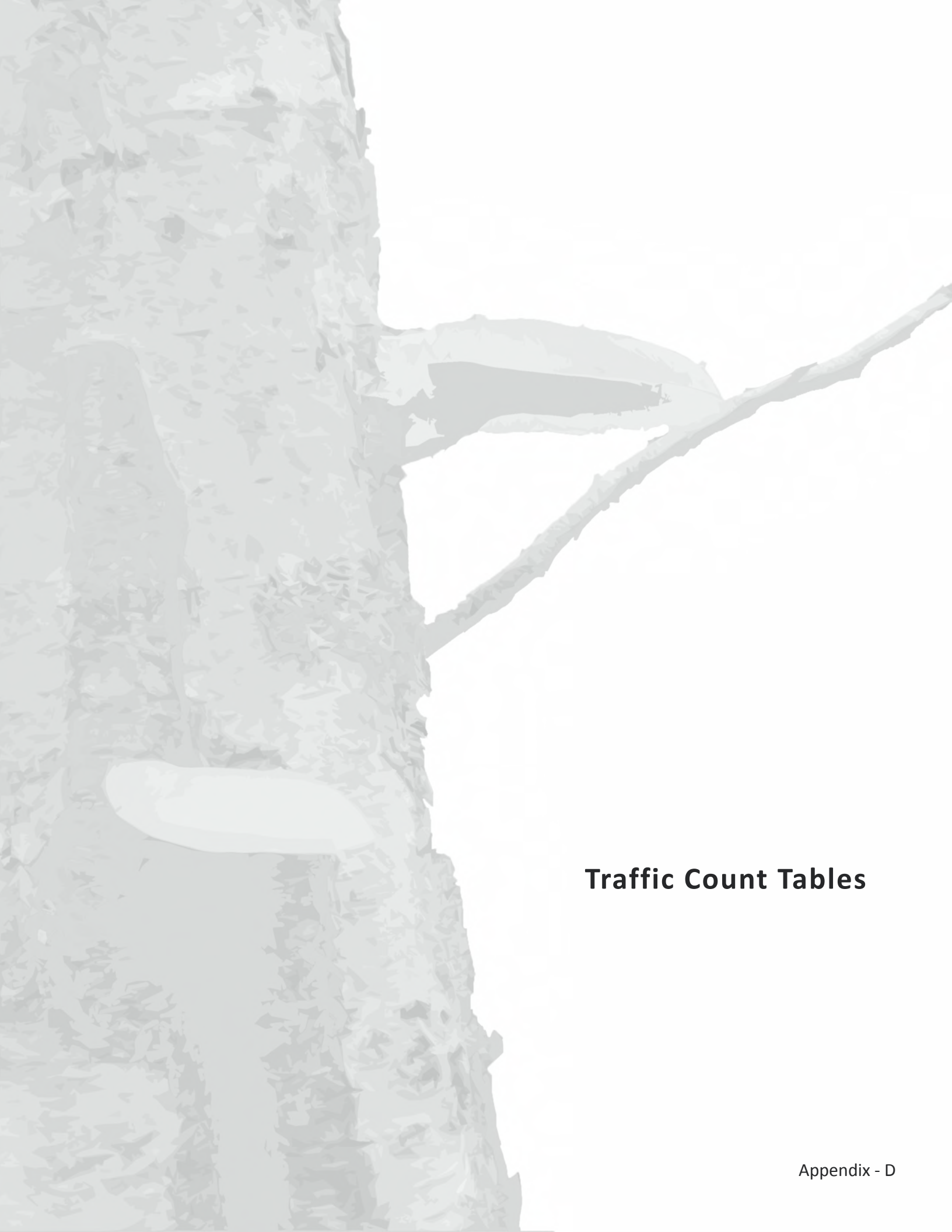
Dave Huard
Licensed Designer





Traffic Count Tables

Appendix - D

216th Ave SE and SE 20th Street

Mon		Tues		Weds		Thurs		Friday		Sat		Sun	
In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
245	247	225	222	218	191	214	215	175	180	155	158	144	146
492		447		409		429		355		313		389	

216th Ave SE

Average Daily Trips	389

Beaver Lake Preserve

Mon		Tues		Weds		Thurs		Friday		Sat		Sun	
In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
8	8	11	11	23	23	17	17	13	13	13	13	14	14
16		22		46		34		26		26		28	

Average Daily Trips	26

Notes:

- Data serves as a base for a minimally developed park or preserve

Lower Sammamish Commons

Mon		Tues		Weds		Thurs		Friday		Sat		Sun	
In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
28	28	65	65	99	99	128	128	20	20	38	38	50	50
56		130		198		256		40		76		100	

Average Daily Trips	121

Notes:

- Secondary park access
- Active House – Youth Counseling Services
- Active Park, no athletic fields
- Unable to distinguish between park use and house use

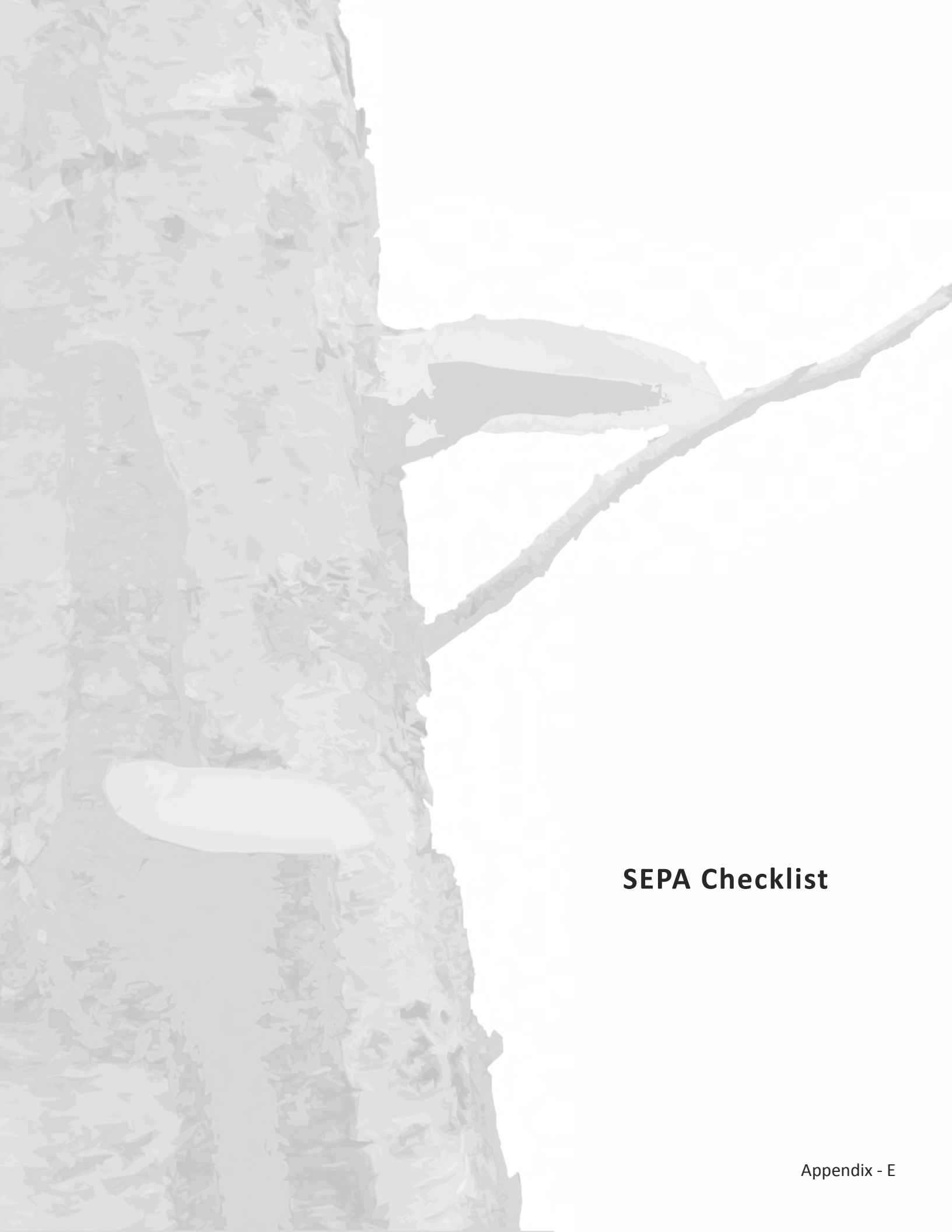
Ebright Creek Park

Mon		Tues		Weds		Thurs		Friday		Sat		Sun	
In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
118	118	212	211	187	188	255	255	102	102	76	76	158	158
236		423		375		510		204		152		316	

Average Daily Trips	317

Notes:

- Secondary park access
- Active park with restrooms and no athletic fields
- Highest rented picnic shelter



SEPA Checklist

Appendix - E

A. Background

1. Name of proposed project, if applicable:

Big Rock Park Master Plan

2. Name of applicant:

City of Sammamish Parks and Recreation (Contact: Kellye Hilde, Park Project Manager)

3. Address and phone number of applicant and contact person:

City of Sammamish
801 228th Ave. SE
Sammamish, WA 98075
Attn: Kellye Hilde

4. Date checklist prepared:

March 11, 2013

5. Agency requesting checklist:

City of Sammamish

6. Proposed timing or schedule (including phasing, if applicable):

The Master Plan for Big Rock Park identifies a series of park improvements that will likely be implemented over several years as funding allows. This phased plan includes proposals for new park elements and upgrades to existing features.

A phasing plan has been drafted to show development of the site over time. The phasing plan is provided to give current and future decision makers information about the elements of the long-term strategy so that phases can be identified and adjusted over time. It is expected that the actual phases will be refined during each year's budget planning process and during grant application development. Some repackaging of phasing may be required to reflect future needs, changing priorities, availability of outside grants, and city funding available at the time of implementation. The phasing plan is broken out into eight phases. Specific phased development should reflect the criteria of the grants being pursued and the priorities of city government. In general, the following phasing is organized partly by Park area and partly by efficiency considerations, with each phase numbered based on its priority.

Phase 1: Site A
SE 8th Street parking within the Right-of-Way (30-40 spaces)
Storm drainage for street parking
Entry Sign
Park entrance and plaza
Removal of existing trails
New trail construction that may include boardwalks, puncheons, and/or pedestrian footbridges
Construct ADA trails adjacent to the parking lot and throughout the north meadow
Enhancement of existing trails to remain
Sani-can with enclosure
Plantings

Irrigation (water is available from an existing well)
Site furniture

Phase 2: Site A
Barn renovation to accommodate restrooms and park maintenance
Septic System (upgrade to existing system)
Observation deck (wetland C)
Removal of existing trails
New trail construction that may include boardwalks, puncheons, and/or pedestrian footbridges
Enhancement of existing trails to remain
Plantings – wetland restoration and enhancements
Invasive removal
Informal lawn
Site furniture

Phase 3: Site B
On-street parallel parking on 221st Ave NE (3 parking spots)
On-site parking (10 stalls)
Access driveway
220th Ave SE ROW improvements
Entry sign
Tanner house and garage, minimal aesthetic only renovation
Construction of walkways between buildings
Sani-can with enclosure
Site furniture
Plantings
Irrigation (water is available from an existing well)

Phase 4: Site B
Utilities
Restrooms, to accommodate restrooms and park storage
Picnic shelter
Removal of existing trails
New trail construction that may include boardwalks, puncheons, and/or pedestrian footbridges
Construct ADA trails adjacent to the parking lot and throughout the south meadow
Enhancement of existing trails to remain
Plantings - forest restoration and enhancement
Meadow enhancement and restoration
Invasive removal

Phase 5: Site A
Education circle
North Ebright Creek Tributary enhancement and restoration
Meadow enhancement
Plantings – wetland restoration and enhancements
Plantings – buffer restoration and enhancement
Plantings - forest restoration and enhancement
Habitat features such as song bird boxes, bat boxes, snag amphibian stick bundles, etc.
Habitat demonstration areas such as a butterfly garden, editable plants display, native plant showcase, wildlife attracting landscapes, etc.
Invasive removal

Phase 6: Site B
Bird blind
Removal of existing trails
New trail construction that may include boardwalks, puncheons, and/or pedestrian footbridges
South Ebright Creek Tributary enhancement and restoration
Plantings – wetland restoration and enhancements
Habitat features such as song bird boxes, bat boxes, snag amphibian stick bundles, etc.
Habitat demonstration areas such as a butterfly garden, editable plants display, native plant showcase, wildlife attracting landscapes, etc.

Phase 7: Site A
On-site parking near the barn and garage (11 stalls)
Storm drainage for on-site parking (rain gardens)
Widen existing driveway for two-way access
House and garage renovation
Multi-purpose lawn with structural support such as grasscrete
Plantings
Irrigation

Phase 8: Site A
Elevated boardwalk
Habitat features such as song bird boxes, bat boxes, snag amphibian stick bundles, etc.
Habitat demonstration areas such as a butterfly garden, editable plants display, native plant showcase, wildlife attracting landscapes, etc.
Plantings - forest restoration and enhancement
Plantings – buffer restoration and enhancement
Invasive removal

As noted above, timing and elements of these phases are subject to change due to developing priorities and budget constraints in each fiscal year.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

☒ Yes ☐ No

SE 8th Street Park, in total, will encompass over 50 acres of property. The total acreage is divided between four parcels that has been or will be transferred to city as part of a phased land donation by Mary Pigott. Site A, comprised of two parcels, was transferred to the city in early 2011 and is currently used as a passive park. The second donation, Site B, was graciously allowed to be incorporated into the master plan process by Ms. Pigott as its transfer to the city will occur within the next 5 years. The final donation, Site C, is not included in the master plan and will occur in approximately 20 years from now and/or at the discretion of Ms. Pigott.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

SE 8th Street Wetland and Stream Reconnaissance Report prepared by The Watershed Company on November 14, 2011

9. Do you know whether applications are pending for governmental approvals of other proposals directly

affecting the property covered by your proposal? If yes, explain.

There are no known applications for any other projects affecting this site.

10. List any government approvals or permits that will be needed for your proposal, if known.

Building Permit – city of Sammamish
Clearing and Grading Permit – city of Sammamish
Electrical Permit – WA Department of Labor and Industries
Hydraulic Project Approval – Washington Department of Fish and Wildlife
NPDES Construction Storm Water Permit – WA Department of Ecology
Storm Water Review – city of Sammamish

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

Big Rock Park is a 36 acre site located in the center of the city. The site is consists of three parcels, two of which are owned by the city and referenced as Site A (16 acres). The third parcel, Site B (20 acres), is owned by Ms. Pigott.

This centrally located park is designed to concentrate use on Site A with minimal impact to Site B. The proposed layout and design of Site A includes on-street parking (40 stalls) along SE 8th Street, on-site parking near the house (11 stalls), meandering trails, an education circle, an observation deck, an elevated boardwalk and open lawn areas for informal play and picnicking. The existing single family home and garage may be leased to a caretaker until a public use can be determined. The barn will be used for park maintenance and storage with a portion renovated for park restrooms.

Site B is intentionally more passive than Site A with design elements that include meandering trails and boardwalks, habitat restoration and enhancement, a bird blind, a medium picnic shelter, a lawn area for picnicking and park restrooms. The Reard House, moved to the site in 2012, is intended to be used for heritage education in partnership with the Sammamish Heritage Society. The existing sauna will be renovated into a park restroom. The remaining buildings, the Tanner House and garage, will have minimum restoration for aesthetic purposes only and are not intended for public use.

Site B is accessible from the north via 221st Ave SE through the Lancaster Ridge subdivision. Three parallel parking spots are proposed within the 221st Ave SE right-of-way and adjacent to a city owned detention facility. Additional access is provided from the south via 220th Ave SE which will serve as the main entrance to Site B. A 10-stall grasscrete parking lot is proposed onsite just south of the Reard House.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Big Rock Park is a 36-acre site located in the center of the city. The project site is composed of three parcels, two of which are referenced as Site A and the third as Site B. Site A and B are located in Section 4, T 24 N, R 06 E. Parcels numbers, legal descriptions and maps are as follows;

Site A

042406-9213

E 695.90 FT OF NE 1/4 OF NW 1/4 LESS CO RD LESS BEG AT NW COR THOF TH S 00-31-10 W 655 FT TH E AT R/A 470 FT TH N AT R/A 252 FT TH W AT R/A 240 FT TH S AT R/A 217 FT TH W AT R/A 200 FT TH N AT R/A TO S LN SE 8TH TH W TO BEG

042406-9129

POR NE 1/4 OF NW 1/4 BEG NW COR OF E 695.90 FT SD SUBD TH S 00-31-10 W 685 FT TH S 89-28-50 E 470 FT TH N 00-31-10 E 252 FT TH N 89-28-50 W 240 FT TH S 00-31-10 W 217 FT TH N 89-28-50 W 200 FT TH N 00-31-10 E 649.49 FT TO N LN SD SUBD TH N 88-30-16 W 30 FT TO TPOB LESS N 30 FT FOR ST

Site B

042406-9019
THE WEST HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 4, TOWNSHEIP 24 NORTH, RANGE 6 EAST W.M., RECORDS OF KING COUNTY, WASHINGTON.

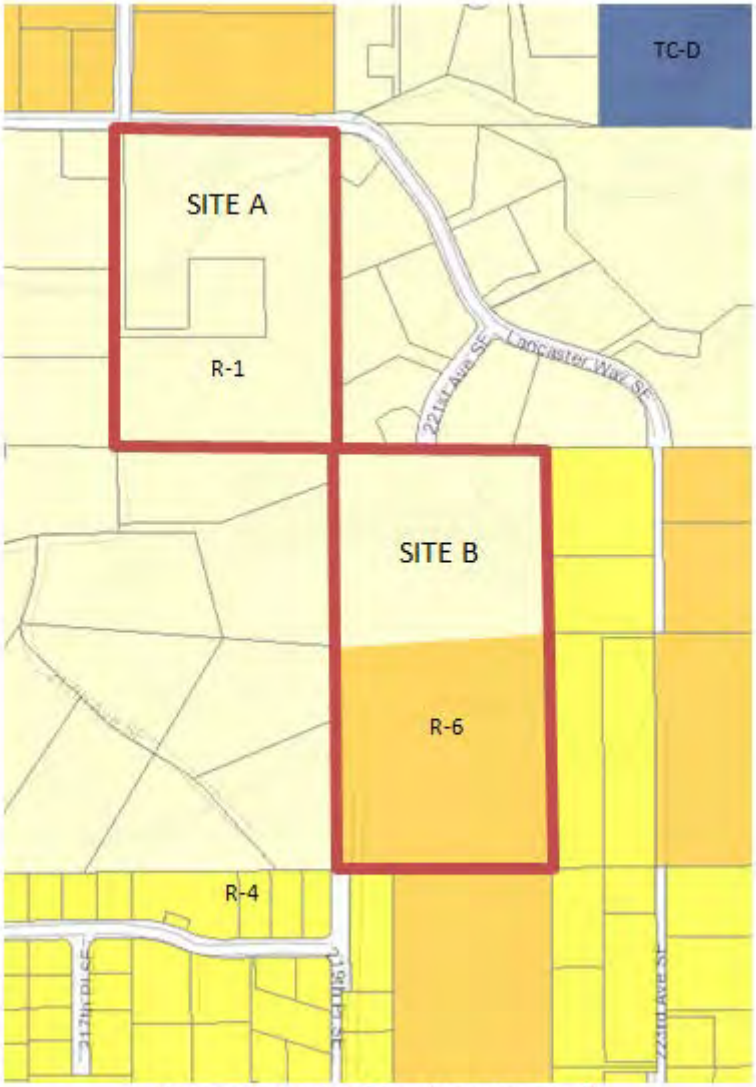


Figure 1: Zoning Map (nwmaps.net)

Figure 2: Aerial Map (nwmaps.net)

B. Environmental Elements

1. Earth

a. General description of the site (circle one):

- ☐ Flat
- ☒ Rolling
- ☐ Hilly
- ☐ Steep slopes
- ☐ Mountainous
- ☐ Other

The project site is generally rolling.

b. What is the steepest slope on the site (approximate percent slope)?

Based on GIS data, the site has varying topography with a total elevation difference of 36 feet on Site A and 70 feet on Site B between the highest and lowest points. The steepest slopes occur within the natural wooded areas varying between 15-36%. The meadow areas on both Site A and B are rolling with slopes averaging 5-15%.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime

farmland.

USDA Soils mapping lists the following soil types for the site:

Site A
Alderwood gravelly sandy loam (AgC): 88%
Seattle Muck (Sk): 12%

Site B
Alderwood gravelly sandy loam (AgC): 94%
Seattle Muck (Sk): 6%

http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no indications of any unstable soils

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

The overall objective will be to balance cut and fill on site to the fullest extent possible. Within the parking and proposed new structure areas (education center and picnic shelter) structural fill and base materials (gravels) will be imported on site, from an approved source. Quantities are not known at this time.

No fill is proposed in the wetlands. Boardwalks and the bird blind will be built with pin-pile foundations or equivalent and are proposed to eliminate the need for fill in wetlands.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur as a result of construction due to the slight sloping character of the project site and the composition of the site soils. This erosion will not extend outside the project limits.

Proposed prevention measures are discussed below. BMPs will be used to minimize the extent of any temporary disturbance and replanting will be done as needed for long term soil stabilization.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Preliminary estimates indicate that approximately 7% of the project site would be covered with impervious surfaces after construction.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

All clearing and grading construction would be in accordance with the city of Sammamish Clearing and Grading Permit conditions and shall comply with erosion and sediment control measures detailed in the 2009 King County Surface Water Design Manual and Attachment B, Surface Water Design Manual Addendum . Standard best management practices (BMP's) will be used before and during construction to minimize erosion and sedimentation. BMPs include, but are not limited to, use of silt fences, compliance with a timing restriction to coincide with the summer low-rain and low-flow period, and storage of materials away from wetlands, streams, and steep slopes. Following grading, disturbed soils will be mulched and hydroseeded with grass seed and/or

restored with native vegetation.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

The proposed action could result in localized increases in air quality emissions primarily as a result of construction activity and increases in vehicular traffic during peak use hours. The primary emissions would be construction dust and carbon monoxide from increased vehicle traffic during construction. Because the amount of increased vehicular traffic would not be significant, the increases in carbon monoxide also would not be measurable. The nature of the activities that would take place on the project site after construction completion would generate minimal increases in air quality emissions during peak use hours.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

☐ Yes ☒ No

There are no off-site sources of odor or emissions that would affect the project.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Using well-maintained equipment and avoiding prolonged periods of vehicle idling will reduce emissions from construction equipment and construction-related trucks.

Dust produced during construction would be reduced by several techniques should dust emissions be noted.

Areas of exposed soils, such as staging areas, could be sprayed with water or other dust suppressant.

The amount of soils carried out of the construction area by trucks could be reduced by wheel washing and wetting potential dust-producing truckloads.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

☒ Yes ☐ No

The project site is located north of Pine Lake. There are 8 wetlands and 1 stream on Site A and 5 wetlands and 1 stream on Site B. Wetland type and stream class are as follows;

Site A		Site B	
Wetland/Stream	**Type/Class**	**Wetland/Stream**	**Type/Class**
Wetland A	IV	Wetland I	III
Wetland B	III	Wetland J	III

Wetland C	II	Wetland K	III
Wetland D	III	Wetland L	III
Wetland E	III	Wetland M	III
Wetland F	III	Ebright Creek South Tributary	F
Wetland G	III		
Wetland H	III		
Ebright Creek North Tributary	F		

The north tributary of Ebright Creek is a permanently –flowing stream that has been identified by the city of Sammamish as a "stream of special significance" based on historic fish presence. The north tributary connects with the south tributary in a large wetland complex that begins approximately 500 feet southeast of the project site. The main stem of Ebright Creek continues flowing west towards Lake Sammamish from the west end of the wetland area. Although it is only mapped as a tributary, the south tributary is a primary contributor to Ebright Creek and likely be considered a "stream of special significance" by the city.

Refer to attached Wetland and Stream Reconnaissance Report prepared by the Watershed Company

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

☒ Yes ☐ No

Development is proposed within 200 feet of the north and south tributaries and wetlands and will have an impact on wetlands and streams buffers. This work would include trail removal and new construction, habitat restoration and enhancement, and small structures such as boardwalks, pedestrian foot bridges, a viewing deck, an education circle and a bird blind. Direct wetland and stream impacts will be avoided by placing park facilities outside of wetlands and streams areas and using pin-pile foundations to support proposed boardwalks and the bird blind. Critical area impacts will be mitigated in accord with an approved mitigation plan.

The proposed development will be designed to minimize impacts to the extent feasible and required mitigation will occur on the site.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Fill and dredge material is not proposed to be placed in or removed from surface water or wetlands.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

☐ Yes ☒ No

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

☐ Yes ☒ No

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

☐ Yes ☒ No

No intentional discharges of waste materials would occur during project construction.
Proper best management practices (BMPs) related to construction activity would be taken to insure that silt-laden water does not reach streams and wetlands on-site.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

☐ Yes ☒ No

There will be no discharge to or withdrawing from ground water. Stormwater runoff from impervious surfaces will be managed using proper storm water treatment methods.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

When all project phases are complete only a small percentage of the 36-acre land area will be changed by proposed improvements. A network of existing and proposed soft surface and gravel crushed rock trails are planned across the site. The trails will generally be surrounded by natural vegetation. Runoff from the trails will sheet flow along a natural drainage course. Based on past experience, the most effective way to manage runoff from pedestrian trails such as those proposed, is to disperse the drainage into the surrounding natural vegetation. As such, no engineered structures are proposed to manage runoff from the trails.

In contrast, stormwater from the proposed parking lots and roadway improvements will be managed with engineered systems. Areas of built construction (parking, structures, etc.) will be treated and conveyed to an on-site storm water facility and tied into the city's existing storm water system. All storm water design for this master plan will be consistent with the city of Sammamish Drainage Codes and/or King County Surface Water Design Manual.

2) Could waste materials enter ground or surface waters? If so, generally describe.

☐ Yes ☒ No

No waste materials would enter ground or surface waters. All pollution generating surface runoff will be treated per city of Sammamish drainage code, prior to entering the storm drainage system.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

- The city of Sammamish would comply with applicable requirements relating to surface water runoff control and water quality including local drainage control ordinance.
- The proposed project would require city approval of a comprehensive Drainage Control Plan. Specific measures may include oil/water separators, retention/detention storage, and catch basins with clean-outs.
- The proposed project would require city approval of a Drainage Control Plan with Construction Best Management Practices (BMP), and Erosion and Sediment Control Plan as part of a submitted clear and grade permit.

4. Plants

a. Check or circle/underline types of vegetation found on the site:

☒ Deciduous tree: alder, maple, aspen, other - Oregon Ash
☒ Evergreen tree: fir, cedar, pine, other
☒ Shrubs: vine maple, beaked hazelnut, salmonberry, red huckleberry, salal, fern varieties and osoberry
☒ Grass
☒ Pasture
☐ Crop or grain
☒ Wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
☒ Water plants: water lily, eelgrass, milfoil, other
☒ Other types of vegetation

Refer to attached Wetland and Stream Reconnaissance Report prepared by the Watershed Company

b. What kind and amount of vegetation will be removed or altered?

The proposed project will remove some existing vegetation, primarily shrubs and groundcovers, to create trails and park amenities. Invasive vegetation such as Himalayan Blackberry, English Ivy and Holly will be removed. The construction of the parking lot and driveway on both Site A and B may require the removal of trees. Additional planting is proposed to mitigate for the loss of vegetation on site.

c. List threatened or endangered species known to be on or near the site.

No threatened or sensitive plant species are known to occur at the project site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The proposed action will add native and adapted low water use plants to the site to enhance the ecological and visual presence of the park. Additional trees, shrubs and groundcovers will be added around the parking lot and near the existing structures on both sites. The wooded site area, containing native plantings, will be enhanced with additional native species that are adapted to the site. Care will be taken to ensure existing trees are preserved, and protected throughout the duration of the implementation of the proposed project. Removal of invasive species is proposed as part of the implementation.

In addition to required mitigation, the city plans to restore the existing open meadows on both Site A and B as well has add additional native plants along the parks property line to create a buffer between the park and adjacent neighbors.

5. Animals

a. Circle/underline any birds and animals which have been observed on or near the site or are known to be on or near the site:

☒ Birds: hawk, heron, eagle, songbirds, other:
☒ Mammals: deer, bear, elk, beaver, other: Squirrel, raccoon and rabbits
☐ Fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

There are no known threatened or endangered species to be on or near the site at this time.

c. Is the site part of a migration route? If so, explain.

The north tributary corridor within Site A is identified as a wildlife network (King County iMAP). Birds may use the wetlands and surrounding forest as nesting, resting and foraging areas during spring and fall migrations. Evidence was found on site that indicated deer and black bear utilize the site for foraging.

d. Proposed measures to preserve or enhance wildlife, if any:

As the plan aims to restore and preserve the project site's overall natural features and habitat while providing open space for human enjoyment and passive recreation there are many proposed measures to preserve and enhance wildlife. These include:

- Maintain existing, large stands of trees and vegetation that support wildlife
- Keep development within areas already in use as feasible to protect more natural areas
- Incorporate native or beneficial adaptive plantings where feasible with new and existing park areas/ features
- Provide stormwater storage and treatment facilities to reduce flooding and improve wetland and stream water quality.
- Restore and enhance stream channels and buffers to improve and protect habitat for wildlife
- Keep impervious surfaces to a minimum
- Implement an enhancement plan that supports local habitat

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Energy used would be limited to electricity and natural gas necessary to maintain the existing homes, restroom buildings and the irrigation system on both sites.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

☐ Yes ☒ No

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Since park hours will be dawn to dusk, no lights are planned for the parking lots or trails. Restrooms facilities will be designed to have low energy footprints. There is the potential for the home on Site A to be leased to a caretaker and electricity and natural gas would be used accordingly. There are no formal programs planned for the homes on Site B therefore electricity and natural gas will be used minimally.

A proposed irrigation system will utilize rain sensors to shut off the system when natural rainfall occurs. Low water use plants reduce the amount of water resources, along with efficient design, and whenever possible, irrigation would be discontinued after the plants establishment periods (2-3 years).

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

There are no known environmental health hazards on site.

1) Describe special emergency services that might be required.

None required beyond those serving the existing park

2) Proposed measures to reduce or control environmental health hazards, if any:

No environmental health hazards are contemplated on this site or off-site as a result of this project.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short term noise from construction equipment would occur during appropriately set hours (see #3 below). The increased noise generated during construction of the project would be temporary in nature.

Long term noise would only result from use of the park by the public.

3) Proposed measures to reduce or control noise impacts, if any:

The proposed action will comply with city of Sammamish ordinances related to noise. Mitigation measures could include:

- Limiting construction activity to the hours regulated by SMC 16.05.030.
- Use electric rather than diesel or gas-powered machines where practical.
- Schedule particularly noisy operations to avoid disturbing residential neighbors.
- Use mufflers on all internal combustion engine driven equipment.
- Keep noisy equipment as far as possible from the site boundaries, whenever possible.
- Turn off idling equipment.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

Site A is currently used as a public park while Site B is owned by Mary Pigott and functions as a residential rental. The other surrounding parcels are single-family residential.

b. Has the site been used for agriculture? If so, describe.

☐ Yes ☒ No

c. Describe any structures on the site.

Big Rock Park Structure Inventory			
Site A	**Year Built**	**Square Footage**	**Condition***
House	1978	3460	Very Good
Garage	1978	600	Very Good
Barn	?	2074	Not assessed
Site B			
Reard House	1892-1895	1515	Not assessed
Tanner House	1930	830	Good
Sauna	1950	570	Not assessed
Shed/Carport	1940	280	Fair

*Per King County Department of Assessments

d. Will any structures be demolished? If so, what?

☐ Yes ☒ No

At the time of this application, a formal decision has not been made on the public use and recreation program for the Tanner House and Site B garage. There is a possibility that these buildings could be demolished if it is determined they are not suitable for public use.

e. What is the current zoning classification of the site?

Site A: R-1
Site B: R-1 and R-6

Refer to map shown for question 12

f. What is the current comprehensive plan designation of the site?

Site A: R-1
Site B: R-1 and R-6

Refer to map shown for question 12

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

☒ Yes ☐ No

There are thirteen wetlands and two streams. Refer to the Wetland and Stream Reconnaissance Report dated prepared by the Watershed Company dated November 14, 2011.

i. Approximately how many people would reside or work in the completed project?

Potentially the residence on Site A could be leased to a park caretaker.

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing is proposed

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Not applicable

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest structure in the proposed project is the elevated boardwalk and/or the new picnic shelter at a height of approximately 15'-20'. Materials for proposed structures will follow park standards and consist primarily of wood and other natural materials for both structures.

b. What views in the immediate vicinity would be altered or obstructed?

No views will be obstructed

c. Proposed measures to reduce or control aesthetic impacts, if any:

The wooded perimeter along property lines will be maintained, and even enhanced in some areas, in the proposed project to provide the surround neighbors privacy from the park. These areas will be enhanced with native plantings.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The park will be day use only with the exception of the home on Site A which may be leased to a caretaker. Lighting from the home will produce insignificant amounts of light throughout the evening hours. The house is centrally located within the property and well buffered from surrounding residences.

Security lighting at the restrooms would add minimally to the overall site glare and generally would be used in hours from dusk until 11:00 pm.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

☐ Yes ☒ No

c. What existing off-site sources of light or glare may affect your proposal?

Off-site light impacts would come from vehicular traffic along SE 8th Street and residential light from surrounding single family homes.

d. Proposed measures to reduce or control light and glare impacts, if any:

Retaining the majority of the existing vegetation on site will help to reduce and control light and glare impact.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Located approximately .7 miles west of the project site is Ebright Creek Park. Sammamish Commons is located northeast of the site approximately .7 miles and directly southeast, approximately 2.25 miles is Pine Lake Park.

b. Would the proposed project displace any existing recreational uses? If so, describe.

☐ Yes ☒ No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No significant adverse recreational impacts are anticipated and no mitigation measures are necessary.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

☒ Yes ☐ No

The Reard House is listed on the King County Landmark Commissions Register for Historic Sites.

The Tanner home, sauna and garage, built during the 1930-1950, are not listed on or proposed for national, state, or local preservation registers.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

The Reard House was built in 1895 by Jacob and Emma Reard. The 1,515 SF Victoria style farmhouse contains a living and dining room, parlor, bathroom and two bedrooms on the second floor. Shortly after the house was constructed, a kitchen wing was added. In 1928 the house was purchased by Oscar Freed and his wife Dorothy. In 1945, Oscar Freed successfully campaigned for Water District 82, now known as Sammamish Plateau Water and Sewer District. The farmhouse became the district's first headquarters.

In 1996, the Freed family sold the property and farmhouse to a local developer who moved the building to a temporary location along 212 Ave SE. In 2001, the farmhouse was donated to the city of Sammamish. Through thoughtful planning with Ms. Pigott and the Sammamish Heritage Society, the city relocated the Reard House to Site B on June 3, 2012. The home is now situated south of the Tanner home and sauna and is undergoing renovations.

The Tanner home (1930), sauna (1940), and garage (1950) would not qualify has a historic, archaeological, scientific or cultural importance per national, state and local preservation agencies as these buildings do not meet the eligibility criteria.

c. Proposed measures to reduce or control impacts, if any:

An easement on the southern portion of Site B, granted to the city by Ms. Pigott, allows for limited use, access and building construction for the Reard House. The city has the right to use the easement area for constructing, reconstructing, assembling, stabilizing, improving, maintaining, repairing and enhancing the home. The city and its contractors have restricted access to the property such as limited working days and hours of construction. The city must give 24 hours' notice prior to entering Site B.

Should additional historic, archeological, scientific or culturally significant items be encountered during implementation of this project, work would be temporarily stopped while the appropriate agencies are notified.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

North of Site A is SE 8th Street. The master plan proposes a parking lot within the public right-of-way with direct access via SE 8th Street.

An 18' wide two-way access driveway is proposed where the existing one-way 12' wide driveway currently exists. The driveway will give vehicular access to the house and to a proposed on-site parking lot near the home on Site A. The driveway and on-site parking lot will only be built if the home is renovated for public use.

South of Site B is 220th Ave SE. Proposed development includes right-of-way improvements per current public works standards and a 12' wide on-site driveway giving access to a 10-stall grasscrete parking lot, drop-off area

for park tours and the existing garage. In addition, three parallel parking spaces are proposed along 221th Street SE, just north of Site B, allowing for additional parking and park access.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

☐ Yes ☒ No

The nearest transit stop is located approximately 1 mile away and is located on the corner of 228th Ave NE and SE 4th Street.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The completed project would add 64 new parking spaces to the project site.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

☒ Yes ☐ No

A 40-stall on-street parking lot is proposed within the existing SE 8th Street right-of-way and required improvements will be further explored with the city's public works department.

Access to Site B via 220th Ave SE terminates at the south property line. This is the only feasible vehicular access into the site as 221st Ave SE, at the north property line, faces challenges with existing site topography and critical areas. Improvements to 220th Ave SE may include adding a sidewalk for pedestrian access, asphalt overlay and buffering between the road and the adjacent neighbors. All improvements will be in compliance with the most current public works standards.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

☐ Yes ☒ No

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

While numbers have not been calculated for Site A, the number of parking spaces has been designed with the intention of vehicle trips per day being appropriate for complete build out of the master plan. Parking is phased to accommodate more active uses such as the elevated boardwalk, trails, picnic areas, and the education circle.

Traffic counts were calculated for Site B and are summarized below. These numbers depict traffic counts for 216th Ave SE, the only improved access route linking SE 20th Street to 221st Ave SE thus providing access to Site B.

Mon		Tues		Weds		Thurs		Friday		Sat		Sun	
In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
245	247	225	222	218	191	214	215	175	180	155	158	144	146

492	447	409	429	355	313	389
216th Ave SE						
Average Daily Trips					389	

In comparison, proposed park features for Site B are similar in design and use to Beaver Lake Preserve. Traffic counts were also calculated for Beaver Lake Preserve and are summarized below.

Mon		**Tues**		**Weds**		**Thurs**		**Friday**		**Sat**		**Sun**	
In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
8	8	11	11	23	23	17	17	13	13	13	13	14	14
16		22		46		34		26		26		28	
Beaver Lake Preserve													
Average Daily Trips										26			

It is anticipated that traffic will increase insignificantly for Site B considering the current vehicular counts at similar Sammamish parks. Both 216th Ave SE and SE 16th Place, the preferred access route, are considered local neighborhood streets and designed to carry 400 to 2000 vehicle trips per day. These roads also fall under the Neighborhood Traffic Management Program, a joint effort between residents, the public works department and police to reduce the impact of traffic on neighborhoods.

Visits to the park are intended and expected to be during normal park hours, dawn until dusk.

g. Proposed measures to reduce or control transportation impacts, if any:

As previously mentioned, parking is phased to help control transportation impacts. Also, programming the site as a day use, drop-in facility with limited scheduled activities will aid in reducing/controlling transportation impacts.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The project would require public services generally associated with a public park, including maintenance, police and fire services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

No significant adverse public service impacts are anticipated and no mitigation measures are necessary.

16. Utilities

a. Check utilities currently available at the site:

☒ Electricity
☐ Natural gas

☒ Water
☐ Refuse service
☒ Telephone
☐ Sanitary sewer
☒ Septic system
☒ Other: Propane

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Site A is currently serviced by the following utilities;

Electrical Power: Puget Sound Energy
Water: Sammamish Plateau Water and Sewer District
Sewer: On-site septic
Storm Drainage: city of Sammamish

Site B is currently serviced by the following utilities;

Electrical Power: Puget Sound Energy
Water: On-site well
Sewer: On-site septic
Storm Drainage: city of Sammamish

Proposed action includes upgrading the existing septic systems on both sites for public use and connecting Site B to public water. No construction activities are anticipated in the immediate vicinity of the site.

c. signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

Date Submitted:

Evaluation for agency use-only

D. supplemental sheet for non-project actions
(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

The proposal is not likely to significantly increase discharge to water; emissions to air; or production, storage, or release of toxic or hazardous substances; or production of noise. Any potential increases are listed here:

Discharge to Water: Some additional impervious surfaces are planned which will produce additional surface run-off. Increased runoff resulting from these impervious improvements would be managed and designed per city and county stormwater management guidelines.

Emissions to Air: The primary emissions would be construction dust and carbon monoxide from increased vehicle traffic during construction. Because the amount of increased vehicular traffic would not be significant, the increases in carbon monoxide also would not be measurable.

Toxic Hazardous Substances: No increase in toxic hazardous materials.

Production of Noise: Short term noise from construction equipment would occur during appropriately set hours. The increase noise generated during construction of the project would be temporary in nature.

Long term noise would only result from use on of the park by the public.

Proposed measures to avoid or reduce such increases are:

Discharge to Water: New subsurface drainage will be added to direct runoff to proposed stormwater facilities for storage and treatment as necessary prior to outfalling to any stream or wetland.

Emissions to Air: Using well-maintained equipment and avoiding prolonged periods of vehicle idling would reduce emissions from construction equipment and construction-related trucks.

Dust produced during construction would be reduced by several techniques should dust emissions be noted. Areas of exposed soils, such as staging areas, could be sprayed with water or other dust suppressant.

The amount of soils carried out of the construction area by trucks could be reduced by wheel washing and wetting potential dust-producing truckloads.

Toxic Hazardous Substances: None anticipated.

Production of Noise: The proposed action will comply with City of Sammamish ordinances related to noise.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Future park improvements will be designed with the intent of allowing access for the public, including ADA access, while maintaining the character of the property. Low impact uses, such as the trails, picnic areas, an observation deck, an elevated boardwalk, a bird blind and habitat restoration sites within the property, is a large component of the park and allow for outdoor environmental education opportunities. With the exception of the parking lots and basic park facilities (restrooms, picnic shelter, education circle, etc.), the proposed land use is low intensity. Vehicle and pedestrian traffic are expected to increase as park improvements are completed. Increased use will disturb some wildlife and some plants will be trampled or displaced by any future trails or boardwalks.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

As noted in the SEPA checklist, temporary plant disturbances resulting from any future improvements would be restored and permanent impacts would be mitigated in accordance with an approved mitigation plan. The city also plans to improve the parks natural areas through invasive removal, native plant enhancement and wildlife habitat enhancements. These include:

- Mitigate any impacts on site with equal or greater benefit
- Maintain existing, large stands of trees and vegetation that support wildlife
- Keep development within areas already in use where feasible to protect more natural areas
- Incorporate native or beneficial adaptive plantings where feasible with new and existing park areas/ features
- Provide stormwater storage and treatment facilities to reduce flooding and improve wetland and creek water quality.
- Restore creek channels and buffers to improve and protect habitat and wildlife
- Keep impervious surfaces to a minimum

3. How would the proposal be likely to deplete energy or natural resources?

The proposed design features do not require significant quantities of construction materials that would significantly deplete on or off-site resources. Other potential increases in natural resource consumption include the following:

Electrical & Natural Gas Energy: increased usage from potential use of the house on Site A by a park caretaker and the new restrooms.

Water Consumption: increased water usage for new irrigation and the new restrooms.

Proposed measures to protect or conserve energy and natural resources are:

- Avoid development in areas containing natural resources such as trees, streams, and wetlands
- Use recycled or other, more sustainable construction materials where feasible
- Use energy efficient fixtures
- Incorporate timers, sensors and other mechanisms for controlling and managing energy or natural resource consuming features such as irrigation and lighting.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

The site contains many sensitive areas including streams and wetlands. Additionally, approximately 50% of the

park exists within a contiguous, heavily wooded stand of mature trees that provides important habitat and environmental benefit. This proposal aims to provide an overall benefit to these environmentally sensitive areas by restoring, enhancing, and protecting them to the greatest extent possible while providing adequate public open space to serve the city of Sammamish. Existing and proposed park uses and facilities include an education center, activity meadows, trails, observation deck, elevated boardwalk, bird blind, picnic shelter and informal and multi-use lawn areas. Proposed features are kept outside of sensitive areas and associated buffers to the greatest extent feasible to minimize impacts.

Proposed measures to protect such resources or to avoid or reduce impacts are:

- Avoid or minimize development in streams and wetland areas by locating park elements outside their boundaries and associated buffers to the greatest extent feasible.
- Provide vegetative buffers to sensitive areas such as streams and wetlands
- Where it is necessary to impact sensitive areas, reduce impacts by incorporating design features and materials that will minimize erosion or pollution.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The site is currently zoned 1 and R-6. The proposed park would not conflict with this zoning and disturbs less natural environment than developments on the adjacent properties. There are no shorelines on the subject property.

Proposed measures to avoid or reduce shoreline and land use impacts are:

No measures are necessary.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Transportation:
Improvements to the park are projected to result in a modest increase in traffic volumes on SE 8th Street and 220th Ave SE. No metro transit routes currently service this area.

Public services:
Emergency vehicles will need to respond to any injury or fire incidences at the park.

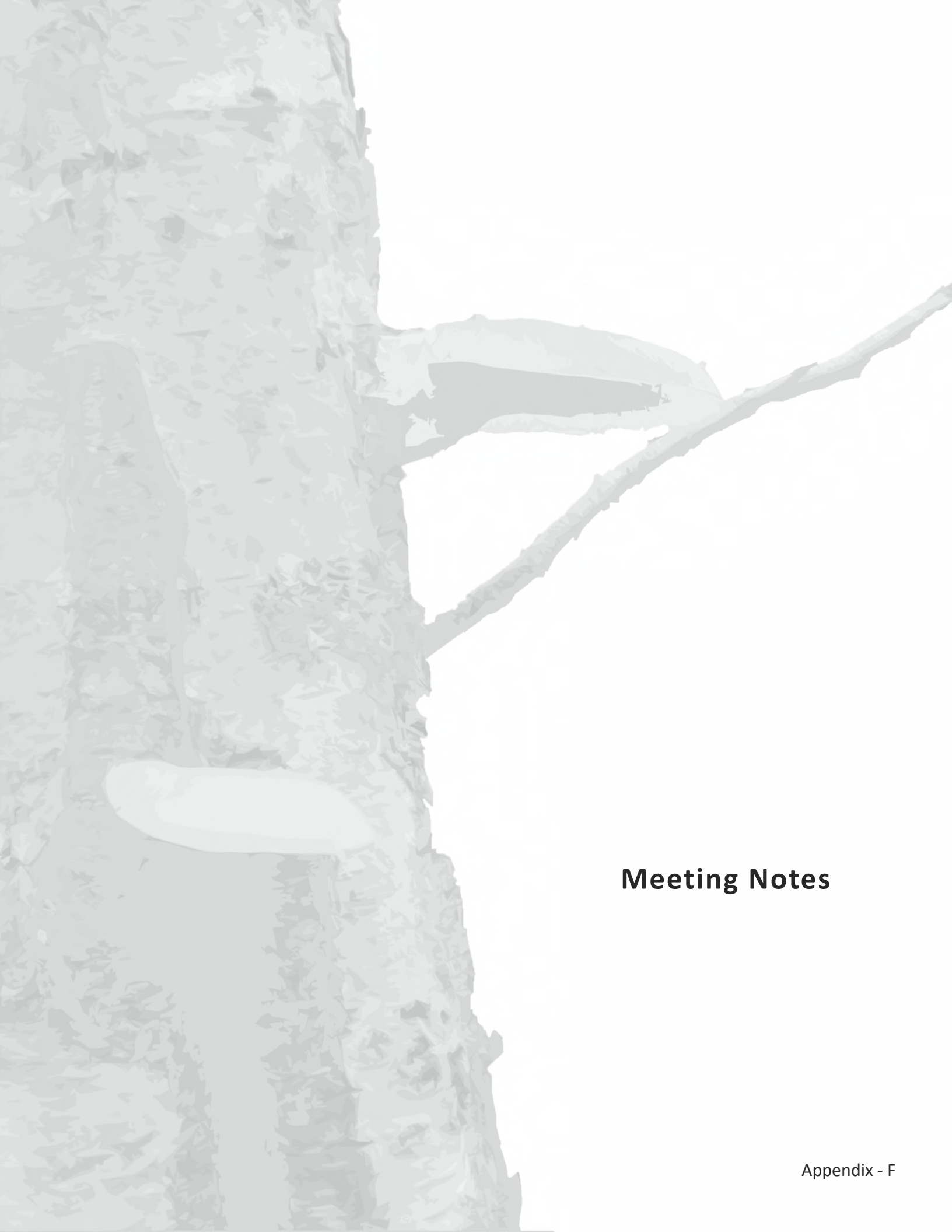
Utilities:
Utilities are necessary to operate the house on Site A, restrooms and to power the irrigation system. Additional utility needs are not anticipated. Once the park is operational, basic maintenance and sanitation pick-ups will be necessary.

Proposed measures to reduce or respond to such demand(s) are:

Anticipated traffic volumes and the services the park will require are within the range of the city thresholds for zoning at the site. Therefore, no reduction measures are necessary.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

There are no conflicts with local, state, or federal laws or requirements for the protection of the environment identified



Meeting Notes

Appendix - F

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SE 8th Street Public Meeting #1
Hopes, Dreams and Fears
Wednesday, January 11, 2012

Meeting Notes

Fears

- Wide mucky trails
- Not structured
- Closing off wildlife connections
- Loved to death
- Mt. bikes
- Access to site B – safety
- Parking
- Access from site A to the Commons
  i. Constraints in the connection
  ii. Wet
- Views (sw) from Big Rock – don't block view
- Damage to the site

Hopes

- Education – outdoor classroom(s)
- Experiences (pea gravel)
  i. Climbing
  ii. Nature as 'toy'
- Art that reflects nature
- Fire pit
- Frog sounds
- Zip line
- Tree house
- Interpretive nature center
- House that doesn't have to be 'cleaned up'
- Amphitheater
- Pockets of 'discovery'
- Forts
- Discover, find, experience adventure
- Intimate trails
- Park vs. Preserve
- Unstructured play
- Microcosm of plateau
- Identify wildlife corridor – at least a 'node'
- Reard house as a small part of a greater context
- Access w/out a path (idea)
- Heritage of more than just a house
- House to generate income
- In nature there are no straight lines
- House on 'A' call it 'Volunteer House' (ng.)
- Reard house w/garden – connect schools with gardens
- Small farm animals – schools involved
- Restore parcel 'A' wetland – storm water restoration
- Educational facility connected to nature
- Overnight experiences
- Reard house must be accessible to children
- Topo map model of plateau
- Show stumps with logging history – make interactive
- Rain garden with art features (rain drums)
- Multi-sensory
- Kids access to ponds
- Sealed up beaver lodge
- Tie name(s) to stories + teaching moments + teaching history
- Keep sauna
- Look at Mary Olson house (Renton)
  i. 21 acres in Woodinville
- Day camps
- Tree canopy access
- Fugitive earth art

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SE 8th Street Public Meeting #2
Master Plan Alternatives
September 19, 2012

Meeting Notes

Site A: General Comments
Passive recreation preferred

Circulation and Parking
Paved surface, gravel is too noisy
No loop driveway through property

Meadows and Wetland
Keep the meadow natural and undeveloped
No art or structures in the meadow

Buildings and Surroundings
A meeting space for small groups preferred

Wooded Area
Willow tunnel between Site A and B is great
Like the observation decks and canopy walk
Remove trails running along property lines
Pedestrian trails only (no mountain bikes or horses)

Consensus
Majority of development should be on Site A
Keep the meadow natural
Parking along SE 8th Street
Trails, observation deck and canopy walk
Willow tunnel, education circle and picnic shelter

Hot Topics
Keep the meadow on Site A natural
Parking along SE 8th street preferred.

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Site B: General Comments
Keep Site B more passive
Provide programming that doesn't generate crowds

Circulation and Parking
Majority of parking should be on along SE 8th Street
Add berms to screen parking area
Driveways and parking areas should be paved

Buildings (Tanner House, Sauna, Garage, Reard House, New Buildings)
No comments

P-Patch
Who would maintain the community gardens
P-patch options are not preferred

Open Meadow
No comments

Wooded Area
Remove trails along property lines
No aspens, they are not native
Pedestrian trails only (no mountain bikes or horses)

Consensus
Keep Site B more passive
Limit parking at south entrance
Add parking option along 221st Ave SE

Hot Topics
Parking and access
School bus access and safety
Zipline
Impact on neighbors

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SE 8th Street Public Meeting #4
Preferred Master Plan
September 6, 2012

Meeting Notes

Discuss 2-3 Design elements that you Like

- Center entrance and trail into park
- Canopy walk
- Education circle
- Very pleased with scaled down approach
- Trails moved in from property lines
- Bird Blind
- Education circle and fire pit

Discuss 2-3 design elements that you would like the City Council to consider further

Modify

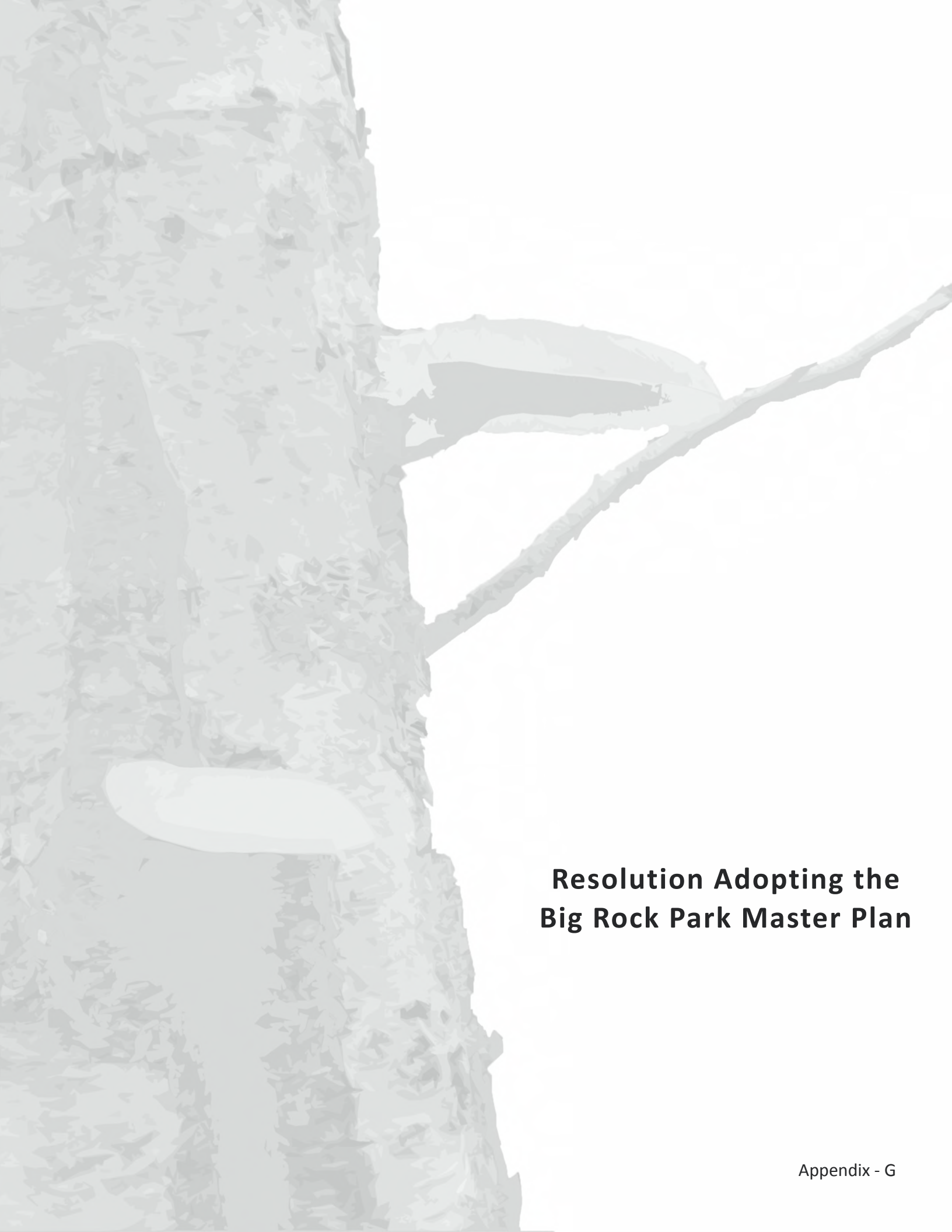
- Hours of park activities
- Limit activity to 9 pm or after dark
- Adding a tree house at the end of the canopy walk
- Expand parking at the end of 221st Ave SE. 3 doesn't seem like a lot

Eliminate

- Remove some parking along SE 8th Street because of blind corner

What house plan on Site A do you prefer?

- Option B - Open floor plan



Resolution Adopting the Big Rock Park Master Plan

Appendix - G

CITY OF SAMMAMISH
WASHINGTON
RESOLUTION NO. R2014-592

A RESOLUTION OF THE CITY OF SAMMAMISH, WASHINGTON, ADOPTING A MASTER PLAN FOR BIG ROCK PARK

WHEREAS, Big Rock Park is a 36-acre park comprised of two parcels in the center of the City, at the corner of SE 8th Street and 214th Ave SE; and

WHEREAS, Big Rock Park was donated as part of a phased land donation to the City of Sammamish by Ms. Mary Pigott in 2010; and

WHEREAS, the City's Model Master Plan Process was conducted for the Big Rock Park Master Plan from November 2011 to September 2012 to identify priorities for future park improvements in a comprehensive manner through a process that involved the community; and

WHEREAS, following four public meetings and corresponding updates to the Parks and Recreation Commission and to the City Council, a final preferred alternative for the Master Plan was completed and presented to the City Council;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SAMMAMISH, WASHINGTON, DO RESOLVE AS FOLLOWS:

Section 1. Adoption of the Big Rock Park Master Plan: The City Council hereby adopts the Big Rock Park Master Plan, attached hereto as Attachment A and incorporated herein by reference.

Section 2. Severability: Should any section, paragraph, sentence, clause or phrase of this Resolution, or its application to any person or circumstance, be declared unconstitutional or otherwise invalid for any reason, or should any portion of this Resolution be pre-empted by state or federal law or regulation, such decision or pre-emption shall not affect the validity of the remaining portions of this Resolution or its application to other persons or circumstances.

Section 3. Effective Date. This Resolution shall take effect immediately upon signing.

ADOPTED BY THE CITY COUNCIL AT A SPECIAL MEETING THEREOF ON THE 8th DAY OF JULY 2014.

CITY OF SAMMAMISH

Mayor Thomas E. Vance

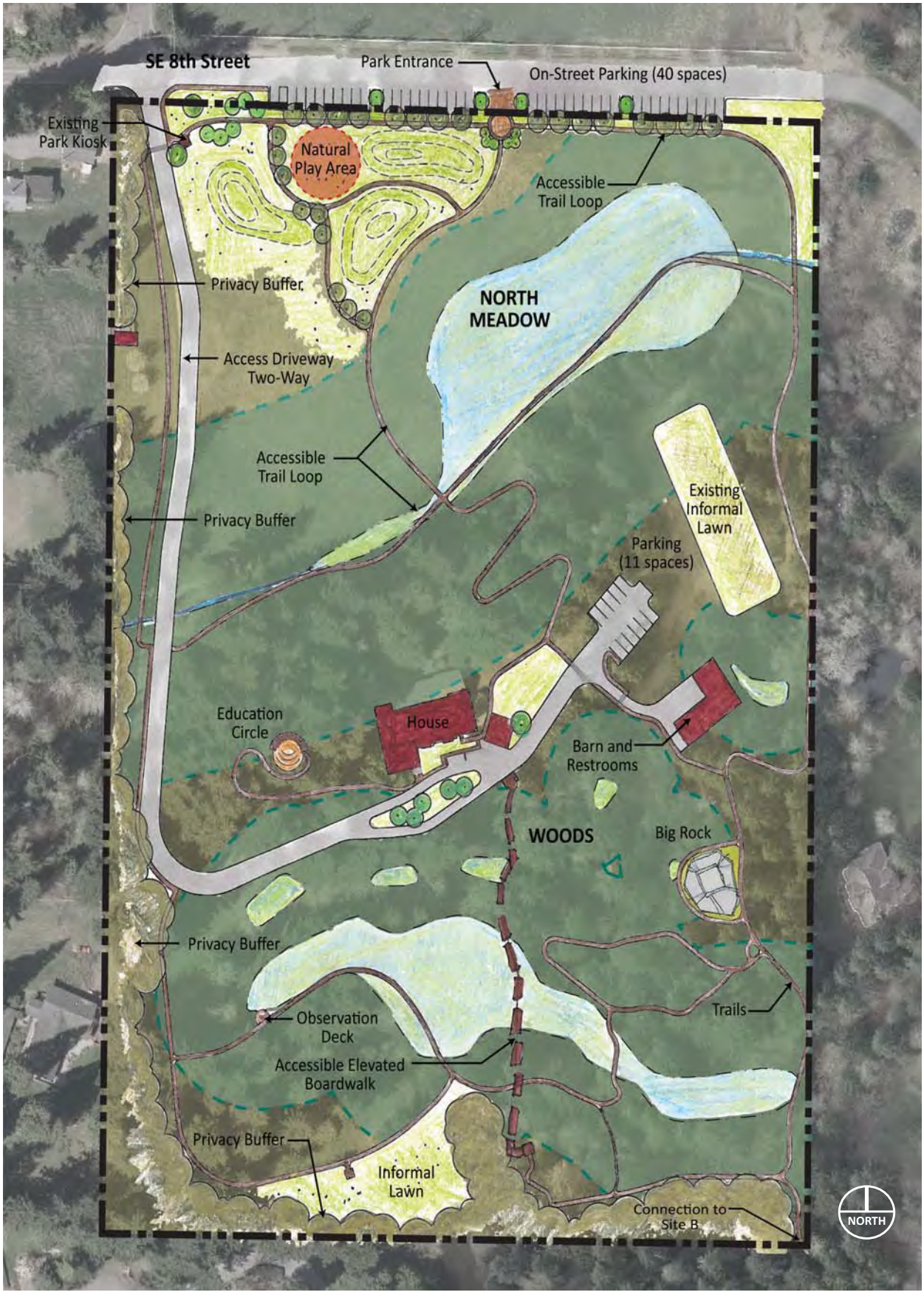
ATTEST/AUTHENTICATED:

Melonie Anderson, City Clerk

Approved as to form:

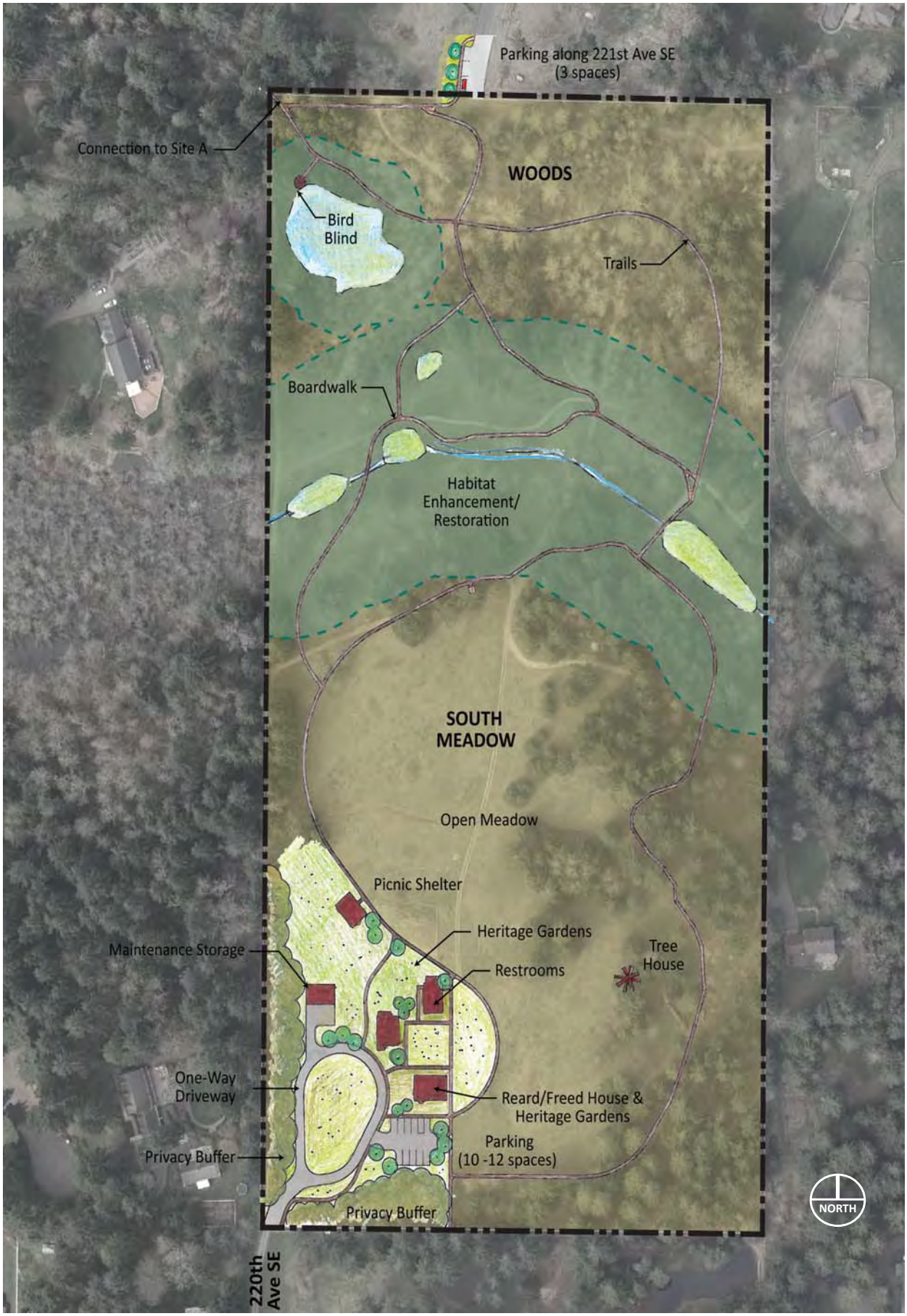
Michael R. Kenyon, City Attorney

Filed with the City Clerk: June 26, 2014
Passed by the City Council: July 8, 2014
Resolution No.: R2014-592



SITE A

BIG ROCK PARK MASTER PLAN



SITE B

BIG ROCK PARK MASTER PLAN