



WETLAND RECONNAISSANCE AND EXISTING CONDITIONS REPORT

LITTLE SQUALICUM PARK MASTER PLAN



OCTOBER 2009
REVISION 1.0

prepared for
City of Bellingham
Parks and Recreation Department
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EXECUTIVE SUMMARY

Northwest Ecological Services, LLC (NES) is a subconsultant to Belt Collins Northwest, LLC (Belt Collins), the prime consultant for the City of Bellingham Parks and Recreation Department's Little Squalicum Park Master Plan project. Little Squalicum Park (the Park) is an approximately 24-acre park located within the City of Bellingham's Urban Growth Area (UGA) immediately west of the City limits along the Bellingham Bay marine shoreline. The Park is used for passive recreation and is surrounded by residential, industrial, and institutional land uses. The Park encompasses Parcel Numbers 380223 473219, 380223 420211, 380223 392252, 380223 356223, 380223 378227, 380223 344168, and 380223 347164 (Section 23, Township 38, Range 2E, W.M.).

The Parks Department retained the Belt Collins team to update prior planning work and prepare a master plan which could facilitate coordination with related projects including the West Illinois Street extension project, Bellingham Technical College's 20-year Master Plan, required landfill clean-up orders from the Washington State Department of Ecology (WDOE), and Oeser Company soil contamination clean-up efforts lead by the Environmental Protection Agency (EPA).

NES's involvement with the Little Squalicum Park Master Plan included contributing information on wetlands, streams, and wildlife habitat which would influence planning decisions. NES ecologists reviewed existing documentation and conducted site visits on April 28, 2009 and June 30, 2009 to confirm the approximate location and potential extent of wetlands identified in the Sheldon and Associates report (1991). The reconnaissance also included a review of on-site streams and on-site habitat areas.

The subject property is relatively undeveloped, with the exception of a park parking lot at the intersection of Marine Drive and Timpson Way and existing trails. The site is primarily vegetated with a deciduous forest intermingled with occasional small open meadows. The marine shoreline and cobble beach are located at the Park's southern perimeter.

The historic agriculture, mining, and log storage uses of the site described in the Springwood Associates report (1992) are evident in the vegetation and topography. Many, if not all the existing trails are located along former access corridors. Steep grades at the perimeter of the park and along trails suggest significant grade changes. Uniform, flat conditions in the upper northwest terrace suggest past grading activities. Vegetation communities are young, deciduous dominated, and appear to be transitioning from open meadow to forested communities. The current Little Squalicum Creek channel is unnatural. The channel is incised, in a relatively straight configuration, and confined by two elevated trails.

Past contamination is documented throughout the site in the Remedial Investigation (Integral Consulting, Inc., 2008). Potential sources of contamination in the Park include creosote and pentachlorophenol (PCP) from the Oeser Company property (a wood-treatment facility operating since the 1940s); petroleum hydrocarbons and heavy metals from stormwater discharges associated with surrounding development; petroleum hydrocarbons from historic

on-site mining activities; and pesticides, herbicides, and oily products from the BNSF railroad trestle. The highest levels of creosote and PCP-related contaminants are within subsurface soils and groundwater in the Upper and Historical Creek areas.

The forested portion of the site is dominated by deciduous, marginally hydrophytic species. Dominant species include black cottonwood (*Populus balsamifera*) (approximately 15 to 17 inches in diameter at breast height [DBH]), red alder (*Alnus rubra*) (approximately eight inches DBH), big leaf maple (*Acer macrophyllum*) (approximately 15 to 20 inches DBH), ornamental hawthorn (approximately four inches DBH), Himalayan blackberry, snowberry (*Symphoricarpos albus*), red osier dogwood (*Cornus sericea*), reed canarygrass (*Phalaris arundinacea*), and orchardgrass (*Dactylis glomerata*). Invasive, noxious species (especially Himalayan blackberry) dominated much of the understory. Based on the historic use of the property, the forest is approximately 35 years old.

The site contains four primary areas of open meadow: the upper terrace in the northwest corner of the site, the north central portion of the site, an area between the north central and northwest meadows, and a mowed area adjacent to the existing parking lot. The extent of open meadow appears to be less than the 40 percent of that described by Sheldon and Associates in 1991. Additional evidence of a progression toward forested conditions is the frequent shrub and sapling patches located throughout all the unmowed meadows. Dominant plants vary depending upon the location, but often include invasive/noxious species including reed canarygrass, teasel (*Dipsacus sylvestris*), and tansy (*Tanacetum vulgare*).

The site is located in a relatively small watershed, Little Squalicum Watershed. The Park contains fourteen wetlands (Wetlands 1 through 14). Wetlands 9 and 14 extend off-site to the south, otherwise all wetlands are contained within the Little Squalicum Park boundaries. The site conditions appeared to match the delineation completed in 1991, with minor changes in vegetation. The wetlands include palustrine emergent, palustrine scrub/shrub, and palustrine forested vegetation classes and permanently inundated, seasonally inundated, seasonally saturated hydrologic regimes. NES recommends confirmation of Wetlands 3A, 10, 11, and 12 through additional hydrologic monitoring to confirm the presence of wetland hydrology.

Thirteen of the fourteen on-site wetlands are rated using the WDOE rating forms as Category III wetlands. Only Wetland 9 is rated as a Category II wetland. Seven of the wetlands appear to be isolated, while the rest are connected to Little Squalicum Creek or Bellingham Bay. The City of Bellingham and Whatcom County will likely both have influence over the required buffers. These agencies differ on which wetlands are regulated, but most wetlands are expected to have 60-foot standard buffers and Wetland 9 is expected to have a 75-foot standard buffer.

The Park slopes to the south toward Bellingham Bay. As discussed in the Sheldon and Associates 1991 report, the Park also includes a remnant of the only stream within the watershed, Little Squalicum Creek. Based on information contained in the Remedial Investigation (Integral Consulting, Inc., 2008) and observations of a previous channel along the eastern perimeter of the site, the current creek location appears to be the result of its being re-

routed in 1961 or 1962. Based on agency documentation and site observations, the stream appears to currently be a Type “Ns” seasonal, non-fish bearing stream (WDNR, 2009, WDFW, 2003 and WDFW, 2009). The WDNR Forest Practices map, WDFW SalmonScape map, WDFW PHS report, Whatcom County fish resource map, and Little Squalicum Park Master Plan biologists all conclude that while the stream may have historically contained fish, the stream does not appear to currently support fish species. This conclusion; however, is only based on the referenced information and is subject to change should new information become available that documents fish presence. The City of Bellingham and Whatcom County will likely both have influence over the required stream buffer. These agencies differ on the exact stream buffer width, but the width ranges between 50 and 100 feet.

The marine shoreline of Bellingham Bay abuts the southern end of Little Squalicum Park, immediately south of the BNSF railroad trestle. Based on trail erosion and drift lines, the OHWM appears to be at or near the toe-of-slope of the existing trail. The beach is characterized by large cobble and large driftwood logs. Development is limited to the existing Park trail, the culvert for Little Squalicum Creek, and an abandoned concrete plant pier extending from the western Park boundary into Bellingham Bay. Human and pet use is common, with access provided by the Little Squalicum Park trail and a Port of Bellingham parking lot located at the beach several hundred feet east adjacent to Mount Baker Plywood. The shoreline is a “shoreline of the state” and has an “Urban” Whatcom County SMP Shoreline Area Designation. The marine shoreline is associated with a 150-foot-wide Whatcom County Shoreline setback as measured from the ordinary high water mark.

No state or federal Threatened, Sensitive, or Endangered plant or animal species were observed on the subject property, nor have any been documented on available resource maps (Whatcom County, 2005e, WDFW, 2003, and WDFW, 2009). At the time of the site visits, NES ecologists observed several species of birds and small mammals common to urban environments. Anecdotal information suggests the presence of a Coopers hawk nest on-site. Cooper’s hawk is not a state Priority or federal listed species. The park functions as a habitat remnant of undeveloped land within a highly urbanized environment.

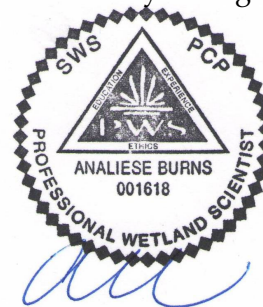
AUTHOR QUALIFICATIONS

Northwest Ecological Services, LLC (NES) is a small, service-oriented environmental consulting firm based in Bellingham, Washington. We provide a range of biological services including wetland assessments; biological assessments; wetland restoration and mitigation plans; natural resource analysis and regulatory compliance; landscape and ecological design; and environmental impacts assessments of plants, animals, fish and sensitive habitats to both the public and private sectors. NES staff have performed wetland and biological assessments on over 26,000 acres [1991-2008] in Whatcom, Skagit, Island, Snohomish and King Counties.

The NES lead project ecologist and author of this report is Analiese Burns. Ms. Burns is a senior ecologist with NES and has over nine years of experience in providing environmental consulting services within the north Puget Sound area. She specializes in wetland and stream delineations, wetland functional assessments, mitigation design, Endangered Species Act assessments, native landscape design, public outreach, and agency coordination.

Ms. Burns obtained a Bachelors in Science in Biology from the University of Washington in 1999. She is certified through the Society of Wetland Scientists (SWS) as a Professional Wetland Scientist (PWS), #1618, is a Leadership in Energy and Environmental Design® (LEED) Accredited Professional, and is a Washington State Department of Transportation (WSDOT) Senior Biological Assessment Author.

The NES supporting project ecologist and author of this report is Molly Porter. Ms. Porter is a staff ecologist with NES and has over five years of experience in providing environmental consulting services within Whatcom and Skagit Counties. She specializes in wetland and stream delineations, wetland functional assessments, mitigation design, and agency coordination. Ms. Porter obtained a Bachelors in Science in Environmental Science from Huxley College of the Environment at Western Washington University in 2003.



DISCLAIMER

Wetland and stream delineations and determinations are based upon protocols defined in manuals and publications produced by Federal, State and Local agencies. The wetland methodology used in this report is consistent with methods described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps, 2008), the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Washington State Wetlands Identification and Delineation Manual* (WDOE, 1997). The reconnaissance was based on conditions at the time of the site visit. No guarantees are given that determinations or functional assessments will concur with those performed by regulatory agencies or other qualified professionals. This report is provided for the use of the named recipient only and is not intended for use by others parties for any other purpose.

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1.0 INTRODUCTION

1.1 Background

Northwest Ecological Services, LLC (NES) is a subconsultant to Belt Collins Northwest, LLC (Belt Collins), the prime consultant for the City of Bellingham Parks and Recreation Department's Little Squalicum Park Master Plan project. Little Squalicum Park (the Park) is an approximately 24-acre park located within the City of Bellingham's Urban Growth Area (UGA) immediately west of the City limits along the Bellingham Bay marine shoreline. The Park encompasses Parcel Numbers 380223 473219, 380223 420211, 380223 392252, 380223 356223, 380223 378227, 380223 344168, and 380223 347164 (Section 23, Township 38, Range 2E, W.M.) (Figure 1, Appendix B).

The Parks Department retained the Belt Collins team to update prior planning work and prepare a master plan which could facilitate coordination with related projects including the West Illinois Street extension project, Bellingham Technical College's 20-year Master Plan, required landfill clean-up orders from the Washington State Department of Ecology (WDOE), and Oeser Company soil contamination clean-up efforts lead by the Environmental Protection Agency (EPA). This report is intended for inclusion with future critical areas permit submissions to Whatcom County, the City of Bellingham, the U.S. Army Corps of Engineers (Corps), WDOE, and/or the Washington Department of Fish and Wildlife (WDFW) as required.

1.2 Scope of Work

NES's involvement with the Little Squalicum Park Master Plan included contributing information on wetlands, streams, and wildlife habitat which would influence planning decisions. NES ecologists reviewed the site to confirm the approximate location and potential extent of wetlands identified in the Sheldon and Associates report (1991). The reconnaissance also included a review of on-site streams and on-site habitat areas. This report describes the reconnaissance-level findings, assesses wetland functions, and provides a discussion on the regulatory implications. This report does not include review of the following critical areas: geologically hazardous areas, frequently flooded areas, or critical aquifer recharge areas.

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2.0 METHODS

NES's scope of services included conducting a reconnaissance-level investigation for the approximate location and potential extent of wetlands, streams, and fish and wildlife habitats. This investigation consisted of an office review of existing documentation followed by a site investigation. NES conducted the site investigation in accordance with methodology specific to each critical area (wetlands, streams, and fish and wildlife habitats).

2.1 Document Review

NES conducted a review of available maps, drawings, and applicable reports pertaining to the subject property. Specifically, NES reviewed existing documents related to soils, hydrology, vegetation, wetlands, fish and wildlife habitats. The following is a list of resources reviewed for this project:

- **Whatcom County Wetlands GIS Map (Whatcom County Planning and Development Services, 2005)**
- **Whatcom County Fish Habitat Conservation Areas (HCAs) GIS Map (Whatcom County Planning and Development Services, 2005)**
- **Whatcom County Wildlife HCAs GIS Map (Whatcom County Planning and Development Services, 2005)**
- **Whatcom County Critical Aquifer Recharge Areas GIS Map (Whatcom County Planning and Development Services, 2005)**
- **Whatcom County Frequently Flooded Areas GIS Map (Whatcom County Planning and Development Services, 2005)**
- **Whatcom County Geologically Hazardous Areas GIS Map (Whatcom County Planning and Development Services, 2005)**
- **City of Bellingham Watersheds & Sub-Basins Map (City of Bellingham, 2004)**
- **WDFW SalmonScape interactive Map (www.wdfw.wa.gov) (accessed July 2009)**

- WDNR Forest Practices Interactive Water Typing map (http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_watertyping.aspx) (accessed July 2009)
- WDOE Washington Coastal Atlas interactive Map (http://www.ecy.wa.gov/programs/sea/sma/atlas_home.html) (accessed July 2009)
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) *Soil Survey of Whatcom County Area, Washington (1992)*, NRCS Web Soil Survey (www.websoilsurvey.nrcs.usda.gov) (accessed July 2009), and NRCS Whatcom County Area Hydric Soil List (2001)
- WDFW Priority Habitats and Species (PHS) Report (WDFW, 2009a)
- Little Squalicum Creek Topographic Survey (White Shield, Inc., 2008)
- Whatcom County Shoreline Management Program (SMP) (2008)
- Wetlands Delineation and Mitigation Plan, West Illinois/Timpson Way Street Extensions (Earthworks Environmental, Inc., 2009)
- City of Bellingham West Illinois/Timpson Way Extension Project Stormwater Engineering Report (Wilson Survey/Engineering, 2009)
- Remedial Investigation, Little Squalicum Park, Draft Final Report (Integral Consulting, Inc., 2008)
- Little Squalicum Creek Wetlands Mitigation Plan (Springwood Associates, 1992)
- Final Off-Site Wetland Mitigation Plan at Little Squalicum Creek for the Port of Bellingham International Airport Runway Extension (David Evans and Associates, Inc. [DEA], 1993)
- Upland Vegetation and Wetlands Analysis Report for Little Squalicum Creek Mitigation Site (Sheldon and Associates, 1991)
- Hydrologic Assessment on Little Squalicum Creek Mitigation Site (Watershed Dynamics, 1991)
- City of Bellingham 1950 Aerial Photograph (www.cob.org/services/maps/aerial/index.aspx) (accessed July 2009)

2.2 Site Investigation

2.2.1 Wetlands

Wetlands are protected under local, state, and federal regulations. Wetlands are defined under 33 Code of Federal Regulations (CFR) Part 328 and the Shoreline Management Act (SMA) of 1971, (Regulatory Code of Washington) RCW 90.58 as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under

normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands do not typically include those features artificially and intentionally created from non-wetland sites unless the wetland is hydrologically connected with natural features or the area was created for wetland mitigation purposes.

Wetlands are determined through the observation of wetland indicators for each of three parameters (vegetation, soils, and hydrology). Vegetation and hydrology indicators are dependent upon conditions during the “growing season. The “growing season” is defined by the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps, 2008). In general, the “growing season” when more than one non-evergreen plant shows biological activity (plant growth) and/or the soil temperature at 12 inches below the surface is a minimum of 41 degrees Fahrenheit (F).

Field Methods

NES staff conducted site visits on April 28, 2009 and June 30, 2009. NES conducted a reconnaissance-level wetland investigation to confirm the approximate location and potential extent of wetlands identified in the Sheldon and Associates report (1991). The site visit included walking the site to determine current conditions. NES did not perform formal data collection and did not mark wetland boundaries on the ground.

Although this study was a reconnaissance-level investigation only, Wetland identification was conducted based on the “Routine On-site Determination” methodology described in the Washington State Wetlands Identification and Delineation Manual (WDOE, 1997), Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps, 2008), and the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987). This methodology requires evidence that at least one positive wetland indicator be found for each of three parameters (vegetation, soils, and hydrology) to make a positive wetland determination. An area is not considered a regulatory wetland if indicators for any one of these three parameters are not observed under normal environmental conditions. Upland/wetland boundaries are delineated by locating the transition where soils, vegetation, or hydrology no longer indicate that wetland parameters are met.

The reconnaissance-level investigation included general observations of vegetation communities, topography, and evidence of hydric soils. The investigation did not include soil sampling and wetlands were not flagged in the field. Wetlands were confirmed in areas observed to support hydrophytic vegetation (wetland plant species), may have hydric soils, and may have indicators of possible saturated or inundated soil conditions at some time of the year.

A sketch depicting the approximate location and potential extent of on-site wetlands is included as Figure 9, Appendix B. This map is only intended for general planning purposes. A formal

wetland delineation, surveyed by a professional land surveyor, would be required determine the exact location and extent of noted wetlands.

Wetland Rating, Functional Assessment, and Hydrologic Classification

NES completed a wetland rating and functional assessment of site wetlands using the WDOE's Wetland Rating System for Western Washington, revised 2004 (Rating System) (Hruby, 2004). A more detailed description of the methodology is included under Subsection 3.5, below.

2.2.2 Streams

Streams are protected under local, state, and federal regulations. Streams are defined by the Washington State Fish and Wildlife Code (RCW 77.55) as fresh waters waterward of the ordinary high water mark (OHWM). The state requires identification of an OHWM be based on the change in scour and vegetation features along the stream banks.

NES ecologists performed a reconnaissance-level investigation to confirm the general location and extent of on-site streams based on the SMA of 1971, RCW 90.58.030.

Although this investigation did not include a detailed stream survey or field flagging, NES ecologists characterized basic stream attributes including depth, vegetation, substrate and habitat features. The ecologists verified that stream's water type given by the Washington State Department of Natural Resources (WDNR) and established by WAC 222-16-031 and 030.

2.2.3 Fish and Wildlife

Specific fish and wildlife species and habitats areas are protected under local, state and federal regulations. The Whatcom County Critical Areas Ordinance (CAO), Whatcom County Code (WCC) 16.16, defines fish and wildlife HCAs as areas important for maintaining species in suitable habitats within their natural geographic distribution so that isolated populations are not created.

NES ecologists walked the site and noted any signs of state Priority or federal Endangered Species Act (ESA) protected species presence. They also reviewed the site for general wildlife habitat conditions and habitat connectivity. If streams were present, NES documented any obvious fish passage barriers, characterized general stream attributes (as described above), and documented any observations of fish during the site visit.

2.2.4 Shorelines

Shorelines are protected under the SMA, RCW 90.58, and regulations are administered under the Whatcom County Shoreline Management Program (SMP), Title 23 (2008). The SMP defines "shorelines" as all "shorelines of the state" and all "shorelands". Shorelines of the state are areas of Puget Sound and adjacent saltwaters, natural rivers or streams west of the Cascade

range downstream of the point measured as having a mean annual flow of 1,000 cubic feet per second (cfs) or more, and natural and manmade lakes with a surface area greater or equal to 1,000 acres. Shorelands are lands extending 200 feet from the OHWM, floodways and all contiguous floodplains 200 feet from such floodways, and all wetlands and river deltas associated with jurisdictional shorelines. Each jurisdictional shoreline is associated with one or more Shoreline Use Designation for the purposes of administering the SMP.

NES located the review area on the SMP map to determine if shorelines of the state exist on-site and, if present, their documented Shoreline Area Designation. During the site visit, the investigating ecologists noted any obvious discrepancies with the SMP map. If shorelines were present, NES determined the lateral extent of the Shoreline jurisdiction based on floodplain, floodway, and wetland observations.

3.0 FINDINGS

3.1 Document Review Results

The following provides a summary of the findings contained within each document reviewed for this project:

- **Whatcom County Wetlands GIS Map (Whatcom County Planning and Development Services, 2005)**

The maps document potential presence of wetlands along the eastern perimeter of Little Squalicum Park from the northern property boundary to the marine shoreline and forest dominating the remainder of the site.

- **Whatcom County Fish HCAs GIS Map (Whatcom County Planning and Development Services, 2005)**

Little Squalicum Creek is shown originating in two tributaries near the north boundary of Little Squalicum Park. The tributaries converge near the northern Park boundary and continue south in a single channel to Bellingham Bay. The stream is documented as having “presumed potential/historical distribution” of salmonid fish species.

- **Whatcom County Wildlife HCAs GIS Map (Whatcom County Planning and Development Services, 2005) (Figure 2)**

Sandlance and surf smelt spawning areas are documented on the marine shoreline at the southern extent of the Park boundary (Figure 2). Eelgrass beds are documented off-site approximately 1 mile northwest of the Park boundary along the marine shoreline, approximately 1.2 miles east of the Park boundary at the entrance to Squalicum Harbor, and 0.8 mile southwest of the Park boundary within Bellingham Bay. No other wildlife HCAs are documented within one mile of Little Squalicum Park.

- **Whatcom County Critical Aquifer Recharge Areas GIS Map (Whatcom County Planning and Development Services, 2005)**

Little Squalicum Park and its immediate surroundings are mapped as having “moderate aquifer susceptibility”.

- **Whatcom County Frequently Flooded Areas GIS Map (Whatcom County Planning and Development Services, 2005)**

The marine shoreline at the southern boundary of Little Squalicum Park is documented as a “velocity hazard in 100-year flooding”. No other frequently flooded areas are documented in the vicinity of the Park.

- **Whatcom County Geologically Hazardous Areas GIS Map (Whatcom County Planning and Development Services, 2005)**

Little Squalicum Park is documented as a “modified” shoreline stability in the central and eastern portions of the site. The western portion of the site is documented as having 15-35 percent slopes.

- **City of Bellingham Watersheds & Sub-Basins Map (City of Bellingham, 2004) (Figure 3)**

Little Squalicum Park is entirely contained within the Little Squalicum Watershed, in Water Resource Inventory Area 1 (WRIA 1) (Figure 3).

- **WDFW SalmonScape interactive Map (www.wdfw.wa.gov) (accessed July 2009) (Figure 4)**

SalmonScape maps one stream within the Little Squalicum Watershed: Little Squalicum Creek (Figure 4, Appendix B). WDFW maps the stream as originating from two tributaries. The first tributary begins at the Oeser Company facility approximately 0.2 mile north of the Park. The second tributary begins at the eastern Park boundary adjacent to the Bellingham Technical College parking lot. The two tributaries converge immediately east of the western-most existing trail. The stream continues southwest in a single channel, along the toe-of-slope of the eastern Park perimeter before heading west. In the southern half of the Park, the stream is mapped as existing along the western Park perimeter before discharging to Bellingham Bay.

No fish presence, fish barriers, or repaired fish barriers are documented within Little Squalicum Creek. Fall chinook salmon (*Oncorhynchus tshawytscha*), fall chum salmon (*O. keta*), coho salmon (*O. kisutch*), and winter steelhead (*O. mykiss*) are documented as occurring in Squalicum Creek approximately 0.4 mile southeast of the mouth of Little Squalicum Creek. Little Squalicum Creek and Squalicum Creek are in separate watersheds. Spring chinook salmon, fall chinook salmon, fall chum salmon, coho salmon, pink salmon (*O. gorbuscha*), sockeye salmon (*O. nerka*), summer steelhead, winter steelhead, and bull trout/dolly varden (*Salvelinus confluentus/S. malma*) are documented as occurring

in the Nooksack/Silver Creek system approximately 2.3 miles northwest of the mouth of Little Squalicum Creek.

- **WDNR Forest Practices Interactive Water Typing map** (http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_watertyping.aspx) (accessed July 2009)

The WDNR Forest Practices map documents Little Squalicum Creek in the same location as shown on the WDFW SalmonScape map. The stream is listed as “N”, non-fish bearing.

- **WDOE Washington Coastal Atlas interactive Map** (http://www.ecy.wa.gov/programs/sea/sma/atlas_home.html) (accessed July 2009)

The Washington Coastal Atlas shows no National Wetland Inventory (NWI) wetlands, pocket estuaries, or historic estuaries within Little Squalicum Park. The only marine vegetation documented is patchy kelp beds along the marine shoreline at the southern boundary of the Park.

- **USDA, NRCS *Soil Survey of Whatcom County Area, Washington* (1992), NRCS Web Soil Survey (www.websoilsurvey.nrcs.usda.gov) (accessed July 2009), and NRCS Whatcom County Area Hydric Soil List (2001) (Figure 5)**

The NRCS soil survey maps one soil unit on Little Squalicum Park: Urban land-Whatcom-Labounty complex, 0 to 8 percent slopes (#172) (Figure 5). This soil unit is comprised of three intermingled components, with Urban land encompassing 40 percent, Whatcom silt loam encompassing 30 percent, and Labounty silt loam encompassing 20 percent of the total.

Labounty silt loam is the only unit mapped on site that is listed on the Whatcom County hydric soils list (USDA, 2001). Labounty silt loam is in hydrologic group D, Whatcom silt loam is in hydrologic group C, and Urban land does not have a hydrologic group. Hydrologic groups are a measure of soil permeability with “A” being highest permeability and “D” being lowest permeability.

Whatcom silt loam is a very deep, moderately well drained soil. In general, the surface layer is dark brown silt loam nine inches thick. The upper seven inches of the subsoil is dark brown silt loam. Permeability is moderate in the upper part of the Whatcom soil and slow in the lower part. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table, which is at a depth of 1.5 to three feet from December through April. Runoff is slow, and the hazard of water erosion is slight.

Labounty silt loam is a very deep, poorly drained soil. In general, the surface layer is very dark grayish brown silt loam ten inches thick. The upper six inches of the subsoil is grayish brown and light brownish gray, mottled loam.

Permeability is moderately slow and available water capacity is high. Effective rooting depth is limited by a seasonal high water table, which is at a depth of one

to one to three feet from November through May. Runoff is very slow, the soil may be ponded in the winter, and the soil does not have a hazard of erosion.

- **WDFW PHS Report (WDFW, 2009)**

The PHS data report produced on July 23, 2009 for the Park area shows the presence of Little Squalicum Creek in the configuration shown on the WDFW SalmonScape interactive map. The stream is not shown as having an identification number and is not shown as having priority fish presence. Turf algae is the only priority habitat or species presence noted within the immediate vicinity of the Park. The location of turf algae is shown immediately off-site to the south along the intertidal portion of Little Squalicum Beach. Eelgrass beds, bald eagle (*Haliaeetus leucocephalus*) wintering concentration areas, and waterfowl wintering areas are shown approximately 0.9 mile to the northwest along the marine shoreline of Bellingham Bay. The nearest bald eagle nest is located approximately one mile northwest of the site along stream No. 1225306487721.

Squalicum Creek, approximately 0.4 mile southeast of the mouth of Little Squalicum Creek, is documented as containing fall chinook salmon, fall chum salmon, coho salmon, winter steelhead, and resident cutthroat trout (*O. clarki clarki*).

- **Little Squalicum Creek Topographic Survey (White Shield, Inc., 2008) (Figure 6)**

The topographic survey shows steep grades along the existing north-south trails and the eastern perimeter of the Park (Figure 6). Relatively flat areas are shown in the central, southern, and northwestern portions of the site. Culverts and stormwater outlet pipes are shown along the Little Squalicum Creek alignment. A linear area of standing water (wetland) is documented along the northern property boundary at toe-of-slope and a triangular area of standing water (wetland) is documented at the southeast corner of the property.

The Park contains a network of existing trails, dominated by parallel north-south trails along the western portion of the site. An existing parking lot is located at the intersection of Marine Drive and Timpson Way. Marine Drive crosses east-west through the center of the property via an elevated bridge and a Burlington Northern Santa Fe (BNSF) railroad trestle crosses east-west along the southern perimeter of the property.

- **Whatcom County SMP (2008)**

The marine shoreline of Bellingham Bay at the southern boundary of the Park is a Shoreline of the State as defined in the Whatcom County SMP. This shoreline area has an "Urban" Shoreline Area Designation. The SMP jurisdiction includes the marine water and lands "extending landward for 200 feet in all directions as

measured...from the OHWM" and all associated wetlands which encroach within 200 feet of the marine water.

- **Wetlands Delineation and Mitigation Plan, West Illinois/Timpson Way Street Extensions (Earthworks Environmental, Inc., 2009)**

Earthworks Environmental, Inc. conducted a wetland delineation on six acres in the vicinity of the north Park boundary. They identified the origins of Little Squalicum Creek as two tributaries (Stream 1 and Stream 2). They describe the origin of Stream 1 as the outlet of a 36-inch concrete culvert conveying stormwater from the Oeser Company property and the Birchwood Neighborhood. They describe the origin of Stream 2 as a culvert conveying stormwater from the Birchwood Neighborhood, Bellingham Technical College, and a neighborhood east of Bellingham Technical College. They describe Little Squalicum Creek as a seasonal, fish-bearing stream.

Earthworks identified two wetlands on-site at the northern extent of the Park: Wetlands A and B. Wetland A is a 0.23-acre, Category III palustrine forested /scrub-shrub (PFO/SS), permanently flooded wetland. Wetland B is a 0.02-acre, Category III palustrine emergent (PEM), seasonally flooded/saturated wetland. They describe Wetlands A and B has having no surface water connection to adjacent wetlands or streams.

- **City of Bellingham West Illinois/Timpson Way Extension Project Stormwater Engineering Report (Wilson Survey/Engineering, 2009)**

Wilson Survey/Engineering describes the Little Squalicum drainage basin as encompassing 510 acres. The watershed area results in an estimated 2-year peak flow of 56 cubic feet per second (cfs) in Little Squalicum Creek. They document a 36-inch concrete culvert in Little Squalicum Creek under the existing trail along the marine shoreline. The culvert has a reverse slope of 0.5 percent and a maximum capacity of 45 cfs. They also document a 48-inch stormsewer outfall and a 36-inch stormsewer outfall further upstream, within the Park boundaries.

- **Remedial Investigation, Little Squalicum Park, Draft Final Report (Integral Consulting, Inc., 2008) (Figure 8)**

Integral Consulting, Inc. conducted a remedial investigation of Little Squalicum Park for the City of Bellingham Parks and Recreation Department. They reviewed all areas including the current creek location and the historical creek location prior to its being re-routed in 1961 or 1962. Potential sources of contamination in the Park include creosote and pentachlorophenol (PCP) from the Oeser Company property (a wood-treatment facility operating since the 1940s); petroleum hydrocarbons and heavy metals from stormwater discharges associated with surrounding development; petroleum hydrocarbons from historic on-site mining activities; and pesticides, herbicides, and oily products from the BNSF railroad trestle (Figure 8).

The highest levels of creosote and PCP-related contaminants are within subsurface soils and groundwater in the Upper and Historical Creek areas. These contaminants in the Upper Creek encompass approximately 1.2 acres and are distributed within the soil from at or near the surface to a depth of up to ten feet. Contamination does not generally extend below the silty clay layer, where present. Contaminants in the Historical Creek are located in the upper two to three feet below ground. Creosote- and PCP-related contaminants are also found in sediments in the Upper and Lower Creek areas.

Trace metals and organic chemicals were found in the current and Historical Creek locations. Elevated levels of heavy metals occur in the soil at the location of a 1930s landfill in the northeastern corner of the Park. The landfill-contaminated area encompasses approximately 7,000 square feet and extends three to four feet below ground.

The West Illinois Street extension project site contains elevated levels of arsenic. The highest concentrations were seen in the upper two to three feet of soil.

The BNSF trestle area could be a source of pesticides, herbicides, and oily products due to reported use on the wood ties and spraying of adjacent vegetation.

The contaminants within the Park pose risks to human health, terrestrial ecological receptors, and aquatic ecological receptors.

Two archeological shell middens exist within the Park. The first is on the west side of the Lower Creek and encompasses approximately 1,200 square feet. The second site is located west of the Creek in the northwest corner of the site.

- **Little Squalicum Creek Wetlands Mitigation Plan (Springwood Associates, 1992)**

Springwood Associates and Sheldon and Associates prepared an off-site mitigation plan for a runway extension project at the Bellingham International Airport. The mitigation included 4.3 acres of mitigation within Little Squalicum Park. This off-site mitigation consisted of wetland creation and wetland enhancement in the north half of the Park and 1,100 linear feet of stream re-location toward the east. The mitigation work was never implemented.

The report describes a portion of the site as historically used for farming in the early 1900s and the majority of the site used for gravel mining from the 1920s to the 1960s. The site was used for log storage in the early 1970s and log storage yards were likely surfaced with gravel and cobble. Stormwater has been discharged to Little Squalicum Creek from farming or industrial uses since the establishment of a sugar beet refining business in 1925. Little Squalicum Creek is described as only a remnant of its former channel with sources of water limited to precipitation, stormdrains, and springs.

- **Final Off-Site Wetland Mitigation Plan at Little Squalicum Creek for the Port of Bellingham International Airport Runway Extension (DEA, 1993)**

DEA prepared the final off-site mitigation plan associated with the original report prepared by Springwood Associates (1991) for a runway extension project at the Bellingham International Airport. The mitigation included 3.1 acres of off-site mitigation within Little Squalicum Park. This off-site mitigation consisted of enhancing existing wetlands, creating several shallow wetland cells in the north half of the Park, and creating a new segment of stream channel along the eastern portion of the property with the potential of providing fish habitat. The mitigation work was never implemented.

- **Upland Vegetation and Wetlands Analysis Report for Little Squalicum Creek Mitigation Site (Sheldon and Associates, 1991)**

Sheldon and Associates conducted a wetland delineation on the portions of the Park east of the eastern-most trail. The site visits were conducted over four days in August 1991. They described 50 percent of the site as disturbed forest, 40 percent disturbed meadow, and 10 percent scrub-shrub habitat dominated by Himalayan blackberry (*Rubus armeniacus*) and ornamental hawthorn (*Crataegus monogyna*).

Sheldon and Associates delineated 2.8 acres of wetland in fourteen separate wetlands. Most of the wetlands were palustrine emergent or palustrine forested. Four wetlands were palustrine scrub-shrub or contained a scrub-shrub component. Approximately half of the wetlands were supported by groundwater and half of the wetlands were supported by perched surface water. Several wetlands had both sources of hydrology.

- **Hydrologic Assessment on Little Squalicum Creek Mitigation Site (Watershed Dynamics, 1991)**

The Little Squalicum Park site appears to have long-term shallow groundwater at 30 to 48 inches in areas with low chroma, gravelly to cobbly, sandy loam soils. Groundwater monitoring corroborates evidence of shallow groundwater seen in subsurface soil profiles. Areas with soil mottling appear to have short-term, fluctuating groundwater. Areas of well drained soils or areas with an impermeable clay layer do not have long-term shallow groundwater. Perched surface water occurs where the clay layer is near the soil surface.

- **City of Bellingham 1950 Aerial Photograph (www.cob.org/services/maps/aerial/index.aspx) (accessed July 2009) (Figure 8)**

The aerial photograph shows active mining activities and associated access roads in the central and eastern portions of the Park (Figure 8). The northwest corner of the Park appears mowed with potential agricultural uses.

3.2 Site Investigation Results

NES staff conducted site visits on April 28, 2009 and June 30, 2009. During their site visits they documented general site conditions, including potential wetlands, streams, fish and wildlife habitat, and shorelines. The following is a summary of their findings.

3.2.1 Existing Conditions Summary

Little Squalicum Park is an approximately 24-acre passive recreation park surrounded by residential, industrial, and institutional land uses. The Park is located in Whatcom County, within the western UGA for the City of Bellingham. The Park is bound by BNSF railroad ROW and the Bellingham Bay marine shoreline to the south, residences and Bellingham Technical College to the east, residences and Timpson Way to the west, and West Illinois Street to the north. Eldridge Avenue/Marine Drive crosses through the central portion of the property via a bridge. The BNSF railroad crosses the southern perimeter of the park via an elevated trestle. The Park land is owned by both Whatcom County and the City of Bellingham; however, the agencies have a joint agreement granting management authority to the City of Bellingham Parks and Recreation Department.

The subject property is relatively undeveloped, with the exception of a park parking lot at the intersection of Marine Drive and Timpson Way and existing trails. The site is primarily vegetated with a deciduous forest intermingled with occasional small open meadows. The marine shoreline and cobble beach are located at the Park's southern perimeter.

The forested portion of the site is dominated by deciduous, marginally hydrophytic species. Dominant species include black cottonwood (*Populus balsamifera*) (approximately 15 to 17 inches in diameter at breast height [DBH]), red alder (*Alnus rubra*) (approximately eight inches DBH), big leaf maple (*Acer macrophyllum*) (approximately 15 to 20 inches DBH), ornamental hawthorn (approximately four inches DBH), Himalayan blackberry, snowberry (*Symphoricarpos albus*), red osier dogwood (*Cornus sericea*), reed canarygrass (*Phalaris arundinacea*), and orchardgrass (*Dactylis glomerata*). Invasive, noxious species (especially Himalayan blackberry) dominated much of the understory. Based on the historic use of the property, the forest is approximately 35 years old.

The site contains four primary areas of open meadow: the upper terrace in the northwest corner of the site, the north central portion of the site, an area between the north central and northwest meadows, and a mowed area adjacent to the existing parking lot. The extent of open meadow appears to be less than the 40 percent of that described by Sheldon and Associates in 1991. Additional evidence of a progression toward forested conditions is the frequent shrub and sapling patches located throughout all the unmowed meadows. Dominant plants vary depending upon the location, but often include invasive/noxious species including reed canarygrass, teasel (*Dipsacus sylvestris*), and tansy (*Tanacetum vulgare*). The plant community locations and list of dominant species are included in Appendix C.

The site is located in a relatively small watershed, Little Squalicum Watershed. The Park contains numerous wetlands (described in detail, below). In addition, the Park also includes a remnant of the only stream within the watershed, Little Squalicum Creek. Based on information contained in the Remedial Investigation (Integral Consulting, Inc., 2008) and observations of a previous channel along the eastern perimeter of the site, the current creek location appears to be the result of its being re-routed in 1961 or 1962.

The Park slopes to the south toward Bellingham Bay. The site appears consistent with the 2009 White Shield topographic survey, with steep grades along the existing north-south trails and the eastern perimeter of the Park (Figure 6). Relatively flat areas exist in the location of the previous channel of Little Squalicum Creek in the central portion of the site, as well as in the southern, and northwestern portions of the site.

The historic agriculture, mining, and log storage uses of the site described in the Springwood Associates report (1992) are evident in the vegetation and topography. Many, if not all the existing trails are located along former access corridors. Steep grades at the perimeter of the park and along trails suggest significant grade changes. Uniform, flat conditions in the upper northwest terrace suggest past grading activities. Vegetation communities are young, deciduous dominated, and appear to be transitioning from open meadow to forested communities. The current Little Squalicum Creek channel is unnatural. The channel is incised, in a relatively straight configuration, and confined by two elevated trails.

3.2.2 Wetlands

The Park is located within the Little Squalicum Watershed, in WRIA. NES ecologists reviewed the site to confirm the approximate location and potential extent of wetlands identified in the Sheldon and Associates report (1991). The site conditions appeared to match the delineation completed in 1991, with minor changes in vegetation. As a result, NES identified the potential presence of fourteen wetlands (Wetlands 1-14) in the same general location and encompassing the same general extent as depicted in the 1991 delineation (Figure 9, Appendix B). The wetlands are summarized in Table 1, below.

Table 1. Wetland Reconnaissance Wetland Observations Summary

Wetland Unit	Hydrogeomorphic Class	Cowardin Classification	Wetland Size* (acres)	Hydrology
1	Depressional-closed	PFO	0.06	Seasonal Inundation 4"-6" groundwater
2	Depressional/Slope- outflow	PEM/PFO	1.01	Seasonal inundation 6" groundwater
3A	Depressional-outflow	PFO/PSS	0.44	Seasonal inundation 3" groundwater
3B	Depressional-closed	PFO/POW		Permanent Inundation 2'-4' groundwater
4	Depressional-closed	PEM/PSS	0.09	Seasonal inundation 1"-2" Perched surface water
5	Depressional-closed	PEM/PSS	0.02	Seasonal inundation 1"-2" Perched surface water
6	Depressional-closed	PFO	0.03	Seasonal inundation Perched surface water
7	Depressional-closed	PFO/PSS	0.05	Seasonal inundation Perched surface water
8	Depressional-outflow	PFO	0.20	Saturation, seasonal inundation 1" Perched surface water
9	Depressional-outflow	PFO	0.59	Permanently and seasonally inundated 18" Ground and surface water
10	Depressional-closed	PEM	0.01	Seasonal saturation Perched surface and groundwater
11	Depressional-closed	PEM	0.01	Seasonal saturation Perched surface and groundwater
12	Depressional-closed	PEM	0.01	Seasonal saturation Perched surface and groundwater
13	Slope	PFO	0.23	Seasonal saturation from seeps groundwater
14	Depressional-outflow	PSS/PEM	0.03	Seasonal saturation Perched surface water

PEM= Palustrine emergent ,PFO=Palustrine forested, PSS=Palustrine scrub/shrub, RPW= Relatively Permanent Water, TNW = Traditional Navigable Water

* Acreages are as listed in Sheldon Associates 1991 and Springwood Associates 1992 reports, no adjustments made for this table

The wetlands include PEM, PSS, and PFO vegetation classes and permanently inundated, seasonally inundated, seasonally saturated hydrologic regimes. A brief description of the wetlands are provided below.

Wetland 1

Wetland 1 is located in the northern extent of the Park. Wetland 1 is a PFO seasonally inundated closed depressional wetland. The wetland is located south of the existing central trail in the northeast corner of the site between the historic landfill and the east park boundary toe-of-

slope. At the time of the July site visit, the wetland had shallow inundation suggesting inundation may last through August. Based on site observations and descriptions by Sheldon and Associates, wetland hydrology appears to be supported primarily by ground water and seeps. The wetland appears to have a maximum ponded depth of four to six inches. No outlet was observed.

The wetland contained trash from prior dumping activities. Wetland 1 had downed woody debris and a variety of plant species including red alder, black cottonwood, red-osier dogwood, Sitka willow (*Salix sitchensis*), Himalayan blackberry, and reed canarygrass. Himalayan blackberry and reed canarygrass are considered invasive and/or noxious plant species.

Wetland 3, Units A and B

Wetland 3, Units A and B, are located in the northern extent of the Park. Sheldon and Associates (1991) originally described Wetland 3 as a single wetland. Wetland 3 is described in this report as two distinct units (A and B) due to their dissimilar hydrology and the berm separating the two units.

Wetland 3A is a PFO/PSS seasonally inundated depressional outflow wetland. The wetland unit is located north of the existing trail in the northeast corner of the site between the existing central trail and the berm separating Unit A from Unit B. At the time of the July site visit, the wetland was dry but bare soil, areas of soil cracking, and pockets of water stained leaves suggested the wetland may have seasonal inundation in the early growing season. Based on visual observations and descriptions by Sheldon and Associates, wetland hydrology appears to be supported primarily by ground water. The wetland appears to have a maximum ponded depth of three inches. However, due to the marginal conditions, additional hydrologic monitoring is necessary to determine whether Unit 3A currently has hydrology sufficient to qualify the unit as wetland. Although NES did not observe an obvious outlet, the wetland is likely hydrologically connected with Unit B through a surface or subsurface connection. Unit 3A was dominated by a young stand of willow (*Salix spp.*), red alder, and Himalayan blackberry. Himalayan blackberry is considered and invasive and/or noxious plant species.

Wetland 3B is a PFO/palustrine open water (POW) permanently inundated, closed depressional wetland. The wetland unit is a narrow linear wetland located along the toe-of-slope at the north Park boundary. The steep sideslopes and uniform structure suggests the wetland may have been excavated. At the time of the July site visit, the wetland contained between one and 2.5 feet of inundation. The wetland appears to have a maximum ponded depth of four feet near the center of the wetland. Based on site observations and descriptions by Sheldon and Associates, wetland hydrology appears to be supported primarily by ground water and seeps. Berms isolate the wetland unit; however, the wetland unit may have historically been connected to Little Squalicum Creek. Unit 3B was dominated by red alder, Pacific willow (*Salix lasiandra*), bittersweet nightshade (*Solanum dulcamara*), Himalayan blackberry, and duckweed (*Lemna minor*). Himalayan blackberry is considered and invasive and/or noxious plant species.

Wetlands 2 and 8

Wetlands 2 and 8 are located in the flat north-central portion of the Park between the existing central trail and the toe-of-slope along the Park's east perimeter. Wetland 2 is a PEM/PFO wetland and Wetland 8 is a PFO wetland. Both wetlands are seasonally inundated depressional outflow wetlands, although Wetland 2 also has a slope component. Wetland 2 is located in the previous channel for Little Squalicum Creek and southern extent still exhibits stream bed and bank morphology. Contamination is documented in the general area of these wetlands (Integral Consulting, Inc., 2008).

Wetland 2 drains southwest and enters Little Squalicum Creek via a culvert under the existing trail. Wetland 8 is located in the flat bench west of the previous channel and appears to drain to Wetland 2. At the time of the July site visit, the wetlands were dry but bare soil, pocketing, and water stained leaves suggested seasonal inundation in the early growing season. Based on visual observations and descriptions by Sheldon and Associates, wetland hydrology appears to be supported primarily by ground water in Wetland 2 and perched surface water in Wetland 8. The wetlands appear to have a maximum ponded depth of less than six inches.

Wetlands 2 and 8 had downed woody debris and snags. The wetlands contained a young overstory and a relatively sparse understory including the following species: red alder, black cottonwood, black twinberry (*Lonicera involucreta*), snowberry, ornamental hawthorn, Himalayan blackberry, trailing blackberry (*Rubus ursinus*), reed canarygrass, lady fern (*Athyrium filix-femina*), and common horsetail (*Equisetum arvense*). Ornamental hawthorn, Himalayan blackberry and reed canarygrass are considered invasive and/or noxious plant species.

Wetlands 4, 5, 6, 7

Wetlands 4, 5, 6 and 7 are located in more open areas near the northern boundary of the existing central trail. The wetlands are located over fill. In addition, soils were likely compacted during construction of the path, a sewer line, and access roads. Wetlands 4 and 5 are PEM/PSS wetlands, Wetland 6 is a PFO wetland, and Wetland 7 is a PFO/PSS. All four wetlands are seasonally inundated closed depressional wetlands. At the time of the July site visit, NES observed Wetlands 4 and 5 and they were dry but bare soil and water stained leaves suggested seasonal inundation in the early growing season. NES did not observe soils in Wetlands 6 and 7. Based on visual observations and descriptions by Sheldon and Associates, wetland hydrology appears to be supported primarily by perched surface water in all four wetlands. The wetlands are shallow, and appear to have a maximum ponded depths of less than three inches in the early growing season.

Wetlands 4 and 5 are located in an open field scattered with shrubs and saplings. The wetlands were dominated by occasional black twinberry, black cottonwood saplings, willows, soft rush (*Juncus effusus*), carex (*Carex sp.*) bentgrass (*Agrostis sp.*), tall buttercup (*Ranunculus acris*), Himalayan blackberry, trailing blackberry, and reed canarygrass. Himalayan blackberry and reed canarygrass are considered invasive and/or noxious plant species. Wetlands 6 and 7

appear to be in an area of young deciduous trees that likely was a more open field in the recent past. Plants in Wetlands 6 and 7 included red alder and black cottonwood.

Wetlands 10, 11, 12

Wetlands 10, 11, and 12 are located in open areas adjacent to the central trail in the southern half of the Park. The wetlands are located over fill and/or soils likely compacted during construction of the path and access roads. Wetlands 10, 11, and 12 are PEM seasonally saturated closed depressional wetlands. At the time of the July site visit, the three wetlands were dry but bare soil, tire ruts, cracking, and surface pocketing suggested seasonal saturation may occur in the early growing season. However, due to the marginal conditions, additional hydrologic monitoring is necessary to determine whether these wetlands currently have hydrology sufficient to qualify them as wetlands. Based on visual observations and descriptions by Sheldon and Associates, wetland hydrology appears to be supported primarily by perched surface water and groundwater.

Wetlands 10, 11, and 12 are located in small openings scattered with shrubs and saplings. The wetlands were dominated by sawbeak sedge (*Carex stipata*), common velvetgrass (*Holcus lanatus*), Canada bluegrass (*Poa compressa*), tall buttercup, largeleaf avens (*Geum macrophyllum*) and Himalayan blackberry. Wetland 10 is also beginning to transition to a shrub vegetation community as seen by establishment of two big leaf maple saplings and one willow. Himalayan blackberry is considered an invasive plant species.

Wetlands 9 and 14

Wetlands 9 and 14 are located in the southeast corner of the Park under the railroad trestle and in the forest immediately north of the trestle. Anecdotal information indicates Wetland 9 may have been excavated during past mining activities. Wetland 9 is PFO permanently and seasonally inundated depressional outflow wetland in the forest north of the trestle. Wetland 14 is a PEM/PSS seasonally saturated depressional outflow wetland located in the compacted soils under the trestle. At the time of the July site visit, Wetland 9 was inundated to six inches and showed evidence of ponding up to 18 inches in depth. Wetland 14 was partially saturated. Wetland 9 has a highly constricted outlet that discharges subsurface under a constructed gravel berm. This outlet connects Wetlands 9 and 14 and drains water via a narrow swale to the marine shoreline of Bellingham Bay. Based on site observations and descriptions by Sheldon and Associates, Hydrology in Wetland 9 appears to be supported by a combination of groundwater, perched surface water, and seeps. Hydrology in Wetland 14 appears to be supported by outflow from Wetland 9 and perched surface water.

Wetland 9 was dominated by red alder, black cottonwood, Pacific willow, bittersweet nightshade, and common horsetail. Wetland 14 was more open and was dominated by Pacific willow, giant horsetail (*Equisetum helmateia*), common horsetail, fireweed (*Epilobium angustifolium*), reed canarygrass, cattail (*Typha latifolia*), skunk cabbage (*Lysichiton americanum*), morning glory (*Convolvulus sp.*), and soft rush. Morning glory is considered an invasive plant species.

Wetland 13

Wetland 13 is located on a bench adjacent to the west bank of Little Squalicum Creek between the BNSF railroad trestle and the Marine Drive overpass. Wetland 13 is PFO seasonally saturated slope wetland. At the time of the July site visit, Wetland 13 was dry but bare soil, soil pocketing, and water stained leaves suggested seasonal saturation in the early growing season. Wetland 13 is located on a bench several feet above the OHWM of Little Squalicum Creek. The wetland does not appear to receive regular overbank flooding from the stream, rather, the wetland appears to convey water from seeps on the adjacent slope into Little Squalicum Creek.

Wetland 13 was dominated by red alder, red-osier dogwood, snowberry, swamp gooseberry (*Ribes lacustre*), skunk cabbage, lady fern, common horsetail, and Himalayan blackberry. Himalayan blackberry is considered an invasive plant species.

3.2.3 Streams

Little Squalicum Creek was the only stream observed within the Park. Based on site observations and existing documentation, the stream appears to currently be a Type “Ns” seasonal, non-fish bearing stream (WDNR, 2009, WDFW, 2003 and WDFW, 2009). The WDNR Forest Practices map, WDFW SalmonScape map, WDFW PHS report, Whatcom County fish resource map, and Little Squalicum Park Master Plan biologists all conclude that while the stream may have historically contained fish, the stream does not appear to currently support fish species.

The stream is isolated from a natural headwaters and currently receives hydrologic input from stormdrains (conveying treated and untreated stormwater), springs, and to a lesser extent a high groundwater table. Contamination is documented in the general area of the stream. The most significant contamination is located in the northern half of the stream corridor (Integral Consulting, Inc., 2008).

The 2008 topographic survey (White Shield, 2008) (Figure 6, Appendix B), documents four large and many smaller culverts associated with the stream. NES observed the four largest culverts as described below. NES did not confirm the location and significance of the remaining culverts. Consistent with previous reports (Integral Consulting, Inc., 2008 and Springwood and Associates, 1992), the stream was observed to originate from two separate stormwater culverts located in the north perimeter of the Park and continues less than 2,000 feet before discharging to Bellingham Bay (Figure 9, Appendix B). According to previous reports (Integral Consulting, Inc., 2008 and Springwood and Associates, 1992), the eastern 5-foot x 6.2-foot box culvert discharges water from the Oeser Company facility and the Cedarwood Neighborhood. The western 36-inch culvert discharges water from the Bellingham Technical College and the Birchwood Neighborhood. These sources converge to form an open channel in a narrow, steep ravine. In this upper reach, the stream is approximately three to six feet in width, with a large cobble substrate. During the July site visit, the upper stream contained only small sections of

moving water with an average depth of two inches. Stream banks were vegetated and included large black cottonwood trees between 20 and 30 inches DBH.

A third 48-inch stormwater culvert discharges into the stream approximately mid-site. This culvert is reported to convey County stormwater (Wilson Survey/Engineering, 2009). A fourth 18-inch culvert discharges flow from Wetland 2 (this is the previous stream channel). This culvert was dry during the July site visit. Two smaller culverts discharge into Wetland 2 north of Lindbergh Avenue and east of the existing central trail.

Springs also discharge to the stream, with the most obvious spring being the one enclosed by a small structure on the west bank immediately upstream from the Marine Drive overpass. A second spring exists along the west bank immediately downstream from the Marine Drive overpass. The lower stream (downstream of Marine Drive) was four to ten feet wide with smaller cobble and more flowing water. Sidebanks are shallower in the lower reaches despite the creek being flanked by two parallel elevated gravel trails.

At the south end of the Park, the stream crosses under the existing trail via a 36-inch culvert and discharges directly to the cobble beach and Bellingham Bay. Wilson Survey/Engineering (2009) documents the culvert as having a reverse slope of 0.5 percent. The trail covering the culvert shows signs of erosion, likely from wave action.

The proposed City of Bellingham West Illinois and Timpson Way street extension project is expected to start construction in fall of 2009. The stormwater from the improved road surface is planned to be split between two of the existing culverts that eventually discharge to Little Squalicum Creek (Wilson Survey/Engineering, 2009). Additional detention is required to be stored within Little Squalicum Park, potentially within the excavated area left after the landfill clean-up is complete (Anthony, pers. comm., 2009).

3.2.4 Fish and Wildlife

No state or federal Threatened, Sensitive, or Endangered plant or animal species were observed on the subject property, nor have any been documented on available resource maps (Whatcom County, 2005e, WDFW, 2003, and WDFW, 2009) (Figures 2 & 4, Appendix B). At the time of the site visits, NES ecologists observed several species of birds and small mammals common to urban environments. Anecdotal information suggests the presence of a Coopers hawk nest on-site. Cooper's hawk is not a state Priority or federal listed species. The park is a habitat remnant of undeveloped land within a highly urbanized environment.

Little Squalicum Creek is not documented by WDFW as containing state Priority or federal listed fish species (WDFW, 2003 and WDFW, 2009). NES did not observe any fish during their site visits. This is consistent with Whatcom County's designation of the stream as having "presumed potential/historical distribution" of anadromous fish (Whatcom County, 2005b). The culvert at the mouth of the stream appears to be a partial fish barrier during low tide conditions; however, the culvert is not documented by WDFW as a fish passage barrier on the SalmonScape

interactive mapping program. The stream is highly altered, contains documented contamination (Integral Consulting, Inc., 2008), and has a highly variable, flashy hydrologic regime as a result of stormwater inputs. As a result, the stream currently has low fish habitat value for spawning and rearing and may never achieve these functions unless hydrology and contaminant levels are brought back to more natural conditions (Monahan, pers. comm., 2009 and Vasak, pers. comm., 2009).

Although the Park may not support state Priority or federal listed species, more common species may utilize the Park as a refuge and corridor connecting upland, wetland, and marine environments. The marine shoreline immediately south of the Park is documented by Whatcom County (2005f) as having sandlance and surf smelt spawning. In addition, anadromous fish species may be present along the shoreline as they migrate to and from Squalicum Creek, Silver Creek, and the Nooksack River. Fish species documented within these systems, and therefore likely within the marine waters, are spring chinook salmon, fall chinook salmon, fall chum salmon, coho salmon, pink salmon, sockeye salmon, summer steelhead, winter steelhead, and bull trout/dolly varden (WDFW, 2003). Puget Sound chinook and Puget Sound/Strait of Georgia steelhead are listed as federal Threatened species under the ESA and state Candidate species. Puget Sound/Strait of Georgia coho is listed as a federal Species of Concern but are not listed by Washington State. Bull trout is listed as a federal Threatened species and is a state Candidate species. Dolly varden is a federal Proposed species and is not listed by the state. Puget Sound chum, pink, and sockeye are not federally or state listed.

3.2.5 Shorelines

The marine shoreline of Bellingham Bay abuts the southern end of Little Squalicum Park, immediately south of the BNSF railroad trestle. Based on trail erosion and drift lines, the OHWM appears to be at or near the toe-of-slope of the existing trail. The beach is characterized by large cobble and large driftwood logs. Little Squalicum Creek discharges directly to the cobble beach and flows into the marine water. Overhanging vegetation exists along the eastern extent of the Park property. Development is limited to the existing Park trail, the culvert for Little Squalicum Creek, and an abandoned concrete plant pier extending from the western Park boundary into Bellingham Bay. Human and pet use is common, with access provided by the Little Squalicum Park trail and a Port of Bellingham parking lot located at the beach several hundred feet east adjacent to Mount Baker Plywood.

The shoreline is a “shoreline of the state” and has an “Urban” Whatcom County SMP Shoreline Area Designation.

3.3 Wetlands, Streams, and Shorelines on Adjacent Properties

NES did not identify any off-site wetlands, streams, or shoreline areas within 300 feet of the site as observed from property boundaries and adjacent public access points.

3.4 Wetland and Stream Determination

NES ecologists confirmed the potential presence and approximate extent of the fourteen wetlands (Wetlands 1 through 14) and one stream originally delineated by Sheldon and Associates (1991) (Figure 9, Appendix B). Wetlands 3A, 10, 11, and 12 require additional hydrologic monitoring to confirm the presence of wetland hydrology. Wetlands 9 and 14 extend off-site to the south, otherwise all wetlands are contained within the Little Squalicum Park boundaries. Wetland hydrogeomorphic classification and Cowardin classification of on-site wetlands and stream type of on-site streams are summarized in Table 2.

Table 2. Wetland Reconnaissance Classification Summary

Wetland Unit	Hydrogeomorphic Class	Cowardin Classification	Wetland Size* (acres)
1	Depressional- closed	PFO	0.06
2	Depressional/ Slope- outflow	PEM/PFO	1.01
3A**	Depressional- outflow	PFO/PSS	0.44
3B	Depressional- closed	PFO/POW	
4	Depressional-closed	PEM/PSS	0.09
5	Depressional- closed	PEM/PSS	0.02
6	Depressional- closed	PFO	0.03
7	Depressional- closed	PFO/PSS	0.05
8	Depressional- outflow	PFO	0.20
9	Depressional-outflow	PFO	0.59
10**	Depressional- closed	PEM	0.01
11**	Depressional- closed	PEM	0.01
12**	Depressional- closed	PEM	0.01
13	Slope	PFO	0.23
14	Depressional- outflow	PSS/PEM	0.03
Little Squal Creek	Type Ns	seasonal	

PEM= Palustrine emergent ,PFO=Palustrine forested, PSS=Palustrine scrub/shrub, RPW= Relatively Permanent Water, TNW = Traditional Navigable Water

* Acreages are as listed in Sheldon Associates 1991 and Springwood Associates 1992 reports, no adjustments made for this table.

**Requires additional hydrologic monitoring to confirm presence of wetland hydrology.

3.5 Wetland Categorization and Functional Assessment

NES completed a wetland rating and functional assessment of site wetlands using the WDOE’s Wetland Rating System for Western Washington, revised 2004 (Rating System) (Hruby, 2004). This methodology identifies and quantifies the potential of various functions operating within a wetland. The determination is based on the physical characteristics of water quality, hydrologic, and habitat functions in the wetland and buffers. Using this system, wetlands are given a score based on the functions provided by the wetland, and classified as Category I through Category IV.

Wetland function (potential and opportunity) was determined using the WDOE Rating System, per recent guidance from WDOE (WDOE, 2008). The NES ecologists converted the Rating

System scores to a more useful qualitative rating of “High”, “Medium”, and “Low” based on WDOE guidance. The qualitative rating provides more accuracy when comparing wetlands and evaluating their current status. The ecologists did not include a qualitative rating for the opportunity for water quality and hydrologic functions because the opportunity is either present or not. Instead, the table reflects the presence of opportunity as “Yes” and absence as “No” based on answers provided in the rating sheets. The qualitative ratings for specific habitat functions are based on NES ecologists’ best professional judgment.

3.5.1 Wetland Categories and Classes

NES rated the on-site wetlands using the WDOE’s Wetland Rating System for Western Washington, revised 2004 (rating system) (WDOE, 2004). Wetland categories and classifications are summarized in Table 3.

Table 3. Wetland Reconnaissance Categorization Summary

Wetland Unit	Hydrogeomorphic Class	Cowardin Classification	Wetland Size* (acres)	WDOE Category (habitat pts)	Corps Hydrologic Classification	Bellingham/ County Buffer (ft)
1	Depressional-closed	PFO	0.06	III (13)	Adjacent to RPW	60 60
2	Depressional/Slope- outflow	PEM/PFO	1.01	III (19)	Adjacent to RPW	60 60
3A	Depressional-outflow	PFO/PSS	0.44	III (15)	Adjacent to RPW	60 60
3B	Depressional-closed	PFO/POW		III (16)	Adjacent to RPW	60 60
4	Depressional-closed	PEM/PSS	0.09	III (18)	Isolated	N/A 60
5	Depressional-closed	PEM/PSS	0.02	III (18)	Isolated	N/A 60
6	Depressional-closed	PFO	0.03	III (14)	Isolated	N/A 60
7	Depressional-closed	PFO/PSS	0.05	III (16)	Isolated	N/A 60
8	Depressional-outflow	PFO	0.20	III (18)	Adjacent to RPW	60 60
9	Depressional-outflow	PFO	0.59	II (16)	Adjacent to TNW	75 75
10**	Depressional-closed	PEM	0.01	III (13)	Isolated	N/A 60
11**	Depressional-closed	PEM	0.01	III (14)	Isolated	N/A 60
12**	Depressional-closed	PEM	0.01	III (14)	Isolated	60 60
13	Slope	PFO	0.23	III (12)	Abutting RPW	60 60
14	Depressional-outflow	PSS/PEM	0.03	III (19)	Adjacent to TNW	50-150 50-100

PEM= Palustrine emergent ,PFO=Palustrine forested, PSS=Palustrine scrub/shrub, RPW= Relatively Permanent Water, TNW = Traditional Navigable Water

* Acreages are as listed in Sheldon Associates 1991 and Springwood Associates 1992 reports, no adjustments made for this table.

**Requires additional hydrologic monitoring to confirm presence of wetland hydrology.

3.5.2 Wetland Functions

Wetland function (potential and opportunity) was determined using the WDOE Rating System, per recent guidance from WDOE (WDOE, 2008) and as described at the beginning of this report under “Methodology”. The quantitative scores shown in Table 4, below, reflect the cumulative point total assigned in the Rating System. The NES ecologists then converted the scores to a more useful qualitative rating of “High”, “Medium”, and “Low” based on WDOE guidance. The opportunity for water quality and hydrologic functions is listed as “Yes” if present or “No” if absent. The qualitative ratings for specific habitat functions listed at the end of Table 4 are based on NES ecologists’ best professional judgment.

Table 4. Wetland Functional Assessment

Functional Value or Score	Qualitative Rating of Function													
	1	2	3A/3B	4	5	6	7	8	9	10	11	12	13	14
Total WDOE Score	44	40	40/38	49	49	41	43	41	54	36	37	37	34	40
WDOE Category	III	III	III	III	III	III	III	III	II	III	III	III	III	III
Overall Water Quality Potential	H	M	M/L	H	H	M	M	M	H	M	M	M	M	M
Overall Water Quality Opportunity? (Y/N)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Overall Hydrologic Potential	M	M	M/H	M	M	M	M	L	M	M	M	M	L	M
Overall Hydrologic Opportunity? (Y/N)	--	--	--	--	--	--	--	--	--	--	--	--	✓	--
Total Habitat Score	13	19	15/16	18	18	14	16	18	16	13	14	14	12	19
Overall Wildlife Habitat Potential	L	M	M/L	L	L	L	L	L	L	L	L	L	L	L
Overall Wildlife Habitat Opportunity	M	M	M	M	M	M	M	M	M	M	M	M	M	M
<i>Specific Habitat Functions:</i>														
Vegetation Structure	M	L	L/L	L	L	L	L	L	M	L	L	L	L	L
Habitat Features	M	M	L/L	L	L	L	L	L	M	L	L	L	L	L
Buffer Quality	M	M	L/M	M	M	M	M	M	M	L	M	M	L	M
Priority Habitats	L	M	M/L	M	M	M	M	M	H	M	M	M	H	M
Habitat Connectivity	M	M	M/M	M	M	M	M	M	M	L	M	M	M	M

H= High, M= Medium, L= Low, ✓= yes, -- = no

Wetlands 1 and 3A/3B

Wetlands 1 and 3A/3B provide varied high water quality functions. Wetland 1 provides high function while Unit 3A provides moderate and Unit 3B provides low. The variation in functional performance is due in part to the wetlands’ varied depth and duration of water storage. Wetland 1 provides seasonal inundation in a depth and duration better suited to pollutant capture and filtration. Wetlands 1 and Unit 3B lack surface outlets which provide a longer retention time of water within the wetlands and additional water quality improvement. Wetlands 1 and Unit 3A contain the highest density and extent of persistent, woody vegetation, which assists with pollutant and sediment capture and uptake throughout the year. In addition to having the potential, the wetlands currently appear to have the opportunity to provide water quality functions as they receive pollutants from adjacent trails, past contamination, and potentially polluted stormwater/groundwater discharge.

Wetlands 1 and Unit 3A provides moderate hydrologic function primarily due to their depressional hydrogeomorphic characteristics and lack of significant surface outlets. Wetland Unit 3B has a high hydrologic function. In addition to the characteristics mentioned for Wetlands 1 and Unit 3A, Wetland Unit 3B also contains a large, deep ponded depression and therefore has a high potential for hydrologic function. Due to its size, Unit 3B has potential to provide significant water storage capacity in this portion (upper) of the watershed. None of the wetlands appear to have the opportunity to provide flooding and erosion control due to the lack of downstream fish resources and close proximity of Bellingham Bay, a waterbody at low risk for flood damage.

Wetlands 1 and 3A/3B provide low to moderate wildlife habitat potential and moderate opportunity. Wetland 1 has the greatest diversity in vegetation structure and habitat features; however, all wetlands are in an area which has been disturbed in the recent past (35 years) and is experiencing significant invasive plant cover. These factors limit the wetlands' ability to provide habitat and soil structure typical of more mature plant communities. Nevertheless, the wetlands provide some habitat function due to their proximity to the marine shoreline, Little Squalicum Creek, and location within an intact vegetated corridor.

Wetlands 2 and 8

Wetland 2 and 8 provide moderate water quality function. The wetlands contain dense herbaceous vegetation, which assists with pollutant and sediment capture and uptake. They also contain woody species which provides a year round capacity of this function. Although limited in depth, the wetlands contain shallow seasonally ponded areas and restricted/intermittent outflow which allow additional pollutant capture and filtration. Wetlands 2 and 8 currently appear to have the opportunity to provide water quality functions as they receive pollutants from adjacent trails, past contamination, and potentially polluted groundwater discharge.

Wetland 2 provides moderate hydrologic function due to its depressional hydrogeomorphic characteristics, intermittent outflow, and small contributing basin. The wetland's hydrologic function is limited due to its small storage capacity (shallow depressions). Water storage is further limited in the sloped portion of the wetland due to the reduced surface water retention time. Wetland 8 has similar characteristics as Wetland 2; however, it has a slightly lower potential to provide hydrologic function because it is smaller in size relative to its contributing basin. Despite having the potential, neither wetland appears to have the opportunity to provide flooding and erosion control due to the lack of downstream fish resources and close proximity of Bellingham Bay, a waterbody at low risk for flood damage.

Wetlands 2 and 8 provide low to moderate wildlife habitat potential and moderate opportunity. Wetland 2 has the greatest diversity in vegetation structure and habitat features primarily due to its large size and location within the previous Little Squalicum Creek channel. Both Wetlands 2 and 8 are in an area which has been disturbed in the recent past (35 years) and is experiencing significant invasive plant cover. These factors limit the wetlands' ability to provide habitat and

soil structure typical of more mature plant communities. Nevertheless, the wetlands provide some habitat function due to their proximity to the marine shoreline, Little Squalicum Creek, and location within an intact vegetated corridor.

Wetlands 4, 5, 6, 7, 10, 11, and 12

Wetlands 4 and 5 provide high water quality function. The wetlands contain dense herbaceous vegetation, which assists with pollutant and sediment capture and uptake, but lack significant woody species which could provide a year round capacity of this function. Depressional ponded areas also dominate the wetlands and the wetlands lack a surface outlet. Both of these attributes facilitate additional pollutant capture and filtration. Wetlands 6, 7, 10, 11, and 12 have a lower (“moderate”) water quality function. This lower functional performance is due to an anticipated smaller area of relative ponding. NES did not directly observe Wetlands 6 and 7; therefore, the degree of ponding is assumed based on surrounding topography. Wetlands 4, 5, 6, 7, 10, 11, and 12 all currently appear to have the opportunity to provide water quality functions as they are in close proximity to active trails and known sources of soil contamination.

Wetlands 4, 5, 6, 7, 10, 11, and 12 provide moderate hydrologic function due to their depressional hydrogeomorphic characteristics, lack of a surface outlet, and moderate/small contributing basin. The wetlands are limited in providing hydrologic function due to their shallow depths. The wetlands contain ponded depressions, which provide some water storage, but the depressions are shallow and do not provide significant storage capacity. Despite having the potential, the wetlands do not appear to have the opportunity to provide flooding and erosion control due to the lack of downstream fish resources and close proximity of Bellingham Bay, a waterbody at low risk for flood damage.

Wetlands 4, 5, 6, 7, 10, 11, and 12 provide low wildlife habitat potential and moderate opportunity. The wetlands are small in size and have uniform structure. They are located in an area which has been disturbed in the recent past (35 years) and is experiencing significant invasive plant cover. These factors limit the wetlands’ ability to provide habitat and soil structure typical of more mature plant communities. Nevertheless, the wetlands provide some habitat function due to their proximity to the marine shoreline, Little Squalicum Creek, and location within an intact vegetated corridor.

Wetland 13

Wetland 13 provides moderate water quality function. The majority of the wetland is covered by dense herbaceous vegetation, which assists with pollutant and sediment capture and uptake. The wetland also contains lacks woody species which provide a year round capacity of this function. However, the wetland is sloped which limits treatment time of water within the wetland. The wetland currently appears to have the opportunity to provide water quality functions as it receives potentially polluted runoff from residential areas upslope and potential.

Wetland 13 provides low hydrologic function primarily as a result of its sloped hydrogeomorphic nature. Although its slope reduces its ability to detain and store surface water, the wetland contains a number of small depressions and is dominated by woody and rigid vegetation which help to slow water entering Little Squalicum Creek. Wetland 13 is the only on-site wetland with the opportunity to provide flooding and erosion control due to the presence of an eroding trail and potentially undersized culvert downstream of the wetland at the mouth of Little Squalicum Creek.

Wetland 13 provides low wildlife habitat potential and moderate wildlife opportunity functions. The wetland has low vegetation structural diversity, limited habitat features, and few hydroperiods present. However, the wetland abuts Little Squalicum Creek, is within 100 feet of Bellingham Bay, and is within an intact vegetated corridor.

Wetlands 9 and 14

Wetland 9 provides high and 14 provides moderate potential for water quality functions. Both wetlands have highly constricted or intermittent outflow which facilitates pollutant capture and filtration. Wetland 9; however, has a greater area of seasonal ponding and is assumed (based on surface soil observations and inundation) to have organic soils. As a result, Wetland 9 has a higher capacity for pollutant adsorption and denitrification. In addition to having the potential, the wetlands currently appear to have the opportunity to provide water quality functions as they potentially receive pollutants from adjacent BNSF chemical use and potentially polluted stormwater/groundwater discharge.

Wetlands 9 and 14 both provide moderate hydrologic function. They both have highly constricted or intermittent outflow. Wetland 9 has a less significant storage capacity compared to Wetland 14 due to its larger relative contributing basin, but it has a greater depth of storage. Despite having the potential, neither wetland appears to have the opportunity to provide flooding and erosion control due to the lack of downstream fish resources and close proximity of Bellingham Bay, a waterbody at low risk for flood damage.

Wetlands 9 and 14 provide low wildlife habitat potential and moderate wildlife opportunity functions. The wetlands have low to moderate vegetation structural diversity, limited habitat features, and significant invasive plant cover. few hydroperiods present. However, the wetlands are within 100 feet of Little Squalicum Creek, are directly connected and adjacent to Bellingham Bay, and are within an intact vegetated corridor.

4.0 REGULATIONS

4.1 Whatcom County

Little Squalicum Park is currently located in unincorporated Whatcom County, but is within the Bellingham UGA. Therefore, development applications would be reviewed by both the County

and City. Unless the property is annexed into the City of Bellingham, Whatcom County would be the lead local jurisdictional agency. The City of Bellingham would also likely conduct a secondary review and provide comments.

The Whatcom County CAO states that no activity may be conducted within a regulated wetland, stream, or buffer without Critical Areas review and approval. Activities impacting regulated wetlands generally must provide mitigation sufficient to maintain or enhance the wetland functions. Whatcom County requires a buffer around regulated wetlands and streams to protect functions. The buffer must remain naturally vegetated except where it can be enhanced to improve the functions (Whatcom County, 2005f). Buffers are measured from the wetland edge.

Whatcom County regulates all wetlands, regardless of size, with the exception of Category IV wetlands, less than 1/10 of an acre that do not provide suitably significant or unique characteristics as defined by the Critical Areas Ordinance (CAO 16.16.610). All of the wetlands on the NE parcels rate higher than Category IV, therefore it appears **Whatcom County regulates all on-site wetlands (Wetlands 1 through 14).**

Buffer widths for regulated wetlands are based on the overall WDOE rating score, the WDOE habitat score, and the adjacent land use. Based on zoning and anticipated park use, the Park appears to be a “moderate intensity” land use under the CAO definition. The Whatcom County CAO (WCC.16.16. Article 8) defines “moderate intensity use” as land use that includes the following uses or activities: residential (1 unit/acre or less), moderate- intensity open space (parks), moderate- intensity new agriculture (orchards and hayfields), plant nurseries, paved trails, and building of logging roads. **According to the moderate intensity land use definition, the WDOE Category III ratings, and wildlife scores of less than 20 points, under Whatcom County Code Wetlands 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, and 14 would each be required to have 60-foot buffers. With a Category II rating and a wildlife score less than 20 points, Wetland 9 would be required to have a 75-foot buffer.**

Whatcom County requires a 50-foot buffer on non-fish bearing streams. **Little Squalicum Creek appears to be a Type 5 “Ns”, non-fish bearing stream, therefore, will likely be required to have a 50-foot buffer unless biologists document presence of priority fish species.** If restoration were to result in fish access, the stream would be an “F” stream with a 100-foot buffer. **The marine shoreline is associated with a 150-foot-wide Shoreline setback as measured from the OHWM.**

A summary of Whatcom County regulated buffer widths is shown in Table 5 below.

Whatcom County requires that buildings and other structures are setback a minimum of 10 feet from the edge of critical area buffers, or from the critical area where no buffer is required. Uses allowed within the 10-foot setback include: landscaping; uncovered decks; building overhangs; impervious surfaces such as driveways, roads, parking lots, and patios, provided that they

conform to applicable water quality standards and that construction equipment does not enter or damage the buffer or critical area. Clearing and grading and wells are also allowed within the 10-foot building setback (Whatcom County, 2005f).

4.1.2 Mitigation Sequencing

The Whatcom County CAO requires applicants avoid all impacts to on-site critical areas and their buffers to the furthest extent possible. In some cases, if alteration to the critical area is deemed unavoidable, impacts may be allowed if all adverse impacts resulting from a development proposal are mitigated using best available science so as to result in no net loss of critical area functions and values. When alteration or impact to a critical area is proposed, the applicant shall demonstrate that all reasonable efforts have been taken to mitigate impacts in the following, prioritized, order: 1) Avoid, 2) Minimize, 3) Rectify, 4) Reduce, 5) Compensate (WCC 16.16.260).

When the previous sequence is followed, it may also be permissible to reduce or average the standard wetland buffer width. A Category II wetland buffer, such as that on Wetland 9 may not be reduced to less than 75% of the standard buffer, or 50-feet, whichever is greater. A Category III wetland buffer, such as that on Wetlands 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, and 14 may not be reduced to less than 50% of the standard buffer, or 25-feet, whichever is greater. Alternatively, buffers may sometimes be averaged, on a case by case basis, when all criteria stated in the Whatcom County CAO 16.16.650 are met, including that the minimum buffer width of a Category II wetland shall not be less than 75% of the standard buffer, or 50-feet, whichever is greater, and that the minimum buffer width of a Category III wetland shall not be less than 50% of the standard buffer, or 25-feet, whichever is greater.

It may also be possible to reduce or average stream buffers provided that the buffer reduction shall not adversely affect the habitat functions and values of the adjacent habitat conservation area or other critical area. The buffer shall not be reduced to less than 75% of the standard buffer and the slopes adjacent to the habitat conservation area within the buffer area are stable and the gradient does not exceed thirty percent (Whatcom County CAO, 16.16.740 D). A reduction in the 150-foot marine Shoreline setback would require a variance under the SMP.

4.2 City of Bellingham

Little Squalicum Park is currently located in unincorporated Whatcom County, but is within the Bellingham UGA. Therefore, development applications would be reviewed by both the County and City. Unless the property is annexed into the City of Bellingham, Whatcom County would be the lead local jurisdictional agency. The City of Bellingham would also likely conduct a secondary review and provide comments.

The City of Bellingham CAO states that no activity may be conducted within a regulated wetland, stream, or buffer without Critical Areas review and approval. Activities impacting

regulated wetlands generally must provide mitigation sufficient to maintain or enhance the wetland functions. The City of Bellingham requires a buffer around regulated wetlands and streams to protect functions. The buffer must remain naturally vegetated except where it can be enhanced to improve the functions. Buffers are measured from the OHWM of the stream or the wetland edge.

The City of Bellingham regulates all wetlands except for those specified in Section 16.55.270 B of the CAO, including Category III and IV wetlands between 1,000 and 4,000 square feet that are not hydrologically connected to Type 1 through Type 5 streams, have low habitat scores, do not contain essential habitat for local priority species, and are not part of a mosaic of wetlands (City of Bellingham CAO 16.55.270). No Category IV wetlands exist on site. However, **Wetlands 4, 5, 6, 7, 10, 11, and 12 are all small Category III wetlands which meet the above criteria such that they may not be regulated by the City of Bellingham. Wetlands 1, 2, 3, 8, 9, 13, and 14 appear to be regulated by the City of Bellingham.** If the property is not annexed, the City will likely provide review and comments based on this jurisdictional interpretation of regulated wetlands. Wetlands not regulated by the City of Bellingham may still be regulated by other agencies with authority over wetlands discussed in this section.

Based on zoning and anticipated park use, the Park appears to be a “moderate intensity” land use under the CAO definition. The CAO (City of Bellingham CAO 16.55.510) defines “moderate intensity use” as land use that includes the following uses or activities: residential (1 unit/acre or less), moderate- intensity open space (parks), moderate- intensity new agriculture (orchards and hayfields), paved trails, and building of logging roads.. **According to the moderate intensity land use definition, the WDOE Category III ratings, and wildlife scores of less than 20 points, under Bellingham Municipal Code Wetlands 1, 2, 3, 8, 13, and 14 would each be required to have 60-foot buffers. With a Category II rating and a wildlife score less than 20 points, Wetland 9 would be required to have a 75-foot buffer.**

The City of Bellingham requires a minimum 50-foot to maximum 100-foot buffer on Type 5 fish-bearing streams. Final buffer width determination must be made by the City of Bellingham CAO administrator. **Little Squalicum Creek appears to be a Type 5 “Ns”, non-fish bearing stream, therefore, will likely be required to have a minimum 50-foot to maximum 100-foot buffer.** If restoration were to result in fish access or biologists subsequently document priority fish presence, the stream would be an “F” stream with a 75 to 150-foot buffer.

Table 5. Summary of Whatcom County and City of Bellingham Regulated Buffers

	WDOE Category/ Stream Type	WDOE Habitat Score	COUNTY Buffer Width (feet)	CITY Buffer Width (feet)
Wetland 1	II	13	60	60
Wetland 2	III	19	60	60
Wetland 3A	III	15	60	60
Wetland 3B	III	16	60	60
Wetland 4	III	18	60	--
Wetland 5	III	18	60	--
Wetland 6	III	14	60	--
Wetland 7	III	16	60	--
Wetland 8	III	18	60	60
Wetland 9	II	16	75	75
Wetland 10	III	13	60	--
Wetland 11	III	14	60	--
Wetland 12	III	14	60	--
Wetland 13	III	12	60	60
Wetland 14	III	19	60	60
Little Squal. Cr.	Ns (Type 5)		50	50-100
Bellingham Bay	Marine shoreline			150

4.3 U.S. Army Corps of Engineers

The Corps regulates wetlands, streams, and other drainages that connect to Waters of the United States. The Corps requires notification for **all** disturbances to wetlands, streams, and potentially to other drainages (ditches), and it is incumbent upon the landowner to disclose disturbances. The Corps will automatically assert jurisdiction over some wetlands and will need to complete a significant nexus determination for others, depending on the degree of connection to other waters, and the classification of these associated waters. Wetland hydrologic classification and connectivity is described in this report as the Corps “hydrologic classification” (Tables 3 and 6) using definitions provided in current Corps guidance documents.

Little Squalicum Creek appears to qualify as a Relatively Permanent Water (RPW) due to its continuous flow of more than three months out of the year. Bellingham Bay is listed as part of the “Straits of Georgia and Juan de Fuca”, recognized Traditional Navigable Water (TNW).

Wetlands 4, 5, 6, 7, 10, 11, and 12 do not appear to have a surface water connection to a Corps recognized TNW and may be “isolated.” Wetlands 1, 2, 3A/3B, and 8 appear to be adjacent to a RPW, Wetlands 9 and 14 appear to be adjacent to a TNW, and Wetland 13 appears to be abutting an RPW. The Corps is expected to regulate Wetlands 1, 2, 3A/3B, 8, 9, 13, and 14 and Little Squalicum Creek. However, only the Corps has the authority to make a jurisdictional determination.

Table 6. Corps Hydrologic Classification Summary

Feature	Hydrogeomorphic Class	Corps Hydrologic Classification
1	Depressional- closed	Adjacent to RPW
2	Depressional/ Slope-outflow	Adjacent to RPW
3A	Depressional- outflow	Adjacent to RPW
3B	Depressional- closed	Adjacent to RPW
4	Depressional-closed	Isolated
5	Depressional- closed	Isolated
6	Depressional- closed	Isolated
7	Depressional- closed	Isolated
8	Depressional- outflow	Adjacent to RPW
9	Depressional-outflow	Adjacent to TNW
10**	Depressional- closed	Isolated
11**	Depressional- closed	Isolated
12**	Depressional- closed	Isolated
13	Slope	Abutting RPW
14	Depressional- outflow	Adjacent to TNW
Little Squalicum Creek		RPW
Bellingham Bay		TNW

PEM= Palustrine emergent ,PFO=Palustrine forested, PSS=Palustrine scrub/shrub, RPW= Relatively Permanent Water, TNW = Traditional Navigable Water

* Acreages are as listed in Sheldon Associates 1991 and Springwood Associates 1992 reports, no adjustments made for this table.

**Requires additional hydrologic monitoring to confirm presence of wetland hydrology.

A disturbance under one-half acre of non-isolated wetland requires an application for a Nationwide Permit from the Corps. Fills exceeding one-half acre require an Individual Permit from the Corps. Mitigation is required for most wetland fill. In all cases the Corps requires concurrence with Section 7 of the Endangered Species Act. The Corps also has discretion to disallow disturbance to high quality wetlands. The Corps requires certification that no federally listed or known Endangered or Threatened animal species or areas protected under the National Historic Preservation Act are present on the site.

4.4 Washington State Department of Ecology

WDOE has authority over discharge into all wetlands (including isolated wetlands) and streams and can impose buffers and compensatory mitigation for impacts. **The WDOE appears to have jurisdiction over Wetlands 1 through 14 and Little Squalicum Creek.** The WDOE reviews all permits received by the Corps for Water Quality Certification. WDOE requires an “individual” review of all wetland disturbances greater than one-half acre. Water Quality Certification is required for all Individual Permit applications.

4.5 Washington State Department of Fish and Wildlife

The WDFW requires issuance of a Hydraulic Project Approval (HPA) prior to any activities that may directly or indirectly affect streams or associated wetlands. Mitigation may be required for both direct and indirect impacts to regulated streams. Prior to any work proposed the land owner must contact WDFW, to determine if an HPA is required for site development. **WDFW is expected to have jurisdiction over Little Squalicum Creek and, potentially, any alterations to Wetlands 1, 2, 3A/3B, 8, 9, 13, and 14 should the alterations indirectly impact Little Squalicum Creek.**

APPENDIX A: REFERENCES

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APPENDIX B: FIGURES

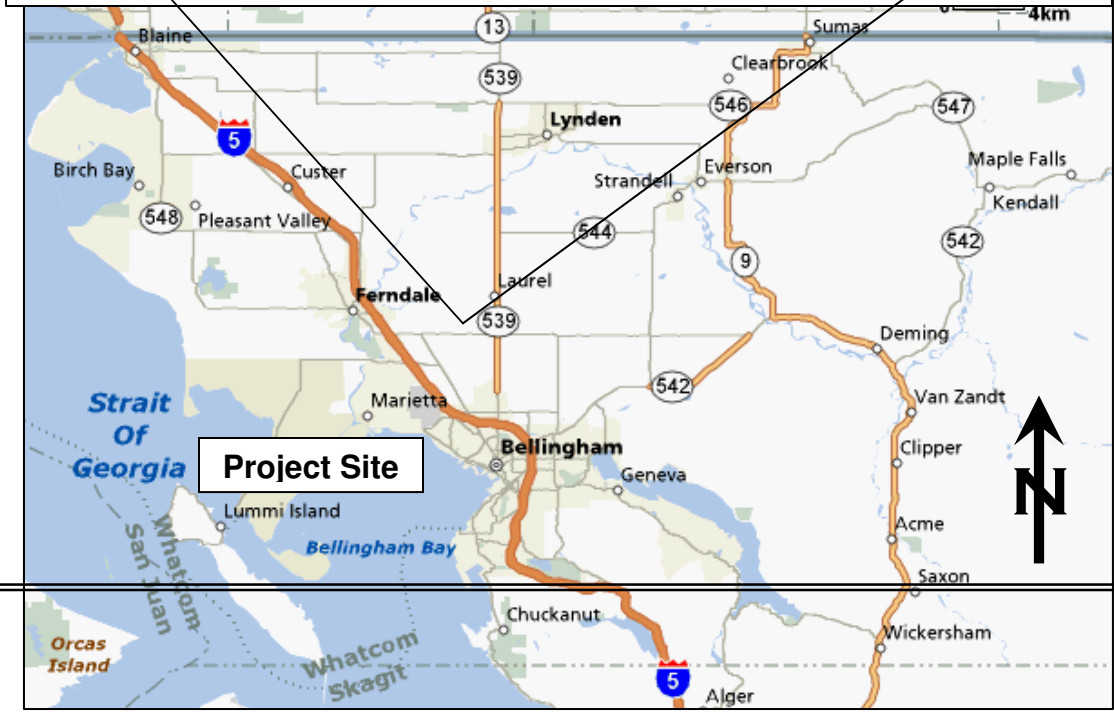
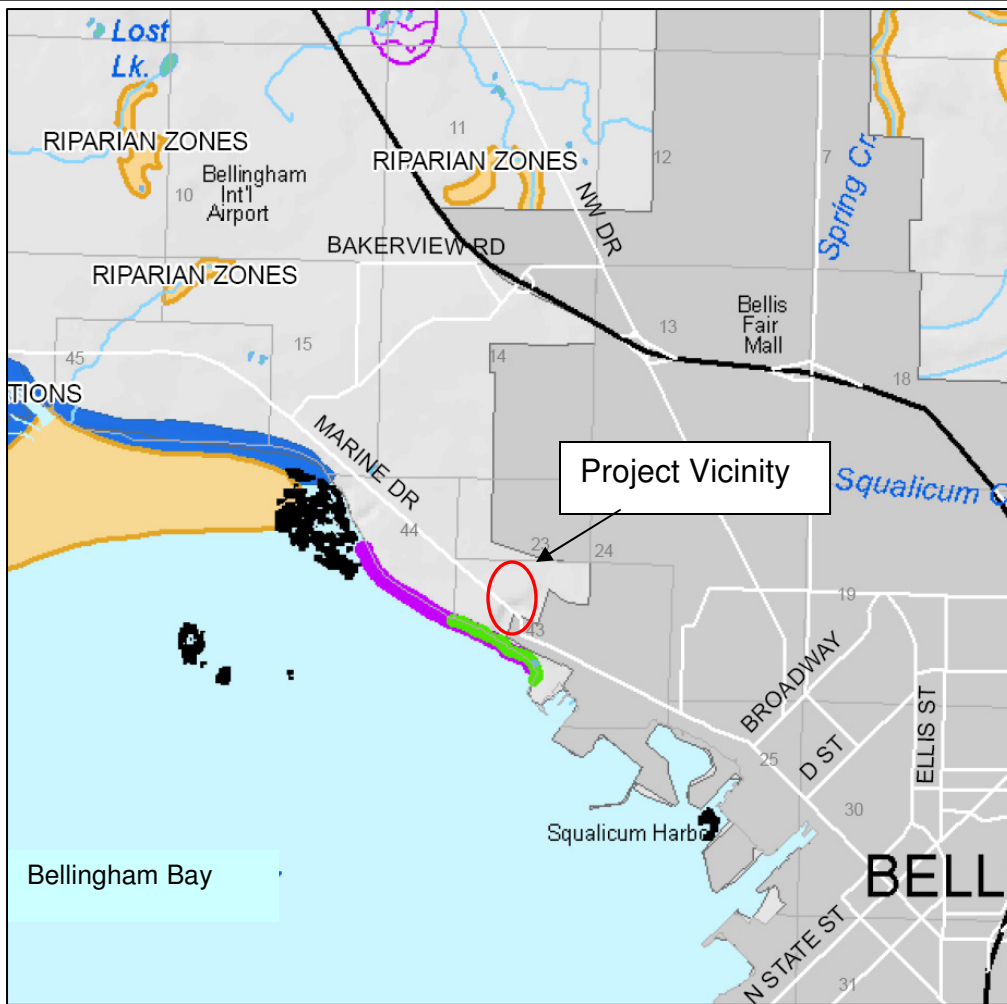











Figure 1.


October 2009




Article VII - Wildlife Habitat Conservation Areas (HCA)





HABITATS AND SPECIES

-  HCA 2 - State and Federal listed Species Have a Primary Association
-  HCA 3 - Habitats and Areas Associated with a State Priority Species
-  HCA 10 - Habitats and Species of Local Importance
-  HCA 4 - Commercial and recreational shellfish areas
Includes marine beaches (see note)
Includes Shellfish Protection Districts (Drayton Harbor)
-  HCA 5 - Eelgrass Beds
-  HCA 5 - Kelp Beds
-  HCA 6 - Herring Spawning
-  HCA 6 - Sandlance Spawning
-  HCA 6 - Smelt Spawning

-  HCA 7 + 8 - Lakes and Ponds less than 20 acres

-  HCA 9 - Natural Area Preserves and natural resource conservation areas

OTHER MAP SYMBOLS

-  City Jurisdiction
-  Section Lines
-  Mt. Baker/Snoqualmie National Forest
-  Lummi Nation Boundaries

HCA 1 is found on the separate Fish Habitat Conservation Areas Map

NORTHWEST
ECOLOGICAL

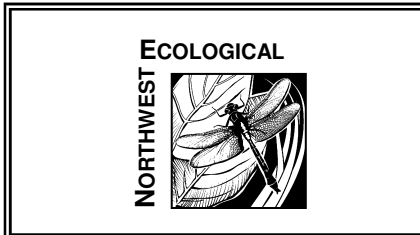
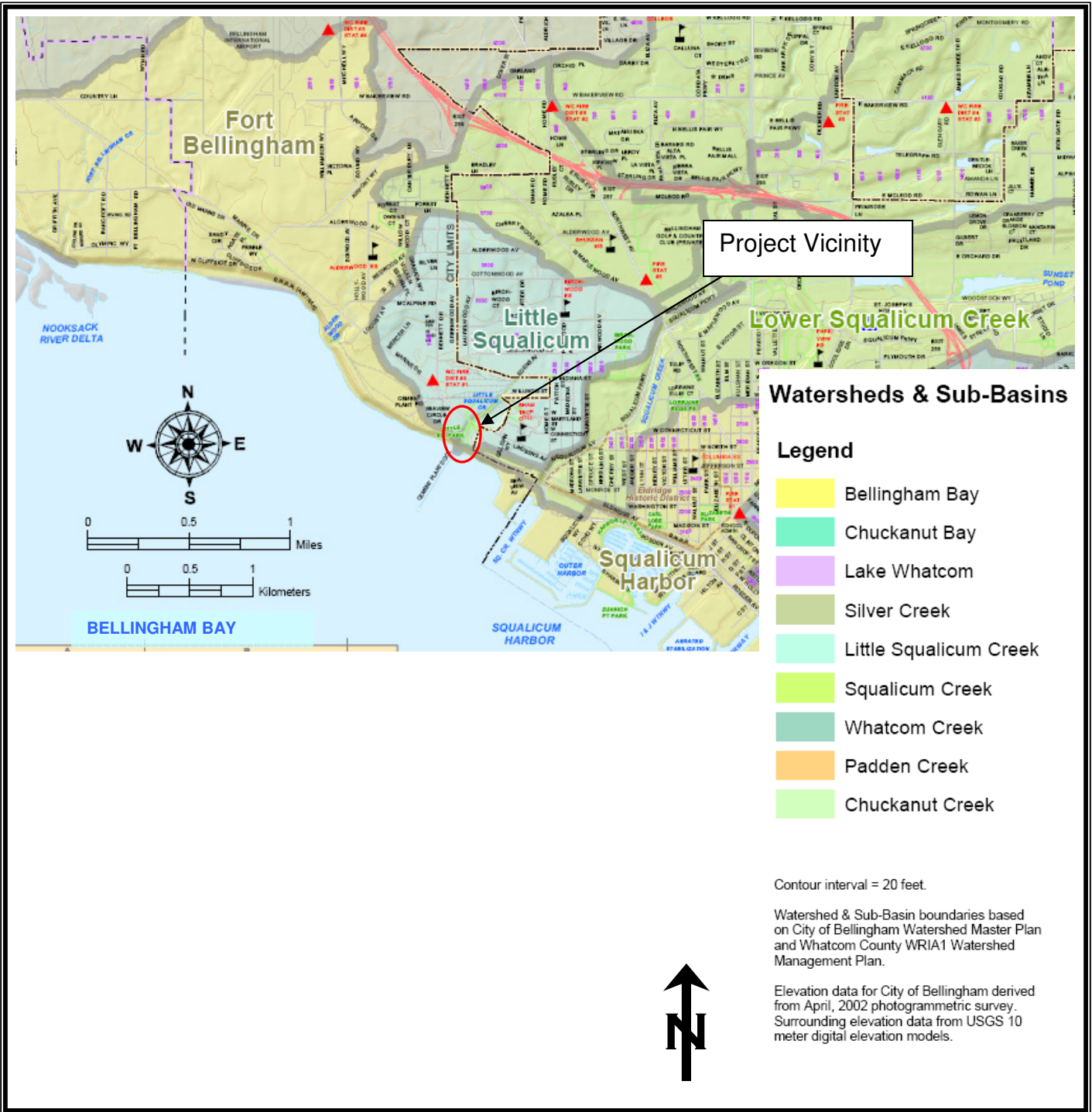


Wildlife Habitat Conservation Areas
(Whatcom County CAO)

Little Squalicum Park Master Plan
Wetlands Reconnaissance and Existing
Conditions Report

Figure 2.

October 2009

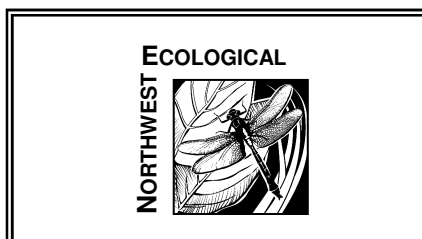
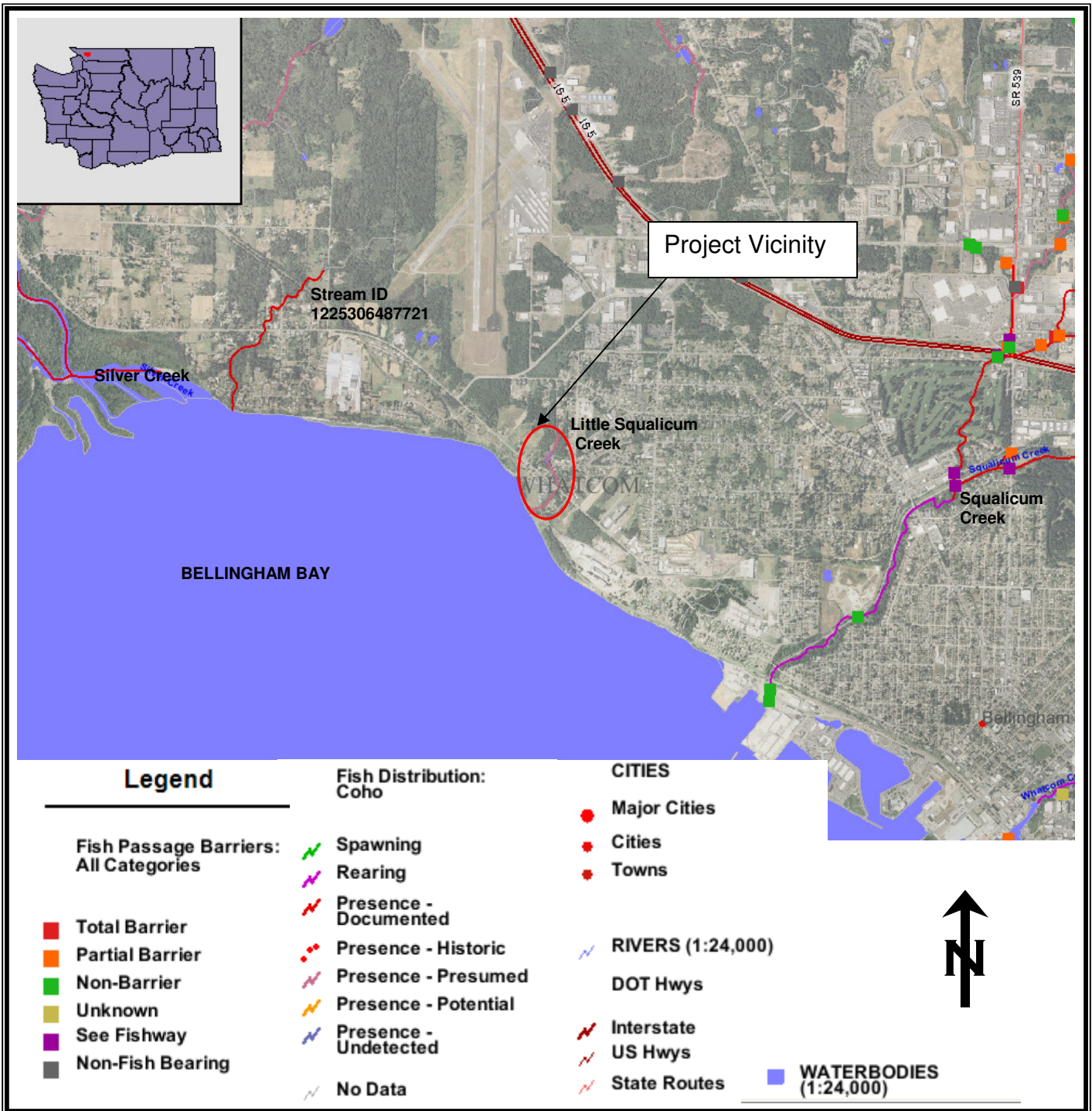


Watersheds & Sub-Basins Map
(City of Bellingham GIS)

Little Squalicum Park Master Plan
Wetlands Reconnaissance and Existing
Conditions Report

Figure 3.

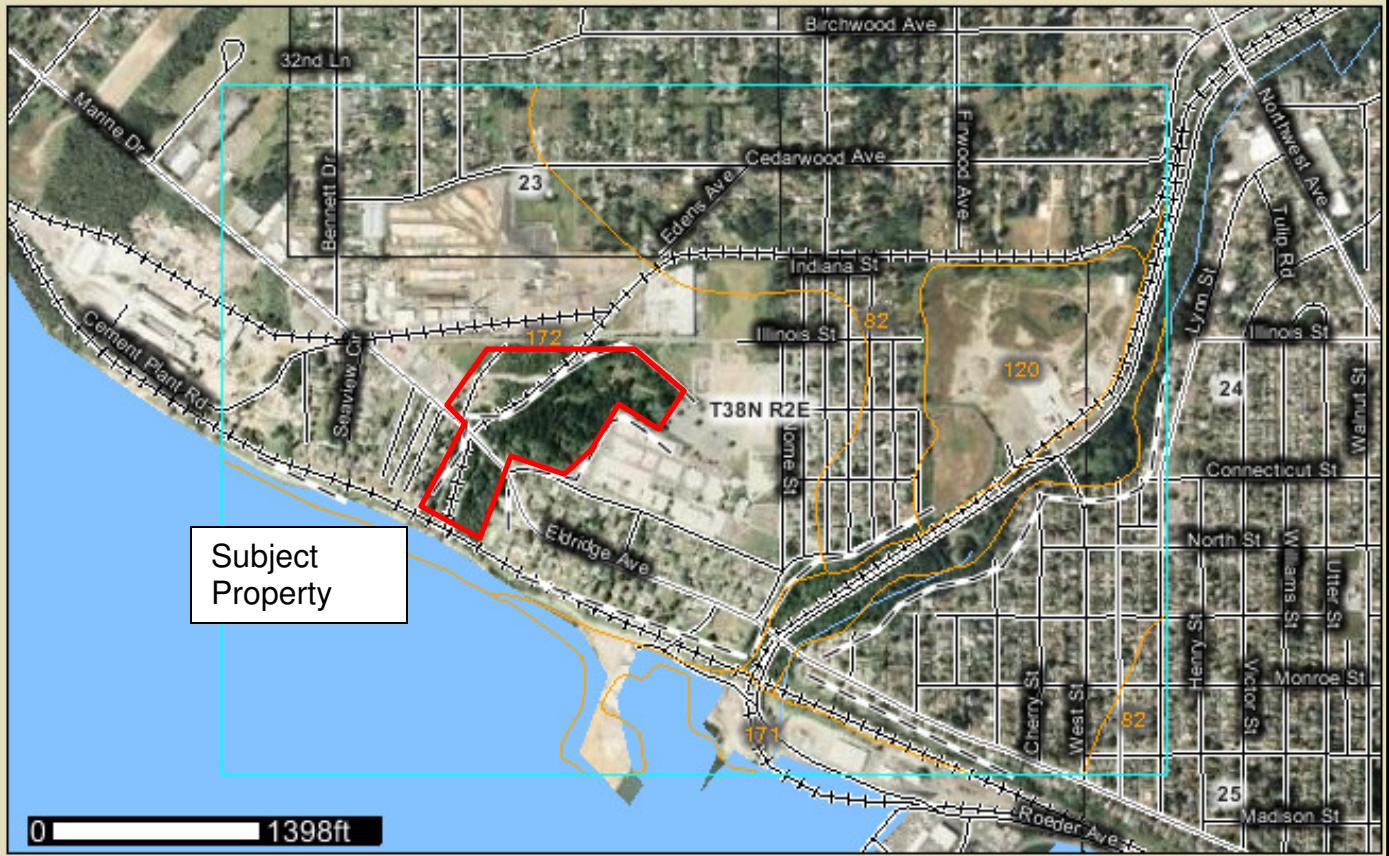
October 2009



WDFW SalmonScape Map
 (SalmonScape Interactive Map)

Little Squalicum Park Master Plan
Wetlands Reconnaissance and Existing
Conditions Report

Figure 4.
 October 2009



Soil Series:
 #172 Urban land- Whatcom –Labounty complex, 0 to 8 percent slopes

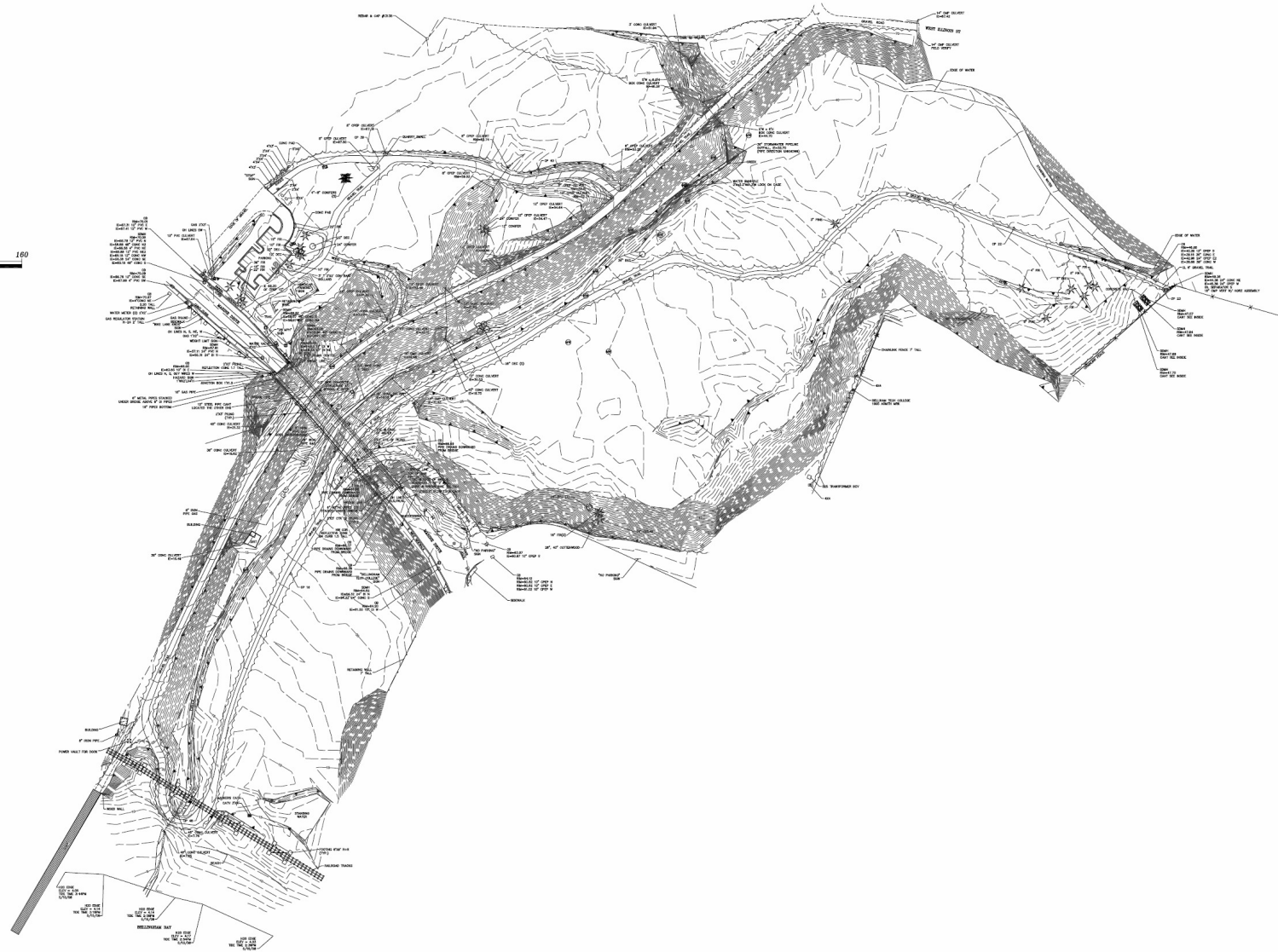
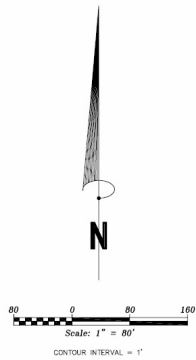


NRCS Web Soil Survey Map
 (Web Soil Survey Interactive Map)

Little Squalicum Park Master Plan
Wetlands Reconnaissance and Existing
Conditions Report

Figure 5.

October 2009



LITTLE SQUALICUM PARK
TOPOGRAPHIC SURVEY

DRAWN BY:	CHECKED BY:
1" = 40'	DATE
JOB NO: 104-010-09	2-4-2009
DRAWING NAME:	
KCAL-1040100912007.DWG	
SHEET	
1 OF 1	

NORTHWEST
ECOLOGICAL

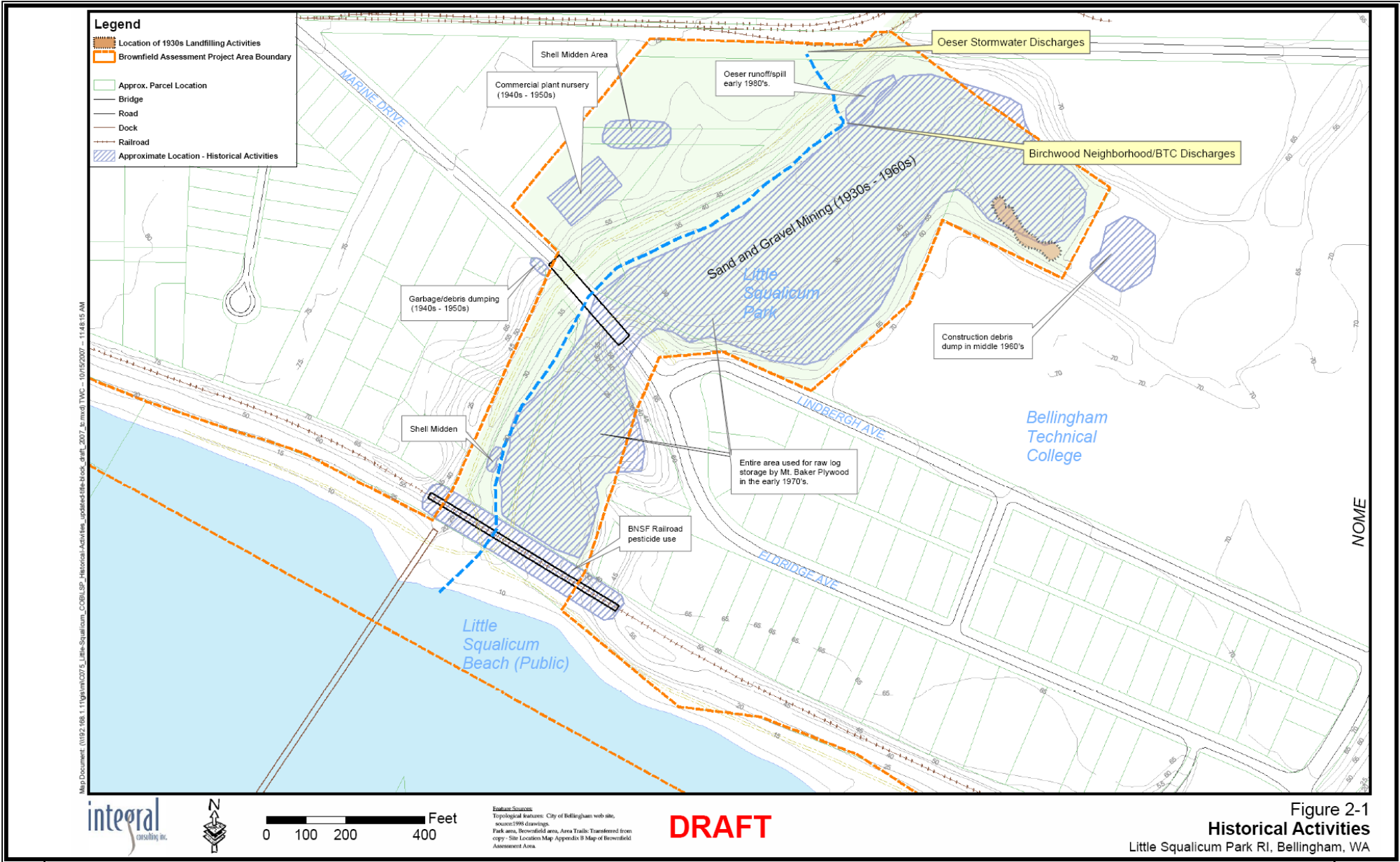


Topographic Map
(White Sheild, Inc., 2008)

Little Squalicum Park Master Plan
Wetlands Reconnaissance and Existing Conditions Report

Figure 6.

October 2009



ECOLOGICAL



**Remedial Investigation Historical Activities Map
 (Integral Consulting, Inc., 2008, Draft Final Report)**

**Little Squalicum Park Master Plan
 Wetlands Reconnaissance and Existing Conditions Report**

Figure 7.

October 2009



ECOLOGICAL

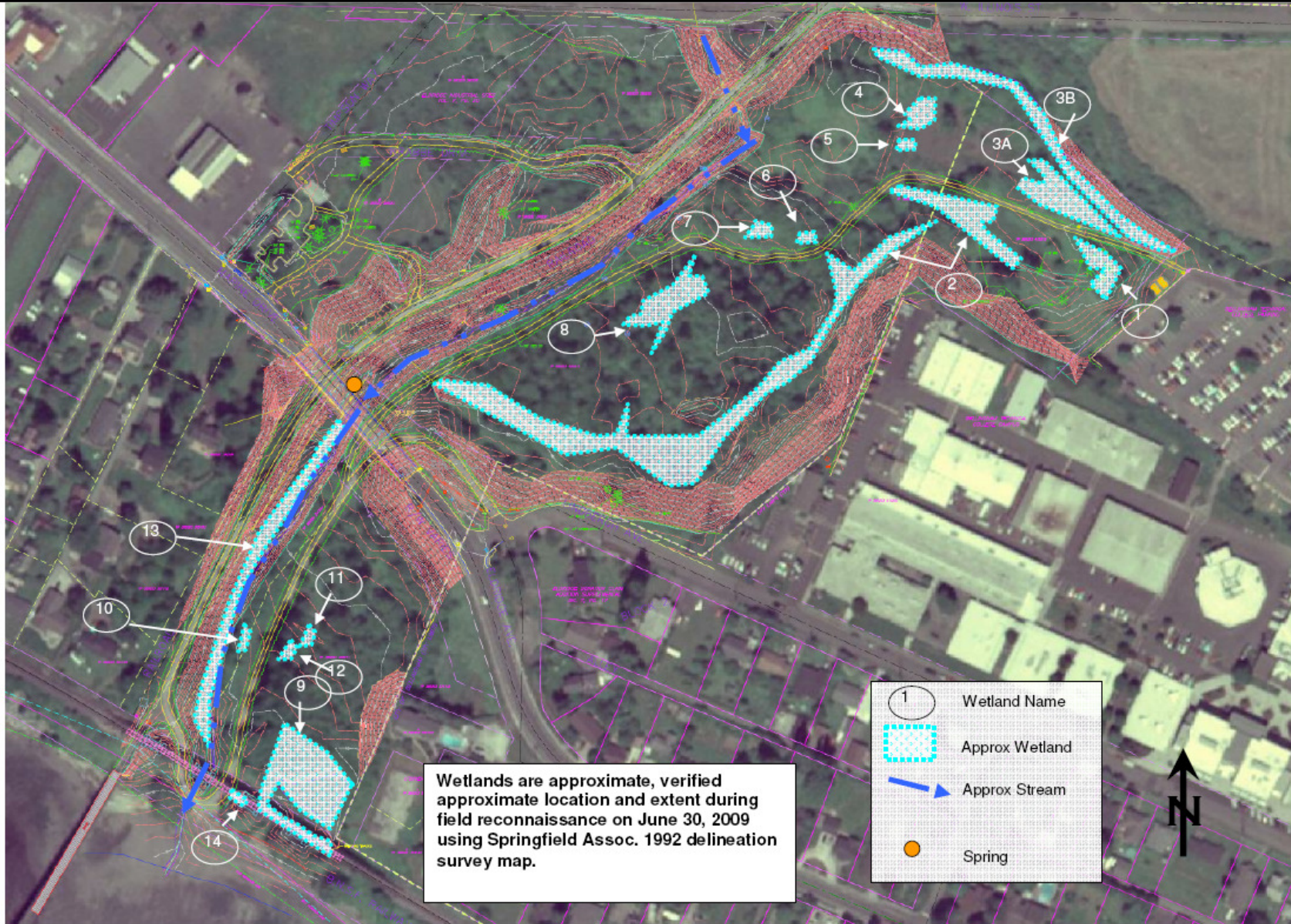


**1950 Aerial Photograph
(City of Bellingham)**

**Little Squalicum Park Master Plan
Wetlands Reconnaissance and Existing
Conditions Report**

Figure 8.

October 2009



NORTHWEST ECOLOGICAL



**Wetland Reconnaissance Map
(NES, 2009)**

**Little Squalicum Park Master Plan
Wetlands Reconnaissance and Existing Conditions Report**

Figure 9.

October 2009

APPENDIX C: VEGETATION COMMUNITIES

Vegetation Community 1

Upland shrub/deciduous tree community adjacent to BTC open field

Dominant Plants: Canada thistle, snowberry, native cherry, red alder, reed canarygrass, orchard grass, common velvet grass

Vegetation Community 2

Open unmowed field

Dominant Plants: reed canarygrass, tansy, teasel

Vegetation Community 3

Open unmowed meadow

Dominant Plants: sweet vernalgrass, tansy, orchardgrass, occasional ornamental hawthorn, Nootka rose and black cottonwood saplings.

Vegetation Community 4

Open mowed field

Dominant Plants: various grasses, patches of snowberry

Vegetation Community 5

Open unmowed field ringed by deciduous forest edge

Dominant Plants in Field: red fescue, tansy, goldenrod, trailing blackberry, thistle, occasional ornamental hawthorn

Dominant Plants in Forest Edge: Himalayan blackberry, red alder, ornamental hawthorn

Vegetation Community 6 (majority of the site), approximately 35 years in age since last clearing:

Deciduous forested area with marginally hydrophytic vegetation

Dominant Plants: black cottonwood (approx 15-17" DBH average), red alder (approx 8" DBH average), big leaf maple (approx 15-20" DBH average), ornamental hawthorn (approx 4" DBH average), Himalayan blackberry, snowberry, red osier dogwood, reed canarygrass, orchard grass



Vegetation Community

See page 1 for descriptions

APPENDIX D: ECOLOGY RATING FORMS

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 1 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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	7
	Score for Habitat Functions	13
	TOTAL score for Functions	44

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

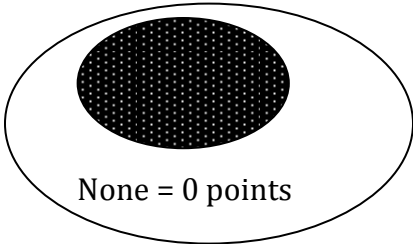
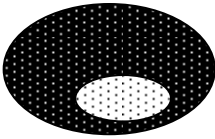
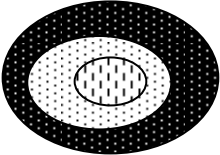

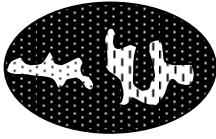
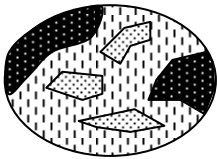

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input checked="" type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		4
Total for D1 <i>Add the points in the boxes above</i>		12
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input checked="" type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other landfill metals contamination and arsenic in surrounding soils YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions Multiply the score from D1 by D2 <i>Add the score to the table on page 1</i>		24

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		4
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input checked="" type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		3
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input checked="" type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		0
Total for D3 <i>Add the points in the boxes above</i>		7
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="display: flex; justify-content: space-around; margin-top: 10px;"> YES = multiplier is 2 NO = multiplier is 1 </div>		Multiplier =1
Total- Hydrologic Functions <i>Multiply the score from D3 by D4</i> <i>Add score to table on page 1</i>		7

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																								
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																								
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p><input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover</p> <p><i>If the unit has a forested class, check if:</i> <input checked="" type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">1</p>																
4 or more structures	4 pts																								
3 structures	2 pts																								
2 structures	1 pt																								
1 structure	0 pts																								
<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> </table>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland		2 pts	<input type="checkbox"/> Freshwater tidal wetland		2 pts	<p style="text-align: center;">0</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts																							
<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts																							
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<input type="checkbox"/> Lake-fringe wetland		2 pts																							
<input type="checkbox"/> Freshwater tidal wetland		2 pts																							
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. (<i>Different patches of the same species can be combined to meet the size threshold</i>) <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>																		
<input type="checkbox"/> >19 species	2 pts																								
<input checked="" type="checkbox"/> 5-19 species	1 pt																								
<input type="checkbox"/> <5 species	0 pts																								

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>(Riparian braided channels)</p> </div> </div> <p style="text-align: center;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	0
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	1
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	3

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input checked="" type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	3
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	1
<p>If the wetland has 3 or more priority habitats</p> <p>2 priority habitats</p> <p>1 priority habitat</p> <p>no priority habitats</p>	<p>4 pts</p> <p>3 pts</p> <p>1 pt</p> <p>0 pts</p>

<p>H2.4 Wetland Landscape (<i>see p.85</i>)</p> <p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Points</p> <p>5</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>10</p>
<p>Total for H1</p>	<p>3</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	<p>13</p>

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09

Name of Wetland (if known): Wetlands 10, 11, & 12 (Sheldon 1991 wetland report) Little Squalicum Park

Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology

Location (attach map with outline of wetland to rating form):

¼Section: Section: 23 Township: 38N Range: 2E

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	7
Score for Habitat Functions	Wet 10 = 13 Wet 11 = 14 Wet 12 = 14
TOTAL score for Functions	Wet 10 = 36 Wet 11 = 37 Wet 12 = 37

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

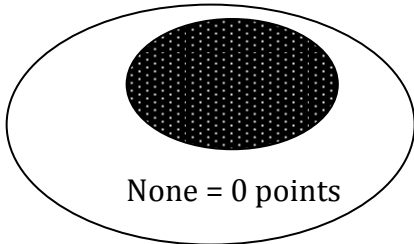
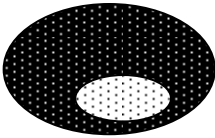
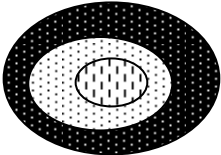

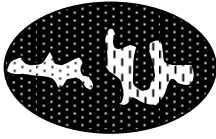
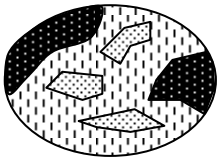

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input checked="" type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		0
Total for D1 <i>Add the points in the boxes above</i>		8
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other historic Oeser contamination in vicinity YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
<u>Total- Water Quality Functions</u> Multiply the score from D1 by D2 <i>Add the score to the table on page 1</i>		16

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		4
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		3
Total for D3 <i>Add the points in the boxes above</i>		7
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
Total- Hydrologic Functions Multiply the score from D3 by D4 <i>Add score to table on page 1</i>		7

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																		
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																		
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p><input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input type="checkbox"/> Forested- areas where trees have >30% cover</p> <p><i>If the unit has a forested class, check if:</i></p> <p><input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">0</p>										
4 or more structures	4 pts																		
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2 structures	1 pt																		
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<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland (Wetland 10 only)</td> <td></td> <td></td> </tr> </table> <p><input type="checkbox"/> Lake-fringe wetland 2 pts <input type="checkbox"/> Freshwater tidal wetland 2 pts</p>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input checked="" type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland (Wetland 10 only)			<p style="text-align: center;">0</p> <p style="text-align: center;">Wet 10 = 1</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts																	
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<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. <i>(Different patches of the same species can be combined to meet the size threshold)</i> <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>												
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<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>(Riparian braided channels)</p> </div> </div> <p style="text-align: center;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	0
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	1
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	Wet 10 = 3 Wet 11, 12 = 2

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input checked="" type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	2
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p>	
<p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	4
<p style="text-align: right;">If the wetland has 3 or more priority habitats</p> <p style="text-align: right;">2 priority habitats</p> <p style="text-align: right;">1 priority habitat</p> <p style="text-align: right;">no priority habitats</p>	<p style="text-align: right;">4 pts</p> <p style="text-align: right;">3 pts</p> <p style="text-align: right;">1 pt</p> <p style="text-align: right;">0 pts</p>

H2.4 Wetland Landscape (<i>see p.85</i>)	Points
<p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input checked="" type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Wet. 11 and 12 = 5</p> <p>Wet 10 = 3</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>Wet 11 & 12 = 12</p> <p>Wet 10 = 10</p>
<p>Total for H1</p>	<p>Wet 10 = 3</p> <p>Wet 11, 12 = 2</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i></p> <p><i>Add the score to table on page 1</i></p>	<p>Wet 10 = 13</p> <p>Wet 11 = 14</p> <p>Wet 12 = 14</p>

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A. Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 13 (Sheldon 1991 wetland report), Little Squalicum Park
 Government Jurisdiction of Wetland: US Army Corps, Ecology, Whatcom County,
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38 Range: 2E

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	10
	Score for Habitat Functions	12
	TOTAL score for Functions	34

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not apply

III

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

Check the appropriate type and class of wetland being rated.

WETLAND TYPE		WETLAND CLASS	
Estuarine	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input checked="" type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

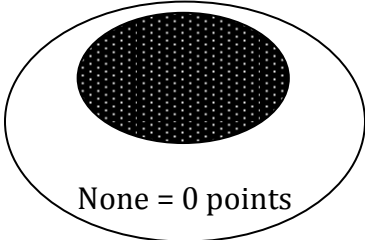
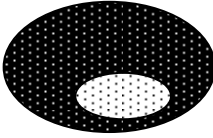
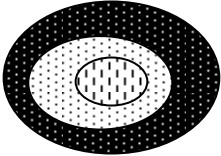


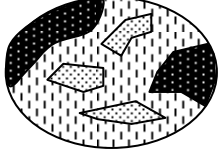

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state? (wetland adjacent to a creek that potentially has coho, cutthroat)</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SLOPE WETLANDS		Points
WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve the water quality.		
S1. Does the wetland unit have the <u>potential</u> to improve water quality?		-----
S1.1 Characteristics of the average slope of unit: <input checked="" type="checkbox"/> Slope is 1% or less (<i>a 1% slope has a one foot drop in elevation for every 100ft in horizontal distance</i>) 3 pts <input type="checkbox"/> Slope is 1% to 2% 2 pts <input type="checkbox"/> Slope is 2% to 5% 1 pt <input type="checkbox"/> Slope is greater than 5% 0 pts		3
S1.2 The soil two inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>). <input type="checkbox"/> YES 3 pts <input checked="" type="checkbox"/> NO 0 pts		0
S1.3 Characteristics of vegetation in the wetland that trap sediments and pollutants: <i>Choose the points appropriate for the description that bests 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 six inches. .</i> <input type="checkbox"/> Dense, un-grazed, herbaceous vegetation in >90% of the area 6 pts <input checked="" type="checkbox"/> Dense, un-grazed, herbaceous > ½ of the area 3 pts <input type="checkbox"/> Dense, woody, vegetation in > ½ of the area 2 pts <input type="checkbox"/> Dense, un-grazed, herbaceous vegetation in < ¼ of the area 1 pt <input type="checkbox"/> Does not meet any of the criteria above for vegetation 0 pts		3
Total for S1 <i>Add the points in the boxes above</i>		6
S2. Does the wetland unit have the <u>opportunity</u> 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 down-gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input checked="" type="checkbox"/> Other known soil and surface water contamination upstream YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions <i>Multiply the score from S1 by S2</i> <i>Add the score to the table on page 1</i>		12

SLOPE WETLANDS		Points
HYDROLOGIC FUNCTIONS- Indicators that wetland functions to reduce flooding and stream degradation.		
S3. Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?		-----
S3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. <i>Choose the points appropriate for the description that best fit conditions in the wetland (stems of plants should be thick enough (usually >1/8 inch), or dense enough, to remain erect during surface flows).</i>		3
<input type="checkbox"/>	Dense, uncut, rigid , vegetation covers >90% of the area of the wetland	6 pts
<input checked="" type="checkbox"/>	Dense, uncut, rigid vegetation > ½ area	3 pts
<input type="checkbox"/>	Dense, uncut, rigid vegetation > ¼ area	1 pt
<input type="checkbox"/>	More than ¼ of the area is grazed, mowed, tilled, or vegetation is not rigid	0 pts
S3.2 Characteristic of slope wetlands that hold 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 NO		2 2 pts 0 pts
Total for D3	<i>Add the points in the boxes above</i>	5
S4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? 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? <i>Note which of the following indicators of opportunity apply.</i>		Multiplier =2
<input type="checkbox"/>	Wetland has surface runoff that drains to a river or stream that has flooding problems	
<input checked="" type="checkbox"/>	Other: downstream culvert and trail crossing	
Answer NO if the major source of water is controlled by a reservoir (e.g. the wetland is a seep that is on the downstream side of a dam) YES = multiplier is 2 NO = multiplier is 1		
Total- Hydrologic Functions	Multiply the score from S3 by S4 <i>Add score to table on page 1</i>	10

HABITAT FUNCTIONS Indicators that the wetland functions to provide important habitat	Points																		
H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?	-----																		
<p>H1.1 Vegetation structure Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p><input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover</p> <p>If the unit has a forested class, check if: <input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p>Add the number of vegetation types that qualify. If you have:</p> <table> <tr> <td>4 or more structures</td> <td>4 pts</td> </tr> <tr> <td>3 structures</td> <td>2 pts</td> </tr> <tr> <td>2 structures</td> <td>1 pt</td> </tr> <tr> <td>1 structure</td> <td>0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	0										
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<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. (<i>Different patches of the same species can be combined to meet the size threshold</i>) You do not have to name the species. Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table> <tr> <td><input type="checkbox"/> >19 species</td> <td>2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td>1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td>0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	1												
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<input checked="" type="checkbox"/> 5-19 species	1 pt																		
<input type="checkbox"/> <5 species	0 pts																		

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between types of vegetation (described in H1.1), or vegetation types and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>(Riparian braided channels)</p> </div> </div> <p style="text-align: center;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	<p>Points</p> <p>0</p>
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	<p>1</p>
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	<p>3</p>

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating.</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	1
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (updated Oct 2008)	Points								
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre). <input checked="" type="checkbox"/> 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). <input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock. <input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest. <input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158) <input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. <input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161). <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A). <input type="checkbox"/> 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. <input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft. <input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. <input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long. 	4								
<table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">If the wetland has 3 or more priority habitats</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">2 priority habitats</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td style="text-align: right;">1 priority habitat</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">no priority habitats</td> <td style="text-align: right;">0 pts</td> </tr> </table>	If the wetland has 3 or more priority habitats	4 pts	2 priority habitats	3 pts	1 priority habitat	1 pt	no priority habitats	0 pts	
If the wetland has 3 or more priority habitats	4 pts								
2 priority habitats	3 pts								
1 priority habitat	1 pt								
no priority habitats	0 pts								

H2.4 Wetland Landscape	Points
<p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input checked="" type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	3
<p>H2. Total Score - opportunity to provide habitat <i>Add the scores in all of the H2 columns above</i></p>	9
<p>Total for H1</p>	3
<p>Total Score for Habitat Functions- <i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	12

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 14 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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	7
	Score for Habitat Functions	19
	TOTAL score for Functions	40

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

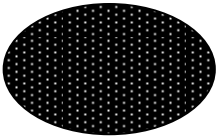
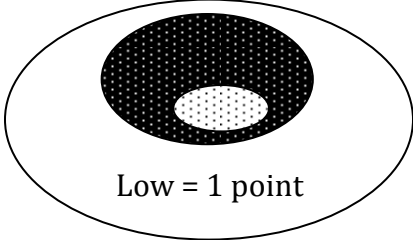
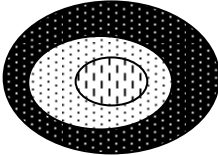

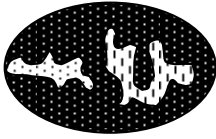
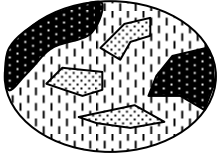

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input checked="" type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		2
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input checked="" type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		0
Total for D1 <i>Add the points in the boxes above</i>		7
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other historic Oeser contamination in vicinity YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
<u>Total- Water Quality Functions</u> Multiply the score from D1 by D2 <i>Add the score to the table on page 1</i>		14

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		2
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input checked="" type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		5
Total for D3 <i>Add the points in the boxes above</i>		7
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
Total- Hydrologic Functions Multiply the score from D3 by D4 <i>Add score to table on page 1</i>		7

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																		
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																		
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p><input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input checked="" type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input type="checkbox"/> Forested- areas where trees have >30% cover</p> <p><i>If the unit has a forested class, check if:</i> <input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">1</p>										
4 or more structures	4 pts																		
3 structures	2 pts																		
2 structures	1 pt																		
1 structure	0 pts																		
<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland (Wetland 10 only)</td> <td></td> <td></td> </tr> </table> <p><input type="checkbox"/> Lake-fringe wetland 2 pts <input type="checkbox"/> Freshwater tidal wetland 2 pts</p>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input checked="" type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland (Wetland 10 only)			<p style="text-align: center;">1</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts																	
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<input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland (Wetland 10 only)																			
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. <i>(Different patches of the same species can be combined to meet the size threshold)</i> <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input checked="" type="checkbox"/> >19 species	2 pts	<input type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">2</p>												
<input checked="" type="checkbox"/> >19 species	2 pts																		
<input type="checkbox"/> 5-19 species	1 pt																		
<input type="checkbox"/> <5 species	0 pts																		

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  (Riparian braided channels) </div> </div> <p style="text-align: center; margin-top: 10px;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	1
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	1
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	6

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input checked="" type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	3
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points								
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? NOTE: <i>the connections do not have to be relatively undisturbed.</i></p>									
<input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).	4								
<input checked="" type="checkbox"/> 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).									
<input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.									
<input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.									
<input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)									
<input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.									
<input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).									
<input checked="" type="checkbox"/> 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.									
<input checked="" type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).									
<input type="checkbox"/> 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.									
<input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.									
<input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.									
<input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.									
<table style="width: 100%; border: none;"> <tr> <td style="padding-left: 100px;">If the wetland has 3 or more priority habitats</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="padding-left: 100px;">2 priority habitats</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td style="padding-left: 100px;">1 priority habitat</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="padding-left: 100px;">no priority habitats</td> <td style="text-align: right;">0 pts</td> </tr> </table>		If the wetland has 3 or more priority habitats	4 pts	2 priority habitats	3 pts	1 priority habitat	1 pt	no priority habitats	0 pts
If the wetland has 3 or more priority habitats	4 pts								
2 priority habitats	3 pts								
1 priority habitat	1 pt								
no priority habitats	0 pts								

H2.4 Wetland Landscape (<i>see p.85</i>)	Points
<p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	5
<p>H2. Total Score - opportunity to provide habitat</p> <p style="text-align: right;"><i>Add the scores in all of the H2 columns above</i></p>	13
<p>Total for H1</p>	6
<p>Total Score for Habitat Functions-</p> <p style="text-align: right;"><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	19

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 2 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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	7
	Score for Habitat Functions	19
	TOTAL score for Functions	40

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input checked="" type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

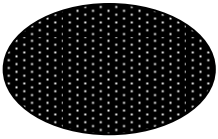
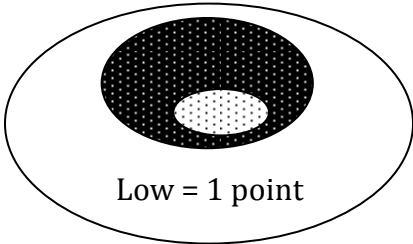
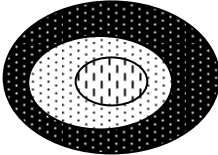

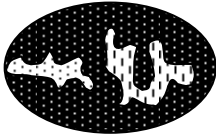
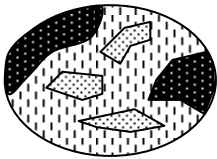

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input checked="" type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		2
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in $\geq 1/2$ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in $\geq 1/10$ of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > 1/2 total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > 1/4 total area of the wetland 2 pts <input checked="" type="checkbox"/> Area seasonally ponded is < 1/4 total area of the wetland 0 pts		0
Total for D1 <i>Add the points in the boxes above</i>		7
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other landfill metals contamination and historic Oeser contamination in soils YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions <i>Multiply the score from D1 by D2</i> <i>Add the score to the table on page 1</i>		14

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		2
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input checked="" type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		5
Total for D3 <i>Add the points in the boxes above</i>		7
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
Total- Hydrologic Functions <i>Multiply the score from D3 by D4</i> <i>Add score to table on page 1</i>		7

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																								
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																								
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p><input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover</p> <p><i>If the unit has a forested class, check if:</i> <input checked="" type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">2</p>																
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<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> </table>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input checked="" type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland		2 pts	<input type="checkbox"/> Freshwater tidal wetland		2 pts	<p style="text-align: center;">1</p>
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<input type="checkbox"/> Freshwater tidal wetland		2 pts																							
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. (<i>Different patches of the same species can be combined to meet the size threshold</i>) <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input checked="" type="checkbox"/> >19 species	2 pts	<input type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">2</p>																		
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<input type="checkbox"/> 5-19 species	1 pt																								
<input type="checkbox"/> <5 species	0 pts																								

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  (Riparian braided channels) </div> </div> <p style="text-align: center; margin-top: 10px;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	1
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input checked="" type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	2
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	8

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	1
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p>	
<p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	4
<p style="text-align: right;">If the wetland has 3 or more priority habitats</p> <p style="text-align: right;">2 priority habitats</p> <p style="text-align: right;">1 priority habitat</p> <p style="text-align: right;">no priority habitats</p>	<p style="text-align: right;">4 pts</p> <p style="text-align: right;">3 pts</p> <p style="text-align: right;">1 pt</p> <p style="text-align: right;">0 pts</p>

<p>H2.4 Wetland Landscape (<i>see p.85</i>)</p> <p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Points</p> <p>5</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>11</p>
<p>Total for H1</p>	<p>8</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	<p>19</p>

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 3A (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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	9
	Score for Habitat Functions	15
	TOTAL score for Functions	40

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

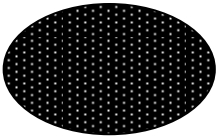
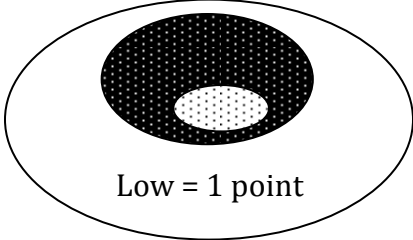
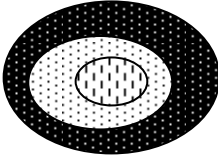

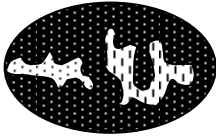
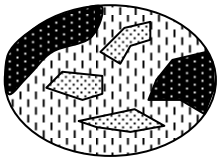

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input checked="" type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		0
Total for D1 <i>Add the points in the boxes above</i>		8
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other landfill metals contamination and historic Oeser contamination in soils YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions <i>Multiply the score from D1 by D2</i> <i>Add the score to the table on page 1</i>		16

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		4
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input checked="" type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		5
Total for D3 <i>Add the points in the boxes above</i>		9
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
Total- Hydrologic Functions Multiply the score from D3 by D4 <i>Add score to table on page 1</i>		9

HABITAT FUNCTIONS	Points																								
Indicators that the wetland functions to provide important habitat																									
H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?	-----																								
<p>H1.1 Vegetation structure Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p><input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input checked="" type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover</p> <p>If the unit has a forested class, check if: <input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	1																
4 or more structures	4 pts																								
3 structures	2 pts																								
2 structures	1 pt																								
1 structure	0 pts																								
<p>H1.2 Hydroperiods 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.</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> </table>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input checked="" type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland		2 pts	<input type="checkbox"/> Freshwater tidal wetland		2 pts	1
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<input type="checkbox"/> Freshwater tidal wetland		2 pts																							
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. (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 canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	1																		
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<input type="checkbox"/> <5 species	0 pts																								

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  (Riparian braided channels) </div> </div> <p style="text-align: center; margin-top: 10px;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	1
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	1
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	5

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input checked="" type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	3
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	1
<p>If the wetland has 3 or more priority habitats</p> <p>2 priority habitats</p> <p>1 priority habitat</p> <p>no priority habitats</p>	<p>4 pts</p> <p>3 pts</p> <p>1 pt</p> <p>0 pts</p>

<p>H2.4 Wetland Landscape (<i>see p.85</i>)</p> <p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Points</p> <p>5</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>10</p>
<p>Total for H1</p>	<p>5</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	<p>15</p>

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 3B (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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	8
	Score for Hydrologic Functions	14
	Score for Habitat Functions	16
	TOTAL score for Functions	38

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

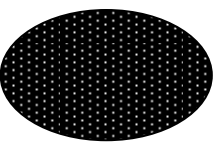
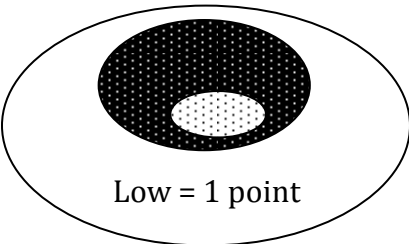
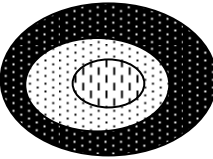

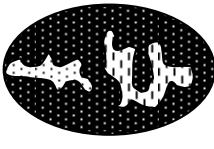
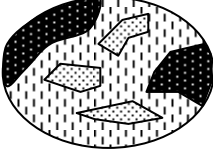

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		1
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input checked="" type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		0
Total for D1 <i>Add the points in the boxes above</i>		4
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other landfill metals contamination and historic Oeser contamination in soils YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions Multiply the score from D1 by D2 <i>Add the score to the table on page 1</i>		8

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		4
D3.2 Depth of Storage during wet periods <i>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).</i> <input checked="" type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input checked="" type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		7
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		3
Total for D3 <i>Add the points in the boxes above</i>		14
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
Total- Hydrologic Functions <i>Multiply the score from D3 by D4</i> <i>Add score to table on page 1</i>		14

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																								
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																								
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover <i>If the unit has a forested class, check if:</i> <input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon <i>Add the number of vegetation types that qualify. If you have:</i> </p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">0</p>																
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3 structures	2 pts																								
2 structures	1 pt																								
1 structure	0 pts																								
<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> </table>	<input checked="" type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland		2 pts	<input type="checkbox"/> Freshwater tidal wetland		2 pts	<p style="text-align: center;">1</p>
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<input type="checkbox"/> Lake-fringe wetland		2 pts																							
<input type="checkbox"/> Freshwater tidal wetland		2 pts																							
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. (<i>Different patches of the same species can be combined to meet the size threshold</i>) <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>																		
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<input checked="" type="checkbox"/> 5-19 species	1 pt																								
<input type="checkbox"/> <5 species	0 pts																								

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center; margin-top: 10px;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  (Riparian braided channels) </div> </div> <p style="text-align: center; margin-top: 10px;">High = 3 points</p> <p style="margin-top: 20px;">NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	1
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	1
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	4

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input checked="" type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	2
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? NOTE: <i>the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	4
<p>If the wetland has 3 or more priority habitats</p> <p>2 priority habitats</p> <p>1 priority habitat</p> <p>no priority habitats</p>	<p>4 pts</p> <p>3 pts</p> <p>1 pt</p> <p>0 pts</p>

<p>H2.4 Wetland Landscape (<i>see p.85</i>)</p> <p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Points</p> <p>5</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>12</p>
<p>Total for H1</p>	<p>4</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	<p>16</p>

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetlands 4 & 5 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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	7
	Score for Habitat Functions	18
	TOTAL score for Functions	49

Category based on SPECIAL CHARACTERISTICS of wetland

I II III Does not apply

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

III

Check the appropriate type and class of wetland being rated.

WETLAND TYPE		WETLAND CLASS	
Estuarine	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

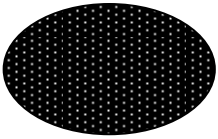
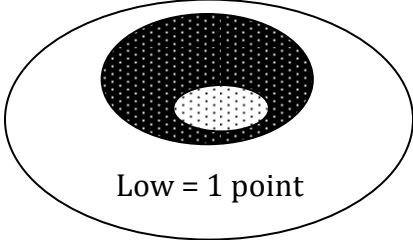
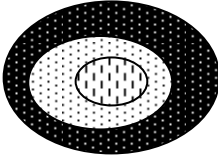

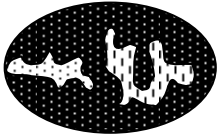
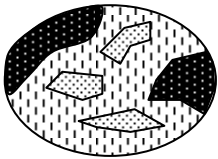

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input checked="" type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		4
Total for D1 <i>Add the points in the boxes above</i>		12
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other historic Oeser contamination in vicinity YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
<u>Total- Water Quality Functions</u> Multiply the score from D1 by D2 <i>Add the score to the table on page 1</i>		24

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		4
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		3
Total for D3 <i>Add the points in the boxes above</i>		7
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other YES = multiplier is 2 NO = multiplier is 1		Multiplier =1
Total- Hydrologic Functions Multiply the score from D3 by D4 <i>Add score to table on page 1</i>		7

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																								
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																								
<p>H1.1 Vegetation structure Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p><input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input checked="" type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input type="checkbox"/> Forested- areas where trees have >30% cover</p> <p>If the unit has a forested class, check if: <input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p>Add the number of vegetation types that qualify. If you have:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">1</p>																
4 or more structures	4 pts																								
3 structures	2 pts																								
2 structures	1 pt																								
1 structure	0 pts																								
<p>H1.2 Hydroperiods 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.</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> </table>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input checked="" type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland		2 pts	<input type="checkbox"/> Freshwater tidal wetland		2 pts	<p style="text-align: center;">1</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts																							
<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts																							
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<input type="checkbox"/> Lake-fringe wetland		2 pts																							
<input type="checkbox"/> Freshwater tidal wetland		2 pts																							
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. (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 canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>																		
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<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>(Riparian braided channels)</p> </div> </div> <p style="text-align: center;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	1
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	1
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	5

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input checked="" type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input checked="" type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	3
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.4 Wetland Landscape (see p.85)	Points
<p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	5
<p>H2. Total Score - opportunity to provide habitat</p> <p style="text-align: right;"><i>Add the scores in all of the H2 columns above</i></p>	13
<p>Total for H1</p>	5
<p>Total Score for Habitat Functions-</p> <p style="text-align: right;"><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	18

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetlands 6 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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 7 Score for Habitat Functions 14 TOTAL score for Functions 41	
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Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

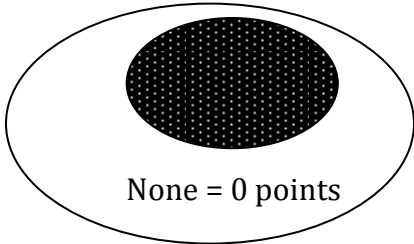
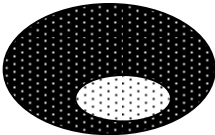
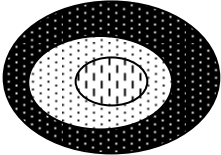

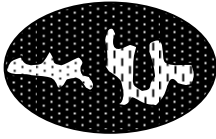
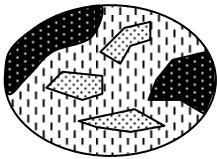

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input checked="" type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		2
Total for D1 <i>Add the points in the boxes above</i>		10
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other historic Oeser contamination in vicinity YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions Multiply the score from D1 by D2 <i>Add the score to the table on page 1</i>		20

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		4
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		3
Total for D3 <i>Add the points in the boxes above</i>		7
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;"> YES = multiplier is 2 NO = multiplier is 1 </div>		Multiplier =1
<u>Total- Hydrologic Functions</u> Multiply the score from D3 by D4 <i>Add score to table on page 1</i>		7

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																								
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																								
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover (Wetland 7 only) <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover <i>If the unit has a forested class, check if:</i> <input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon <i>Add the number of vegetation types that qualify. If you have:</i> </p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">0</p>																
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<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> </table>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland		2 pts	<input type="checkbox"/> Freshwater tidal wetland		2 pts	<p style="text-align: center;">0</p>
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<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. <i>(Different patches of the same species can be combined to meet the size threshold)</i> <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>																		
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<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>(Riparian braided channels)</p> </div> </div> <p style="text-align: center;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	0
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	0
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	1

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input checked="" type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input checked="" type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	3
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	4
<p style="text-align: right;">If the wetland has 3 or more priority habitats</p> <p style="text-align: right;">2 priority habitats</p> <p style="text-align: right;">1 priority habitat</p> <p style="text-align: right;">no priority habitats</p>	<p>4 pts</p> <p>3 pts</p> <p>1 pt</p> <p>0 pts</p>

<p>H2.4 Wetland Landscape (<i>see p.85</i>)</p> <p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Points</p> <p>5</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>13</p>
<p>Total for H1</p>	<p>1</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	<p>14</p>

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetlands 7 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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	7
	Score for Habitat Functions	16
	TOTAL score for Functions	43

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

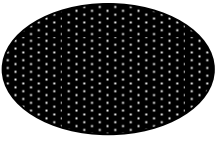
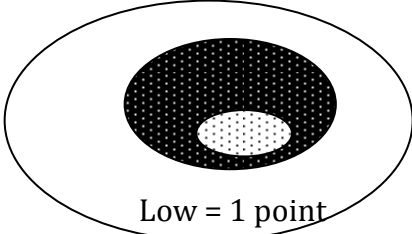
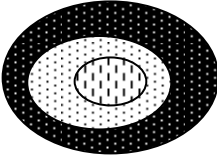

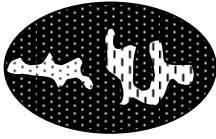
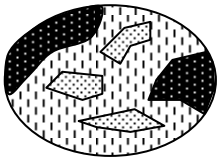

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input checked="" type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		2
Total for D1 <i>Add the points in the boxes above</i>		10
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other historic Oeser contamination in vicinity YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions <i>Multiply the score from D1 by D2</i> <i>Add the score to the table on page 1</i>		20

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input checked="" type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		4
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		3
Total for D3 <i>Add the points in the boxes above</i>		7
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
Total- Hydrologic Functions <i>Multiply the score from D3 by D4</i> <i>Add score to table on page 1</i>		7

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																								
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																								
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input checked="" type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover (Wetland 7 only) <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover <i>If the unit has a forested class, check if:</i> <input type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon <i>Add the number of vegetation types that qualify. If you have:</i> </p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">1</p>																
4 or more structures	4 pts																								
3 structures	2 pts																								
2 structures	1 pt																								
1 structure	0 pts																								
<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland</td> <td></td> <td style="text-align: right;">2 pts</td> </tr> </table>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland		2 pts	<input type="checkbox"/> Freshwater tidal wetland		2 pts	<p style="text-align: center;">0</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts																							
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<input type="checkbox"/> Lake-fringe wetland		2 pts																							
<input type="checkbox"/> Freshwater tidal wetland		2 pts																							
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. <i>(Different patches of the same species can be combined to meet the size threshold)</i> <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>																		
<input type="checkbox"/> >19 species	2 pts																								
<input checked="" type="checkbox"/> 5-19 species	1 pt																								
<input type="checkbox"/> <5 species	0 pts																								

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  Moderate = 2 points </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  High = 3 points </div> <div style="text-align: center;">  High = 3 points </div> <div style="text-align: center;">  (Riparian braided channels) </div> </div> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	1
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	0
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	3

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input checked="" type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input checked="" type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	3
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests- Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	4
<p>If the wetland has 3 or more priority habitats</p> <p>2 priority habitats</p> <p>1 priority habitat</p> <p>no priority habitats</p>	<p>4 pts</p> <p>3 pts</p> <p>1 pt</p> <p>0 pts</p>

<p>H2.4 Wetland Landscape (<i>see p.85</i>)</p> <p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Points</p> <p>5</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>13</p>
<p>Total for H1</p>	<p>3</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	<p>16</p>

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 8 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV

Category I = Score >70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30	Score for Water Quality Functions	18
	Score for Hydrologic Functions	5
	Score for Habitat Functions	18
	TOTAL score for Functions	41

Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

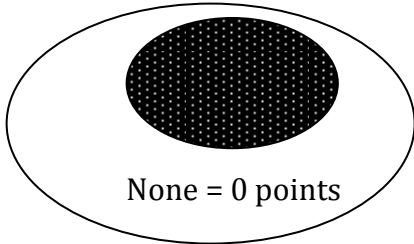
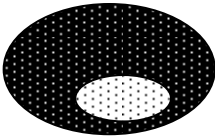
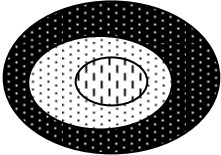

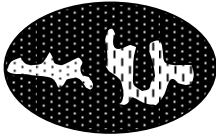
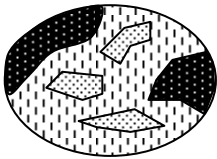

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input checked="" type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		2
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed, not checked in field <input type="checkbox"/> YES 4 pts <input checked="" type="checkbox"/> NO 0 pts		0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of the wetland 4 pts <input checked="" type="checkbox"/> Area seasonally ponded is > ¼ total area of the wetland 2 pts <input type="checkbox"/> Area seasonally ponded is < ¼ total area of the wetland 0 pts		2
Total for D1 <i>Add the points in the boxes above</i>		9
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other historic Oeser contamination in vicinity <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =2
Total- Water Quality Functions <i>Multiply the score from D1 by D2</i> <i>Add the score to the table on page 1</i>		18

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		2
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		0
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		3
Total for D3 <i>Add the points in the boxes above</i>		5
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
<u>Total- Hydrologic Functions</u> Multiply the score from D3 by D4 <i>Add score to table on page 1</i>		5

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																		
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																		
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover </p> <p><i>If the unit has a forested class, check if:</i></p> <p> <input checked="" type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon </p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">1</p>										
4 or more structures	4 pts																		
3 structures	2 pts																		
2 structures	1 pt																		
1 structure	0 pts																		
<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> </table> <p> <input type="checkbox"/> Lake-fringe wetland 2 pts <input type="checkbox"/> Freshwater tidal wetland 2 pts </p>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input checked="" type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<p style="text-align: center;">1</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts																	
<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts																	
<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt																	
<input checked="" type="checkbox"/> Saturated only	1 present	0 pts																	
<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland																			
<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland																			
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. <i>(Different patches of the same species can be combined to meet the size threshold)</i> <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>												
<input type="checkbox"/> >19 species	2 pts																		
<input checked="" type="checkbox"/> 5-19 species	1 pt																		
<input type="checkbox"/> <5 species	0 pts																		

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>(Riparian braided channels)</p> </div> </div> <p style="text-align: center;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	0
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input checked="" type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	2
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	5

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input checked="" type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	3
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p>	
<p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	4
<p style="text-align: right;">If the wetland has 3 or more priority habitats</p> <p style="text-align: right;">2 priority habitats</p> <p style="text-align: right;">1 priority habitat</p> <p style="text-align: right;">no priority habitats</p>	<p style="text-align: right;">4 pts</p> <p style="text-align: right;">3 pts</p> <p style="text-align: right;">1 pt</p> <p style="text-align: right;">0 pts</p>

H2.4 Wetland Landscape (<i>see p.85</i>)	Points
<p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	5
<p>H2. Total Score - opportunity to provide habitat</p> <p style="text-align: right;"><i>Add the scores in all of the H2 columns above</i></p>	13
<p>Total for H1</p>	5
<p>Total Score for Habitat Functions-</p> <p style="text-align: right;"><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	18

Wetland Rating Field Data Form- Western Washington

Background Information:

Name of Rater: A Burns Affiliation: NW Ecological Date of site visit: 6/30/09
 Name of Wetland (if known): Wetland 9 (Sheldon 1991 wetland report) Little Squalicum Park
 Government Jurisdiction of Wetland: Whatcom Co., Army Corps of Engineers, Dept. of Ecology
 Location (attach map with outline of wetland to rating form):
 ¼Section: Section: 23 Township: 38N Range: 2E

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 30 Score for Hydrologic Functions 8 Score for Habitat Functions 16 TOTAL score for Functions 54	
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Category based on SPECIAL CHARACTERISTICS of wetland

I II III 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	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input checked="" type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		
None of the Above	<input type="checkbox"/>		

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

If the answer to any of the questions below is YES than the wetland will need to be protected according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That Need Special Protection, and That Are Not Included in the Rating	YES	NO
<p>SP1. <i>Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP2. <i>Has the wetland been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purpose of this rating system, “documented” means the wetland is on the appropriate state database.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP3. <i>Does the wetland contain individuals of Priority species listed by the WDFW for the state?</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>SP4. <i>Does the wetland have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

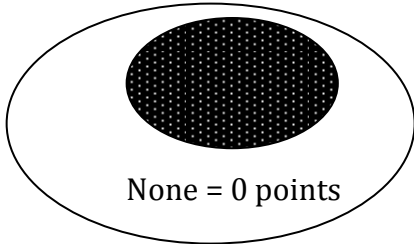
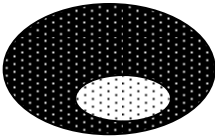
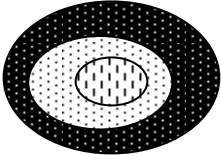

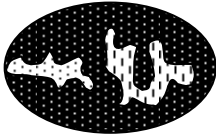
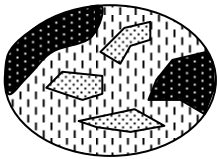

DEPRESSIONAL AND FLATS WETLANDS		Points
Water Quality Functions – Indicators that wetland functions to improve the water quality.		
D1 Does the wetland unit have the <u>potential</u> to improve water quality?		-----
D1.1 Characteristics of surface water which flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) 3 pts <input checked="" type="checkbox"/> Unit has intermittently flowing, or highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (permanently flowing) 1 pt <input type="checkbox"/> Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i>		2
D1.2 The soil two inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> Assumed based on texture, not checked in lab <input checked="" type="checkbox"/> YES 4 pts <input type="checkbox"/> NO 0 pts		4
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in $\geq 1/2$ of the area 3 pts <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in $\geq 1/10$ of the area 1 pt <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation in < 1/10 of the area 0 pts		5
D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least two months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition five out of 10 years.</i> <input checked="" type="checkbox"/> Area seasonally ponded is > 1/2 total area of the wetland 4 pts <input type="checkbox"/> Area seasonally ponded is > 1/4 total area of the wetland 2 pts <input type="checkbox"/> Area seasonally ponded is < 1/4 total area of the wetland 0 pts		4
Total for D1 <i>Add the points in the boxes above</i>		15
D2 Does the wetland unit have the <u>opportunity</u> 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 quality in streams, lakes, or groundwater down gradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants, A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 feet <input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland <input type="checkbox"/> Tilled fields or orchards within 150 feet of the wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input checked="" type="checkbox"/> Other historic Oeser contamination in vicinity YES = multiplier is 2 NO = multiplier is 1		Multiplier =2
Total- Water Quality Functions <i>Multiply the score from D1 by D2</i> <i>Add the score to the table on page 1</i>		30

Comments: outflow is subsurface through gravel berm to channel draining to marine water

DEPRESSIONAL AND FLATS WETLANDS		Points
Hydrologic Functions Indicators that wetland functions to reduce flooding and stream degradation.		
D3 Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?		-----
D3.1 Characteristics of surface water flows out of the wetland unit: <input type="checkbox"/> Unit is a depression with no surface water leaving (no outlet) 4 pts <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet 2 pts <input type="checkbox"/> Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt <i>(If ditch is not permanently flowing, treat unit as intermittently flowing)</i> <input type="checkbox"/> Unit has an un-constricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) 0 pts		2
D3.2 Depth of Storage during wet periods <i>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).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet 7 pts <input type="checkbox"/> The wetland is a headwater wetland 5 pts <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet 5 pts <input checked="" type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet 3 pts <input type="checkbox"/> Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water 1 pt <input type="checkbox"/> Marks of ponding less than 0.5 ft 0 pts		3
D3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of: the area of upstream basin contributing surface water to the wetland, to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit 5 pts <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit 3 pts <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit 0 pt <input type="checkbox"/> Entire unit is in the FLATS class 5 pts		3
Total for D3 <i>Add the points in the boxes above</i>		8
D4 Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 floodgate, 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. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other <div style="text-align: center;">YES = multiplier is 2 NO = multiplier is 1</div>		Multiplier =1
Total- Hydrologic Functions <i>Multiply the score from D3 by D4</i> <i>Add score to table on page 1</i>		8

Comments: outflow is subsurface through gravel berm to channel draining to marine water

<p style="text-align: center;">HABITAT FUNCTIONS</p> <p style="text-align: center;">Indicators that the wetland functions to provide important habitat</p>	<p style="text-align: center;">Points</p>																		
<p>H1 Does the wetland unit have the <u>potential</u> to provide habitat for many species?</p>	<p style="text-align: center;">-----</p>																		
<p>H1.1 Vegetation structure <i>Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub- areas where shrubs have >30% cover <input checked="" type="checkbox"/> Forested- areas where trees have >30% cover </p> <p><i>If the unit has a forested class, check if:</i></p> <p> <input checked="" type="checkbox"/> Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon </p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">4 or more structures</td> <td style="text-align: right;">4 pts</td> </tr> <tr> <td style="text-align: right;">3 structures</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td style="text-align: right;">2 structures</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td style="text-align: right;">1 structure</td> <td style="text-align: right;">0 pts</td> </tr> </table>	4 or more structures	4 pts	3 structures	2 pts	2 structures	1 pt	1 structure	0 pts	<p style="text-align: center;">1</p>										
4 or more structures	4 pts																		
3 structures	2 pts																		
2 structures	1 pt																		
1 structure	0 pts																		
<p>H1.2 Hydroperiods <i>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.</i></p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td style="text-align: right;">4 or more present</td> <td style="text-align: right;">3 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td style="text-align: right;">3 present</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td style="text-align: right;">2 present</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td style="text-align: right;">1 present</td> <td style="text-align: right;">0 pts</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> </table> <p> <input type="checkbox"/> Lake-fringe wetland 2 pts <input type="checkbox"/> Freshwater tidal wetland 2 pts </p>	<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts	<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts	<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt	<input checked="" type="checkbox"/> Saturated only	1 present	0 pts	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<p style="text-align: center;">2</p>
<input type="checkbox"/> Permanently flooded or inundated	4 or more present	3 pts																	
<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 present	2 pts																	
<input type="checkbox"/> Occasionally flooded or inundated	2 present	1 pt																	
<input checked="" type="checkbox"/> Saturated only	1 present	0 pts																	
<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland																			
<input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland																			
<p>H1.3 Richness of Plant Species Count the number of plant species in the wetland that cover at least 10 square feet. <i>(Different patches of the same species can be combined to meet the size threshold)</i> <i>You do not have to name the species.</i> Do not include Eurasian Milfoil, reed canary grass, purple loosestrife, or Canadian thistle</p> <p>Number of Species Counted:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> >19 species</td> <td style="text-align: right;">2 pts</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5-19 species</td> <td style="text-align: right;">1 pt</td> </tr> <tr> <td><input type="checkbox"/> <5 species</td> <td style="text-align: right;">0 pts</td> </tr> </table> <p>List of species counted (not required):</p>	<input type="checkbox"/> >19 species	2 pts	<input checked="" type="checkbox"/> 5-19 species	1 pt	<input type="checkbox"/> <5 species	0 pts	<p style="text-align: center;">1</p>												
<input type="checkbox"/> >19 species	2 pts																		
<input checked="" type="checkbox"/> 5-19 species	1 pt																		
<input type="checkbox"/> <5 species	0 pts																		

<p>H1.4 Interspersion of Habitats Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">Moderate = 2 points</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>(Riparian braided channels)</p> </div> </div> <p style="text-align: center;">High = 3 points</p> <p>NOTE: If you have four or more classes or three vegetation classes and open water, the rating is always "high".</p>	0
<p>H1.5 Special Habitat Features <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Large, downed, woody debris within the wetland (>4 inches diameter and 6ft long) <input type="checkbox"/> Standing snags in the wetland (diameter at bottom >4 inches) <input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream for at least 33 ft (10m) <input type="checkbox"/> 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 <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants 	0
<p>H1. Total Score – potential for providing habitat <i>Add the scores in all H1 columns above</i></p>	4

Comments:

H2. Does the wetland unit have the <u>opportunity</u> to provide habitat for many species?	Points
<p>H2.1 Buffers</p> <p><i>Choose the description that best represents the condition of the buffer of the wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) 5 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 4 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. 4 pts</p> <p><input type="checkbox"/> 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. 3 pts</p> <p><input type="checkbox"/> 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. 3 pts</p> <p style="text-align: center;">If the buffer does not meet any of the above criteria</p> <p><input checked="" type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 2 pts</p> <p><input type="checkbox"/> Heavy grazing in the buffer. 1 pt</p> <p><input type="checkbox"/> 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). 0 pts</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. 1 pt</p>	2
<p>H2.2 Corridors and Connections</p> <p>H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.</p> <p style="text-align: center;">YES = 4 points (go to question H 2.3) NO = go to question H2.2.2</p> <p>H2.2.2 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.</p> <p style="text-align: center;">YES = 2 points (go to question H2.3) NO = go to question H2.2.3.</p> <p>H2.2.3 Is the wetland:</p> <p><input checked="" type="checkbox"/> within five miles (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within three miles of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within one mile of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = 1 point NO = 0 points</p>	1

H2.3 Near or adjacent to other priority habitats listed by WDFW (<i>updated Oct 2008</i>)	Points
<p>Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p>	
<p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4ha (1 acre).</p> <p><input checked="" type="checkbox"/> 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).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forests-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 80-200 yr old west of the Cascade crest.</p> <p><input type="checkbox"/> Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description in WDFW PHS report p. 158)</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or wet prairie (full description in WDFW PHS report p. 161).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore (full description in WDFW PHS report p. 167-169, and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25ft) high and occurring below 5000ft.</p> <p><input type="checkbox"/> Talus: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5 ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and >6 m (20 ft) long.</p>	4
<p style="text-align: right;">If the wetland has 3 or more priority habitats</p> <p style="text-align: right;">2 priority habitats</p> <p style="text-align: right;">1 priority habitat</p> <p style="text-align: right;">no priority habitats</p>	<p style="text-align: right;">4 pts</p> <p style="text-align: right;">3 pts</p> <p style="text-align: right;">1 pt</p> <p style="text-align: right;">0 pts</p>

<p>H2.4 Wetland Landscape (<i>see p.85</i>)</p> <p>Choose the one description of the landscape around the wetland that best fits.</p> <p><input checked="" type="checkbox"/> There are at least three 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, field, or other development). 5 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. 5 pts</p> <p><input type="checkbox"/> There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. 3 pts</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. 3 pts</p> <p><input type="checkbox"/> There is at least one other wetland within ½ mile. 2 pts</p> <p><input type="checkbox"/> There are no other wetlands within ½ mile. 0 pts</p>	<p>Points</p> <p>5</p>
<p>H2. Total Score - opportunity to provide habitat</p> <p><i>Add the scores in all of the H2 columns above</i></p>	<p>12</p>
<p>Total for H1</p>	<p>4</p>
<p>Total Score for Habitat Functions-</p> <p><i>Add the points from the total H1 and H2 boxes</i> <i>Add the score to table on page 1</i></p>	<p>16</p>

APPENDIX E: PHOTOGRAPHS



Little Squalicum Beach as seen looking south from the southern terminus of the park trail (June 2009).



Central wooded portion of Little Squalicum Park as seen facing east from the internal trail (June 2009).



Little Squalicum Creek outfall from culvert downstream of the Oeser Company property as seen looking northwest (June 2009).



Birchwood Neighborhood/Bellingham Technical College stormsewer outfall as seen facing north (June 2009).



Wetland Unit 3B as seen from the eastern portion (June 2009).



Open field near Wetland 2 as seen looking northwest (June 2009).



Wetland 2 within the stream channel (June 2009).



Wetlands 11 and 12 (June 2009).



Internal park trail and typical forest (June 2009).



Wetland 14 under railroad trestle (June 2009).



Little Squalicum Creek culvert under trail to Little Squalicum Beach as seen facing south forest (June 2009).



Wetland 9 as seen from inside the wetland facing northwest (June 2009).