SEATTLE PARKS DEPARTMENT

Atlantic City Nursery Project

WETLAND DELINEATION REPORT

April 2010

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Seattle Parks Department

Prepared by Watershed Science and Strategy
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1.0 SUMMARY

A wetland investigation was conducted as part of the City of Seattle Department of Parks and Recreation's Atlantic City Nursery Project to evaluate potential new uses at that site, located in the former lakebed of Lake Washington. Soils, vegetation, and hydrology on the project site have been disturbed by historic uses associated with nursery production, including ditching, cultivation, filling, and mowing. The investigation identified and delineated a 1.54 acre Palustrine wetland with both forested and herbaceous vegetation classes. Wetland hydrology is supported by seasonally shallow groundwater and groundwater discharge. According to the City of Seattle Environmentally Critical Areas (ECA) ordinance, the wetland is a Class IV requiring a 50 foot buffer. Some flexibility in locating new activities can be achieved through buffer averaging. Exemptions from the ECA provisions can be granted by City departments when activities provide public benefit and are consistent with other provisions of the ordinance.

2.0 INTRODUCTION

2.1 Purpose and Project Description

The wetland identification and delineation report is being prepared for Emily Fuller, Project Manager with the Seattle Parks Department (Department), as part of the Department's Atlantic City Nursery Project. The purpose of this wetland identification and delineation report is to identify wetland boundaries and determine wetland classification(s) of any wetlands that exist on or near the project site. The Department's project is evaluating potential uses of this property and will be informed by this assessment of the presence of wetland and stream resources. No specific project is being proposed at this time.

2.2 Site Description

The project site is owned by the Department and is located northeast of the Rainier Beach neighborhood in southeast Seattle, King County, Washington (Section 35, Township 24 North, Range 4E; North 47 degrees, 31 minutes, 36 seconds latitude and West 122 degrees, 15 minutes and 46 seconds longitude) (Figure 1). The site includes about 10 acres in three different parcels (North Westerly Parcel: 6896300010; South Westerly Parcel: 3336002455; Easterly Parcel: 6896300010). Residences border the property on the east and west. The Department's Beer Sheva Park borders the site along its south and southwest boundary. Access is provided only from the northeast corner in the 5500 block of Cloverdale Street, which marks the site's north boundary.

The site occupies the former site of a narrow body of water between the original mainland and Pritchard Island, known as Dunlap Slough. When Lake Washington was lowered 9 feet in 1917, the slough was dewatered, revealing lake bed and lacustrine sediments now evident in the project site. While the site was subsequently platted with 25 residential lots, its only use after Lake Washington was drawn down was as a nursery for the Department. The Department's Pritchard Island Beach Park occupies the roughly north half of the original Dunlap Slough while the nursery and a Sound Transit wetland mitigation project occupy wetlands on the southern half of the former slough. The Department's nursery activity has been curtailed in the last year. Remaining infrastructure includes

an office building, three greenhouse structures, gravel nursery pads, an irrigation system, and gravel roads. A ditch bisects the site into east and west halves and is evident in 1937 aerial photography (Figure 2)

3.0 METHODS

3.1 Existing Information

Historical records and more recent sources of information were consulted to inform this work. Those documents included plats, irrigation plans, aerial photos, surveys, and historic narratives for Dunlap Slough, Pritchard Island, and Pritchard Island Beach Park. Relevant records are described in Section 4.1.

3.2 Wetland Identification and Delineation

Wetland identification and delineation were conducted according to the 1987 US Army Corps of Engineers (Corps) Wetland Delineation Manual (USCOE 1987) and Corps Interim Regional Supplement (USCOE 2008) using the Routine Determination Methodology. The contents and format of this report are consistent with USCOE 2009 Components of a Complete Wetland Delineation Report. This work is also consistent with the Washington State Department of Ecology Wetlands Identification and Delineation Manual (Washington State Department of Ecology 1997). Both the federal and state wetland identification and delineation manuals require the use of the three-wetland parameter methodology when determining the presence or absence of wetlands. With few exceptions, all three parameters (wetland hydrology, hydric soils and hydrophytic vegetation) must be present under normal circumstances for an area to meet the wetland criteria. Those parameters are discussed in additional detail below. Wetland function and values were determined by the state wetland rating system (Washington State Department of Ecology 2004).

The wetland was also classified according to the way ecological functions were provided, which depends on the hydrologic and geomorphic conditions present. The Hydrogeomorphic (HGM) Classification system (Brinson 1993) has been developed to assess wetland functions and assign class categories such as Slope, Riverine, Lake Fringe, or Depressional wetlands. The state wetland rating form starts with a classification key with hydrologic factors being used to direct the subject wetland into the appropriate class.

This investigation was conducted by Michael Bonoff, Wetland Scientist (Society of Wetland Scientists) and Certified Land Use Planner (American Planning Association) and Clayton Antieau, professional botanist, horticulturist, and wetland scientist. A reconnaissance-level site visit was conducted on January 7, 2010, and routine-level wetland delineation was conducted on February 23, 25, and 26, 2010. Groundwater and soil saturation levels were rechecked in all of the formal soil pits and shallow groundwater observation pits on March 18. The entire project site was physically examined for the presence of wetlands and streams as well as areas within 200 feet of the site's property boundaries.

During the Reconnaissance Level survey on January 7, the entire parcel was surveyed to locate evidence of wetland hydrology and hydrophytic plant communities. Locations of existing surface

water were examined and initial test pits were dug throughout the site. The Routine Level investigation began with an examination of the ditch segments that contained obvious wetland hydrology, saturated soils and hydrophytic vegetation. Because vegetation and soil characteristics appeared to be uniform across the site, areas adjacent to the ditch were initially investigated by digging a network of 78 shallow groundwater observation pits to observe evidence of wetland hydrology.

For any identified wetlands, one pair of formal sampling plots was used to characterize hydrology, soils, and vegetation on upland and wetland sides of the delineation line. The formal plots included 2 m and 10 m diameter nested circular plots for estimating vegetation cover. Visual estimates of plant cover were made for each species located inside the 2 m circular plot (herbaceous species) or 10 m circular plot (woody species). Prior to the data gathering, the three field staff "calibrated" their visual estimates of percent cover for each species in a sample plot by practicing the technique and then seeking to produce consistent estimates. Soil data pits were excavated by hand just outside of the north plot edge to avoid disturbing the sample plots. All the plant, soil and hydrologic information were recorded on Corps Manual data sheets.

Hydrology

Wetland hydrologic characteristics develop during periods when the soils are permanently or periodically inundated, or when the soil is continuously saturated to the surface of sufficient duration to develop hydric soil and to support vegetation typically adapted for life in periodically anaerobic soil conditions. Generally, wetland hydrology criteria were considered to be satisfied if it appeared that wetland hydrology was present for at least 5 percent of the growing season. In this region, wetland hydrology must be present during the growing season for 14 or more consecutive days at a minimum frequency of 5 years in 10.

Primary and secondary signs of wetland hydrology were sought during the site visits. The primary signs were inundation, free water in the soil pits, and soil saturation within 12 inches of the soil surface. Secondary signs included watermarks, drift lines, sediment deposits and drainage patterns.

In addition to formal soil sampling pits, the shallow groundwater observation pits were opened to observe and document the location and depth of groundwater and soil saturation. The distance to free water in the data pits was measured as was the depth to soil saturation. The latter soil measure was determined either visually due to the glistening of free water or by lightly tapping a finger on the side of the soil pit to detect the presence of free water caused by soil saturation. Due to the slow rate of inflow, test holes were checked for free water levels and soil saturation depths after several hours or on subsequent days. A follow up examination of all holes was made two weeks later. A record of this hydrologic information is included in Attachment 1.

Soils

Hydric soils are defined as those that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth of hydrophytic vegetation. As a result of anaerobic conditions, hydric soils often exhibit characteristics directly observable in the field , including high organic matter content, greenish or bluish-gray color (gley formation),

accumulation of sulfidic material, spots of orange or yellow color (redoximorphic features), and dark soil colors (low chromas).

For this project, soils were sampled using an auger and soil pits were then dug with a sharp-shooter shovel. Pits were excavated to a depth of 18 inches for all formal sample plots. For each formal sample plot, soils were described according to horizons and texture. Soils were also examined for evidence of low chroma, reduced conditions, redoximorphic features and other hydric soil indicators. Soil colors were determined using Munsell Color Charts. A soil chroma of 2 in combination with soil redoximorphic features or a soil chroma of 1 without mottling typically indicates a hydric soil if the sample is within 10 inches of the surface or directly below the A horizon. The formal sample pits were also examined to determine if the hydric soil characteristics represented historic (relictual) conditions or were formed as a result of current conditions.

Vegetation

Hydrophytic plants are plant species specially adapted for saturated and/or anaerobic conditions. These species can be found in areas where there is a significant duration and frequency of inundation. Hydrophytic species have the ability grow, effectively compete, and reproduce in anaerobic soil. The Corps and the US fish and Wildlife Service (USFWS) have assigned indicator status to many plant species, based on the estimate probability of the species existing under wetland conditions. Plants are categorized as Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU) and Upland (UPL). These ratings are estimates of the probability that any particular plant species will occur in a wetland, under normal conditions.

Vegetation was identified throughout the site and a plant list developed (Attachment 2). However, due to the earliness of the season, some grasses were not able to be identified. These species lacked floral or other structures upon which plant identification is systematically based. Presence and percent cover of these species were indicated as "unknown grass" on the data forms.

Delineation and Mapping

Wetland hydrology became the primary determinant in locating the wetland boundary because hydric soil indicators (relictual or contemporary) were widespread but not clearly identified as being either relictual or contemporary. Also, in some locations, the accuracy of the hydrophytic vegetation was reduced by the presence of unidentified dominant species. These factors are noted on the Data Forms (See Attachment 3).

Because hydric soil was widespread on the site and the vegetation lacked distinction between wetland and upland areas, the presence of wetland hydrology was used as the primary driver to guide delineation of the wetland boundary. In particular, shallow groundwater observation pits showing wetland hydrology indicators were included in the wetland delineation. Those pits that failed to show wetland hydrology indicators were excluded from the wetland delineations. The emphasis on wetland hydrology is justified because this investigation occurred during the time of year when indicators of wetland hydrology would be evident if present, and during a period of "normal "or "below normal" precipitation. Where indicators of wetland hydrology were absent but

indicators of hydric soil were present, those soils were considered relictual (See Section 4.1 for additional discussion).

The wetland boundaries were marked with 50 orange wetland boundary wire pins. The upland and wetland data pits were marked with 8 blue wire pins and the shallow groundwater observation pits were marked with a combination of orange and yellow flagging on 78 wire pins. The location (lat, long, and elevation) of all these flags were recorded by Department surveyors using standard radial (angle and distance) methods, providing X, Y and Z coordinates for every feature located. They used a Wild 1203, 3" total station theodolite with onboard electronic data collection. These data were sent to Autodesk AutoCAD and Civil 3D for compilation of survey drawings. The survey work was proofed by the SPU's wetland biologists and project manager.

4.0 RESULTS

4.1 Existing Information

Agency and Consultant Reports

The National Wetland Inventory (NWI) indicates a Palustrine Emergent Seasonally-flooded excavated (PEMCx) wetland runs north to south in the drainage ditch (Figure 3). This feature runs south onto the Sound Transit mitigation site which is dominated by Palustrine Forested and Palustrine Scrub-shrub wetland (PFOCh and PSSh) wetlands. The Seattle Wetland GIS layer shows only the site's drainage ditch as wetland.

The Final Comprehensive Mitigation Plan for Sound Transit (Parametrix 2003), abutting the south lot line, shows a mapped wetland boundary extending onto the most southern edge of the nursery site including a narrow strip along the southeast fence line and a portion of the drainage ditch. The purpose of this mapping extension was to indicate that the Sound Transit site wetland extended onto the project (Nursery) site. The delineation boundary in this report generally matches up with the Parametrix delineation.

Sound Transit identified this degraded site as a feasible compensatory mitigation location for the South Trenton Street wetland impacts. The wetland restoration required removal of 6,600 square feet of impervious surfaces and removal of invasive plants. The three plant communities of the restored wetland are 0.07 acres of Upper Shrub-scrub, 0.14 acres of Lower Scrub-Shrub and 0.16 acres of buffer. The vegetation now consists of a mixture of tree, shrub and herbaceous species.

The Geotechnical Engineering Report for the Atlantic City Boat Ramp Comfort Station (AMEC 2008) indicates the presence of silty soil horizons underlain by peat in a nearby former lakebed area.

The SPU Cloverdale Street Drainage Improvement wetland is ½ mile east of the Atlantic Nursery site. This remnant wetland was delineated in February of 2008 (SPU 2008). Prior to the 1917 draw down, this site was along the lakeshore or part of the Mapes Creek delta. The 0.14 acre wetland has an HGM Class of Riverine with a Cowardin Class of Palustrine Scrub Shrub- Seasonally Flooded (PSSC). The wetland is dominated by willow species. The soil profile is similar to the Atlantic

Nursery site. In both the upland and wetland plots, the A horizon has a very dark grayish brown (10YR 3/2) silty clay texture and the B horizon has a reduced grayish brown matrix (10 YR 3/2) with redoximorphic features. In the wetland and upland data pits, standing water was at 9 inches and greater than 18 inches, respectively.

Historic Records

- 1915 Plat of the Pritchard Island Addition shows 24 platted lots with a "proposed canal" where the drainage ditch now exists. Historic narratives indicate that the slough was acquired in 1935 by the Department for "nursery purposes." The drainage ditch clearly appears in a 1937 aerial photograph.

- 1935 Dunlap Slough Condemnation map indicates that the pre-1917 western shoreline of Pritchard Island ran through the middle of the property north to south suggesting the Dunlap Slough occupied only the west half of the site. Topographically however, the entire site fills the width of the topographic depression between Pritchard Island and the former "mainland".

- 1937 B/W aerial photo (Figure 2) shows emerging sets of residential neighborhoods flanked by undeveloped and agricultural lands. Former Dunlap Slough is divided by the new Cloverdale fill and island access road. The north/south ditch is prominent and shown to extend north under Cloverdale Street ¼ the length of Pritchard Island Beach Park. A diagonal path across the former slough corresponds to the site's current southern border with the Sound Transit site.

Relictual Indicators of Wetland Hydrology and Wetland Soils

Hydric soil features formed under historically wetter conditions are known to persist long after those wetter conditions have changed to drier conditions. Due to the persistence of hydric soil indicators, these soils may continue to satisfy the hydric soil criterion long after wetland hydrology has been eliminated. Wetland hydrology was observed on only a portion of the area where hydric soils were identified. In areas where there was no evidence of wetland hydrology, hydric soils were presumed to be relictual, having formed during millennia of inundation (prior to 1917) when Lake Washington was 9 ft higher than the present day.

This important distinction is further elaborated in the following Soil and Hydrology sections.

Recent Weather

Weather records indicate that the winter conditions have had above average temperatures and below average rainfall. As of February 26, 3.3 inches of rain had fallen at SeaTac compared to an average of 3.9 inches for the same period. The weather was dry for a week prior to the site visits. During the field work week, precipitation was 0.07, 0.3, 0.17 and 0.28 inches for the Tuesday to Friday period. Investigators determined that the work occurred during the growing season because there was new growth from vegetation and soil temperatures measured between 44 and 48 degrees

Fahrenheit (F). The growing season is generally presumed to be underway when soil temperatures exceed 41 degrees F at 12 inches below the soil surface.

4.2 Field Investigation

Landscape Setting, Land Use, and Site Alterations

The site is in a topographic depression between residential areas on Pritchard Island on the east and Beer Sheva Park and single family homes on the west. The two sides flanking the site rise steeply in elevation to between 28 and 34 feet (NAVD 88 City datum). The site slopes from 25 feet in the north to 19 feet at the southern boundary. At the north boundary Cloverdale Street is constructed on fill to a height between 34 and 38 feet.

The US Army Corps of Engineers maintains the elevation of Lake Washington between 16.6 and 18.6 feet (NAVD88). The annual refill begins February 15 and continues for 3 months. Lake lowering begins in mid July and also requires 3 months to complete.

The site has been used as a nursery for more than 70 years. Throughout the decades, the Department has actively used the southern half of the slough to supply plant material to facilities in the entire park system. In growing nursery plants, the Department has taken steps to improve the site by adding fill to the former lakebed to improve drainage and, adding organic material to the nursery fields. The Department also installed irrigation and constructed greenhouses and related structures. A drainage ditch bisects the property from north to south, and is crossed by 3 culverted and graveled access roads on the property. The nursery activity has been curtailed in the last year.

Wetland Findings

Four distinct wetland polygons were identified and delineated during this investigation (Figure 5, Sheet 1). The polygon segmentation is a product of the existing road crossings and it is presumed here that the polygons comprise a single functioning wetland system totaling 1.54 acres on this project site. The four polygons are treated as a single wetland system for purposes of the discussion below. (More detail of pit locations and wetland boundaries is provided in Figure 6, Sheets 2 & 3). Area photographic views are provided by polygon in Attachment 4.

The Hydrogeomorphic classification is Slope. This classification pertains to locations on a hill or slope where groundwater "daylights" and begins running along the surface, or immediately below the surface. Water in these wetlands flows only in one direction and is not impounded. The "downhill" side of the wetland is always the lowest. Under natural conditions, without the manmade berm at the lowest elevation on this site, the water would drain toward Lake Washington unimpounded.

The wetland rates as a Class IV with a total of 27 points (Attachment 5, Rating Form). Scores over 30 points merit a Class III designation. The Seattle of City ECA prescribes a buffer width of 50 feet for Class IV wetlands.

This Slope wetland has the Potential to provide Water Quality functions because of a low slope and over half the area contains dense, uncut herbaceous vegetation. The wetland has the Opportunity to improve water quality because adjacent residential urban areas can impact groundwater quality. Similarly, the Slope wetland has the Potential to improve Hydrologic functions because over half the area contains dense, uncut, rigid vegetation with small surface depressions of at least 10%. It does not have the Opportunity to reduce flooding and erosion since no surface runoff reaches a water body with flooding problems.

The Habitat functions provided pertain to species richness, varied hydro periods, amphibian egg-laying structures, and its location in the wetland landscape. The wetland provides low buffer, corridor connection, interspersion, and vegetative structure functions.

Hydrology

Groundwater is believed to drain in a southerly direction following the mild slope of the land. The drainage ditch is the principal hydrologic feature receiving runoff from developed surfaces and ground water discharge from the adjacent fields. Developed surfaces include the greenhouse buildings, associated growing pads, and gravel roads.

There was no visible water movement in any portion of the ditch at time of this work. The ditch has been observed to contain ponded water throughout the year (Clayton Anticau, Seattle Public Utilities, pers. comm.; Jeanne Schollmeyer, Seattle Department of Parks and Recreation, pers. comm.). The two ditches that are most northern catch the nursery irrigation water and run off during the summer. Water in the ditch second from the north declines the most of the 4 ditches in the summer. In the next ditch to the south, the water stays high and at the west side of that ditch the land appears to be subsiding. The last ditch to the south has water year around. Parks Operations staff does not believe the ditches flow between each other because the water levels are so often different in elevation.

In areas adjacent to the ditch, groundwater discharges appeared at shallow elevations in many observation pits and reach the ground surface (as evidence by soil saturation at the surface and by shallow ponding in micro-depressional areas).

There is also a surface connection from the south portion of Pritchard Island Beach Park (north of site) where a shallow ditch connects to the Cloverdale Street culvert. It daylights at the north end of the nursery site where the drainage ditch begins. There is no documented water movement from this park onto the nursery site.

Soils

Most matrix colors in the first horizon are close to a very dark grayish brown (10YR 3/2), which typically runs between 6 to 16 inches in depth. The soil pits are often characterized by a second horizon that constitutes a depleted matrix with colors that range from gray or light gray (10 YR 5/1,7/2) to a hue of 2.5Y gray or dark olive brown (2.5Y 5/1, 3/3). The second horizon sometimes includes redoximorphic features showing as light olive brown (2.5Y 5/6) or yellowish red (5 YR

5/8) concentrations or rhizospheres. Although soil textures range from loamy sand to silty clay, silt loam is the most widespread texture found in most pits.

In some cases, the low chroma soil samples lacked other indicators that, when combined, satisfied the hydric soil criterion. Following guidance in the Interim Regional Supplement, these soils were determined to meet the hydric soil criterion when their landscape position indicated that water was likely to be concentrated (and wetland hydrology was abundant). All the soil horizons are described specifically in the Data Forms (Attachment 3) and illustrated in the formal sample soil pit photos (Attachment 4).

Native soil horizons have been largely disturbed by the land uses following the 1917 lake draw-down that exposed lacustrine sediments containing hydric soil characteristics. During seven decades of nursery use, much of the site appears to have been cultivated (as evidenced by mixed soil horizons) and portions of the site have been filled. Some soil pits and shallow groundwater observation pits yielded fill material such as concrete, angular rock, old bottles, and trash. Therefore, in analyzing the soil properties, the wetland biologists had to consider whether the apparent hydric characteristics reflected relictual features that did not reflect current hydrologic conditions. Also, biologists had to recognize the presence of fill materials.

Hydric soil features formed under historically wetter conditions are known to persist long after those wetter conditions have changed to drier conditions. These soils may continue to satisfy the hydric soil criterion long after wetland hydrology has been eliminated. Wetland hydrology was observed on only a portion of the area where hydric soils were identified. In areas where there was no evidence of wetland hydrology, such area so hydric soils were presumed to be relictual.

Plant Communities

The site consists largely of herbaceous plant communities dominated by introduced grasses. Common Facultative Wet (FACW) dominants include creeping buttercup (Ranunculus repens), reed canarygrass (Phalaris arundinacea) and, in places, small-fruited bulrush (Scirpus microcarpus). Common Facultative (FAC) dominants are colonial bentgrass (Agrostis capillaris), quackgrass (Agropyron repens), tall fescue (Festuca arundinacea), and common horsetail (Equisetum arvense). Common Facultative Upland (FACU) dominants are dandelion (Taraxacum officinale) and purple deadnettle (Lamium purpureum). A few small patches of Japanese knotweed (Polygonum cuspidatum and hybrids)—a non-native invasive species—are located along portions of the ditch.

Some FAC or FACU grass species, at times dominant, lacked floral or other structures that are required for identification. When the Dominance tests and Prevalence Index calculations could not be completed for several data plots, the wetland determination was based on the combination of hydric soil and soil saturation within 12 inches of the surface and best professional judgment.

As noted in Section 4.1 above, the NWI designates a PEMCx (Palustrine Emergent Seasonally Flooded excavated ditch) wetland along the drainage ditch. On-site examination conclusions are consistent with this typing and extent but the Water Regime Non Tidal Modifier "C" should be F – *Semi permanently flooded.* Surface water does persist throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the surface layer. The

subclass #1 can be added to the PEM Class description since the vegetation in the ditch is *Non Persistent*. The dominate vegetation falls to or below the surface of the ponded water at the end of the growing season. While it is noted that the ditch is an excavated feature ("x"), the wetland conditions are also modified by the berm along the south property line so the letter "h" for *diked/impounded* should be added to the "x". The complete classification should be PEM1Fxh and is 0.2 acres in size.

The PEM class extends to a portion of the adjacent fields. The #2 subclass of *Persistent* vegetation applies since the dominant species remain standing during the length of the growing season. The hydrology here reflects the Water Regime Modifier B – *Saturated*. The complete classification should be PEM2B and is 1.0 acre in size.

In addition, the southwest corner of the site has been classified PFOA and is 0.34 acres in size. The trees are > 6 meters tall, > 3 inches dbh and occupy close to 100% canopy cover. The Water Regime Modifier is A - Temporary Flooded. Surface water is present for brief periods during growing season but the water table usually lies below the soil surface for most of the growing season. This area is unique because the vegetation is dominated by mature trees and shrubs that remain from previous nursery cultivation (that is, the trees and shrubs are in rows). Some of these trees are well-adapted to ponded and saturated soils such as sweet gum (Liquidambar styraciflua), corkscrew willow (Salix matsudana "Tortuosa'), spindle tree (Euonymus cf. europaeus), hedge maple (Acer campestre), and swamp white oak (Quercus cf. bicolor). Native species present include black cottonwood (Populus balsamifera), red-stem dogwood (Cornus sericea), and salmonberry (Rubus spectabilis). Purple loosestrife (Lythrum salicaria)—a Class B Noxious weed in King County—is also found in this area, along with as well as two other non-native invasive species: weeping sedge (Carex pendula) and English ivy (Hedera helix).

5.0 REGULATORY IMPLICATIONS

Numerous City of Seattle, State of Washington, and federal regulatory statutes affect wetlands and streams. Brief summaries of the major statutes are provided below. Once a proposed project is developed, the Department should contact each regulatory agency to obtain their confirmation of any wetland identifications and delineations and to ascertain the application of their regulations to that specific project proposal. Only regulatory agencies have the authority to confirm wetland identifications and delineations and the application of their regulations to specific sites, projects, and resources.

The City of Seattle's Shoreline Master Program provisions [Seattle Municipal Code SMC (23.60)] regulate uses, development, and activities within jurisdictional shorelines in the City.

The City's Environmentally Critical Areas (ECA) Ordinance (SMC 25.09) regulates development in and near wetlands and streams. The ECA Ordinance allows for a 50-foot buffer for Class IV wetlands over 1,000 square feet in size. Through the buffer averaging mechanism, buffers can be reduced to a minimum of 35 feet in any given location provided wetland functions are not reduced. In addition, public projects that produce a public benefit, such as recreation, are allowed in Class IV buffers provided no alternative exits; e.g. a bicycle trail in buffer. Under Section 29.09.045

Exemptions, the Department has the ability to grant itself an exemption to permit certain activities provided it complies with the ordinance provisions such as maintenance of records, application of BMPs and possibly mitigation if appropriate. The DPD Wetland Specialist can provide guidance to the Department about consistency with the ordinance. The most pertinent provisions are 25.09.045 A3b, B, H1a, c, H2b and H3f.

Pursuant to Washington's Hydraulic Code, Washington State Department of Fish and Wildlife (WDFW) requires a Hydraulic Project Approval (HPA) for any work that would affect the bed or flow of state waters including all work within the mean higher high water line in salt water or within the ordinary high water line in fresh water (which often includes wetlands). An HPA is required for any work that uses, diverts, obstructs, or changes the natural flow or bed of any of the salt or fresh waters of state, including bed reconfiguration, all construction or other work waterward, under and over the ordinary high water line, including dry channels, and may include projects landward of the ordinary high water line (for example, activities outside the ordinary high water line that will directly impact fish life and habitat, falling trees into streams or lakes, bridge maintenance, dike construction, etc.)

The Clean Water Act (CWA), 33 USC Section 1251 et seq., provides for comprehensive federal regulation of water pollution. Sections 404 of the CWA regulate discharge of dredge and fill material into waters of the US, which include special aquatic sites such as wetlands. Section 404 is administered by the Corps. The Corps authorizes all dredge or discharge activity in waters of the US using a standard Individual Permit, letter-of-permission, Nationwide Permit, or Regional Permit. Nationwide Permits streamline the Section 404 permitting process for specific activities.

6.0 REFERENCES

Brinson, M.M. 1993. *A Hydrogeomorphic Classification for Wetlands.* Technical report: WRP-DE-4. US Corps of Engineers Waterways Experiment Station, August 1993.

Cowardin et.al. 1979. *Classification of Wetland and Deepwater Habitats of the United States.* Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. (Version 04DEC98).

City of Seattle 2006. Environmentally Critical Areas Ordinance, SMC 25.09.160. Department of Planning and Development.

City of Seattle, 2002. *Internal SPU Guidelines for ECA Exemption Requests*, Department of Community Development, October 10, 2002

Munsell Soil Color Charts, Kellmorgen Instruments Corp., 1994

Parametrix 2003. *Final Compensatory Mitigation Plan for Impacts to Wetland AR-3. Sound Transit, Link Light Rail Segment D.* April 2003.

Starstead, Joe 2009. Seattle Public Utilities Drainage Specialist, Personal Communication, March 24, 2009.

Seattle Public Utilities 2008. *Wetland Delineation for the Cloverdale Street Drainage Improvement*. SPU Engineering Services, February 2008.

USDA-NRCS 2001. United State Department of Agriculture, Natural Resource Conservation Service, *Summary of Field Indicators of Hydric Soils for LRRs A, B, D, and E* (Oregon, Washington and Idaho). Version 5.0.

US Department of the Interior, Fish and Wildlife Service (USFWS) 1988. *National Wetlands Inventory*. Branch of Resource and Mapping Support.

Washington Department of Ecology, 1997. *Washington State Wetland Identification and Delineation Manual*. Pub. # 96-94.

Washington Department of Ecology. 2004. *Washington State Wetland Rating System for Western Washington Revised*. August 2004 Ecology Publication #04-06-025.

USACOE (1987). *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912

USCOE 2008. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region*, April 2008

USCOE 2009. Components of a Complete Wetland Delineation Report, US Army Corps of Engineers, Seattle District, September 30, 2009.

USFWS. 1993. Northwest Region 9 Supplement to the National List of Plant Species that Occur in Wetlands, Combined 1988 and 1993 Supplement. U.S. Department of the Interior, Fish and Wildlife Service.

FIGURE 1: Vicinity Map - Atlantic City Nursery Wetland Survey

Seattle Public Utilities

Produced by Seattle Public Utilities

April 1, 2010

N

0 100 200 400 Feet

LEGEND

- City Limits
- Parcel Boundary
- Parks

FIGURE 2: Atlantic City Nursery Site - 1937 King County Aerial Photo

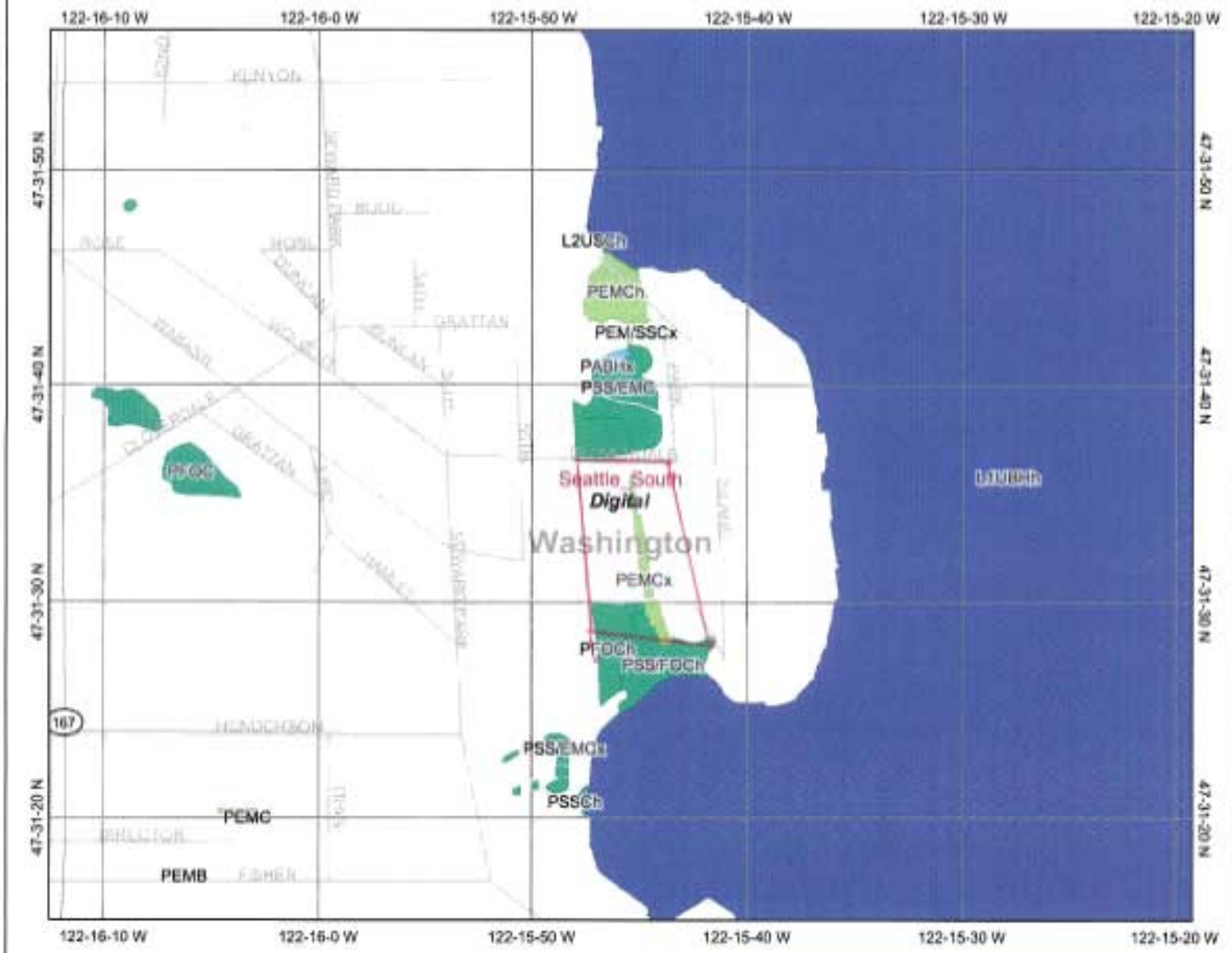
Seattle Public Utilities

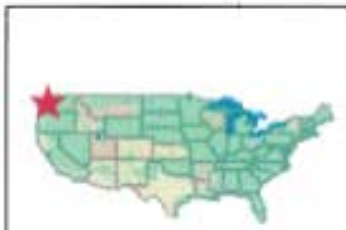
Produced by Seattle Public Utilities

March 18, 2010

N

Atlantic City Nursery





Legend

Ohio_wet_scan
- 0
- 1
- Out of range

Interstate
Major Roads
- Other Road
- Interstate
- State highway
- US highway

Roads
Cities
USGS Quad Index 24K
Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan

NHD Streams
Counties 100K
States 100K
South America
North America

Scale: 1:8,885

Map center: 47° 31' 36" N, 122° 15' 46" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

FIGURE 3 NATIONAL WETLANDS INVENTORY

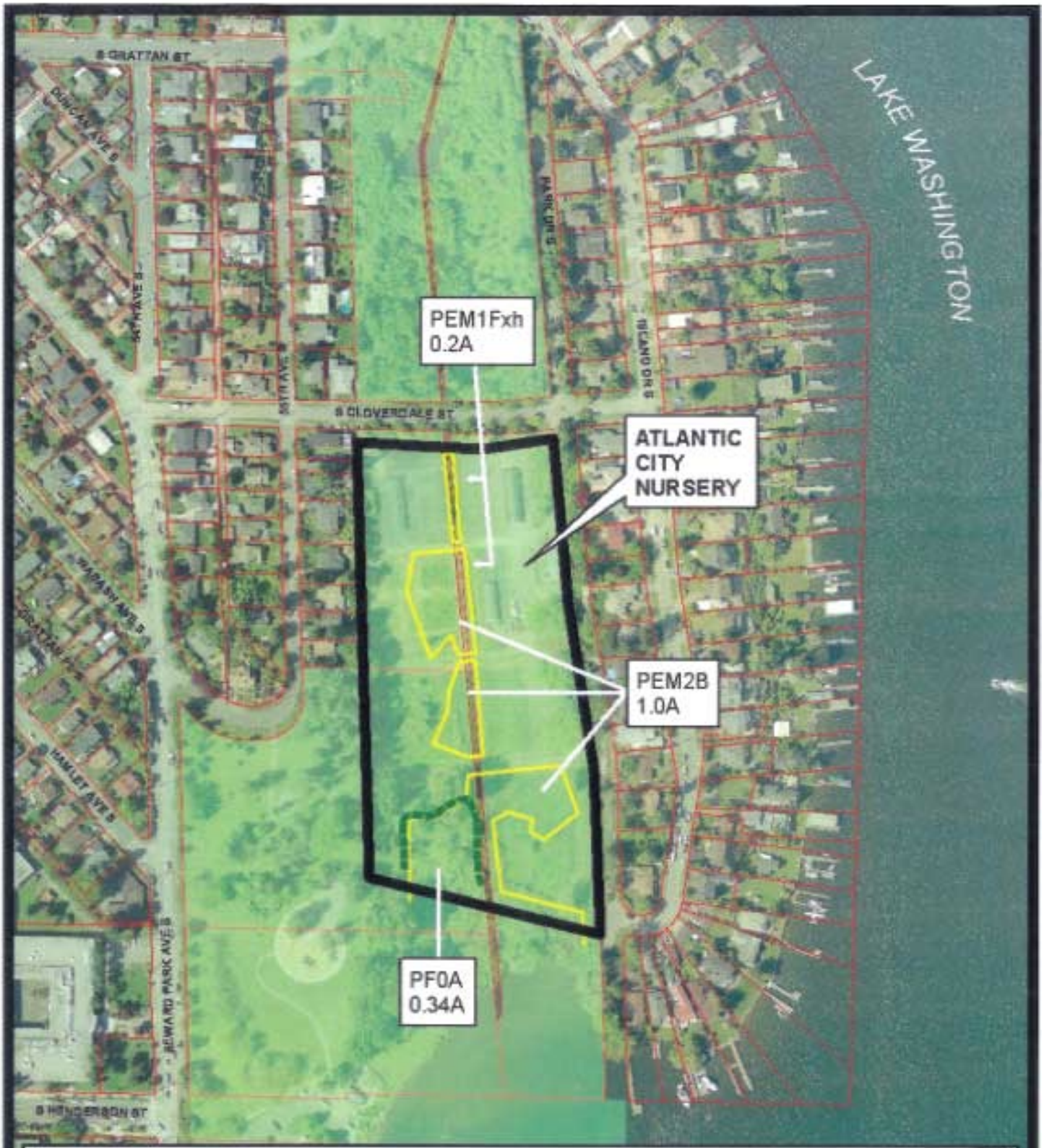


FIGURE 4: Atlantic City Nursery - Cowardin Classes

Seattle Public Utilities

Produced by Seattle Public Utilities

April 1, 2010

N

0 50 100 200 Feet

LEGEND

Parcel Boundary

Parks

ATTACHMENTS

A OBSERVATION PIT WATER AND SATURATION ELEVATIONS

ATTACHMENT 1 OBSERVATION PIT WATER AND SATURATION ELEVATIONS

Table 1 – Soil hydrology obtained from temporary shallow groundwater observation pits on the Atlantic City Nursery project site. Locations of the observation pits are shown on Figures 5 and 6.

PIT NUMBER	WETLAND POLYGON AFFILIATION	PIT ELEVATION AT GROUND SURFACE (above msl; XXX datum)	DEPTH TO GROUNDWATER (inches)			DEPTH TO CAPILLARY FRINGE SOIL SATURATION (inches)			PERIOD OF OBSERVED GROUNDWATER/ SATURATION (days within 12 inches of ground surface)	WETLAND HYDROLOGY CRITERION SATISFIED? (groundwater and/or saturation within 12 inches of the soil surface for more than 14 consecutive days during the growing season)
			Feb. 23 2010	March 18 2010	Δ	Feb 23 2010	March 18 2010	Δ		
1	B	23.47	12.5	712	>1	6	7	1	23	Y
1-1			1.0	79.5	78	0	9.5	9.5	23	Y
2	↑	22.82	5	2	3	3	0	-3	23	Y
3		23.06	5	11.5	0	2	1.5	0	23	Y
4		23.21	6	8	2	0	5	5	23	Y
5		23.52	10	>11	0	6	9	3	23	Y
6		23.33	10	79	0	7	9	2	0	N
7		22.90	12	>11	0	8	11	3	23	Y
7-1		22.7	10	712	72	3	10	7	23	Y
7-2		22.48	9	>12	>3	4	10.5	6.5	23	Y
8		23.76	>12	>11	0	>12	11	0	0	N
9		22.26	712	712	0	712	12	0	0	N
10		22.63	9.5	>10	>1	6	9	3	23	Y
11			10	712	72	6	>12	6	0	N
12		23.17	6	9	3	9	6.5	3.5	23	Y
13		23.06	4	5.5	1.5	0	3	3	23	Y
14		22.82	8.5	3.5	0	0	0	0	23	Y
15		22.34	0.5	1	0.5	0	0	0	23	Y
16		22.66	4.5	8	3.5	0	5	5	23	Y
17		22.85	9	>11	72	6	10	4	23	Y
18		22.73	2	3	1	3	0	0	23	Y
19		23.13	10	9.5	0.5	0	6	6	23	Y
20		23.22	5	6	1	0	9.5	9.5	23	Y
21			3	4.2	1.2	0	2	2	23	Y
22		23.20	5	7	2	0	4.5	4.5	23	Y
23		23.16	4	7	3	2	5.2	3.2	23	Y
24	↓	23.14	6	9.5	3.5	3	7	4	23	Y
25		23.20	6	8.5	2.5	4	4	0	23	Y
26	B	23.38	5	7	2	0	4.5	4.5	23	Y

ATTACHMENT 1 OBSERVATION PIT WATER AND SATURATION ELEVATIONS

Table 1 – Soil hydrology obtained from temporary shallow groundwater observation pits on the Atlantic City Nursery project site. Locations of the observation pits are shown on Figures 5 and 6.

PIT NUMBER	WETLAND POLYGON AFFILIATION	PIT ELEVATION AT GROUND SURFACE (above msl; XXX datum)	DEPTH TO GROUNDWATER (inches)			DEPTH TO CAPILLARY FRINGE SOIL SATURATION (inches)			PERIOD OF OBSERVED GROUNDWATER/ SATURATION (days within 12 inches of ground surface)	WETLAND HYDROLOGY CRITERION SATISFIED? (groundwater and/or saturation within 12 inches of the soil surface for more than 14 consecutive days during the growing season)
			Feb. 23 2010	March 18 2010	Δ	Feb 23 2010	March 18 2010	Δ		
27	B	25.25	8	8	0	2	3	+1	23	Y
28	|	24.70	>12	>12	0	12	12	0	0	N
29	|	23.82	6	9.5	3.5	0	5	-5	23	Y
30	B	28.57	6	9	3	4	6.5	2.5	23	Y
31	C	20.34	>11	>11	0	>11	>11	0	0	N
32	↑	19.78	11	11	0	7	7.5	0	23	Y
33	↑	19.55	8	7.5	0	1	2	1	23	Y
34	↑	19.50	8	>9.5	1.5	5	9.5	4.5	23	Y
35	↑	19.14	9.5	12	2.5	5	9	4	23	Y
35-1	↑	20.01	10	6	-4	1	5	4	23	Y
35-2	↑	19.70	9.5	9.5	0	4	7.5	3.5	23	Y
35-3	↑	19.80	3	4.5	1.5	0	5.5	5.5	23	Y
35-4	↓	20.03	>12	10	-2	>12	>12	0	0	N
36	↓	19.71	4	>9	5	0	9	9	23	Y
37-1	C	20.08	5	>11	6	5	>11	7	<14	Y
37	D	19.18	4	6	2	2	6	4	23	Y
38	↑	19.90	12	6.5	-6	6	3	-3	23	Y
39	↑	19.70	>12	>12	-3	>12	>12	0	0	N
40	↑	19.18	12	2.5	9.5	5	0	-5	23	Y
41	↑	18.75	3	2	1	0	6	0	23	Y
41-1	↑	19.10								
42	↑	20.54	11.5	>11	0	6	>11	5	<14	N
43	↑	22.75	8	>10	2	1	9.5	8.5	23	Y
42-1	↑	22.52	>11.5	>11.5	0	0	>11.5	11	<14	N
43-2	↓	22.46	>11.5	>11.5	0	>11.5	>11.5	11	0	N
44	↓	21.64	3	3	0	3	6	3	23	Y
45	↓	21.92	2	3	1	0	1	1	23	Y
46	↓	22.10	3	3.5	0.5	0	2.5	2.5	23	Y
47	D	22.15	5	6	1	0	3.5	3.5	23	Y
36-2	C		>12	>12	0	>12	>12	0	0	N

ATTACHMENT 1 OBSERVATION PIT WATER AND SATURATION ELEVATIONS

Table 1 – Soil hydrology obtained from temporary shallow groundwater observation pits on the Atlantic City Nursery project site. Locations of the observation pits are shown on Figures 5 and 6.

PIT NUMBER	WETLAND POLYGON AFFILIATION	PIT ELEVATION AT GROUND SURFACE (above msl; XXX datum)	DEPTH TO GROUNDWATER (inches)			DEPTH TO CAPILLARY FRINGE SOIL SATURATION (inches)			PERIOD OF OBSERVED GROUNDWATER/ SATURATION (days within 12 inches of ground surface)	WETLAND HYDROLOGY CRITERION SATISFIED? (groundwater and/or saturation within 12 inches of the soil surface for more than 14 consecutive days during the growing season)
			Feb 23 2010	March 18 2010	Δ	Feb. 23 2010	March 18 2010	Δ		
48	D	22.15	5	8.5	3.5	2	6	4	23	Y
49		22.46	3	5	2	0	3.5	3.5	23	Y
50	↑	22.05	7	>10	3	5	9.5	4.5	23	Y
50-1		23.30	6	>11	5	4	11	7	23	Y
50-2		23.67	>12	>12	0	>12	>12	0	0	N
51		23.46	14	>11	0	10	11	0	23	Y
52		23.29	10	>11	0	6	11	5	23	Y
53		23.50	12	>10.5	0	4	10.5	4.5	23	Y
54		24.04	>12	>11	0	>12	>11	0	0	N
54		23.44	>13	>13	0	>12	>13	0	0	N
55		22.17	3	6	3	0	4	4	23	Y
56		22.62	5	8	3	2	6.5	4.5	23	Y
57		21.95	2	11.5	2.5	0	2	2	23	Y
58		22.46	4	7	3	0	5	5	23	Y
59		23.15	6	9	3	1	6	5	23	Y
60		21.8	>12	>11	0	>12	>11	0	0	N
61	↓	22.17	3	6.5	3.5	0	3.5	3.5	23	Y
62		21.49	1	3.5	2.5	0	1	1	23	Y
63	D	21.44	2	3.5	1.5	0	1.5	1.5	23	Y
2" WET		18.76	9	>10	1	0	8.5	8.5	23	Y
2" UPL		24.08	>14	>13	0	>14	11	0	<14	N
15 WET		19.19	9	5.5	-3	0	2	2	23	Y
15 UPL		20.33	>10	10	0	>10	9	-9	0	N
7.1 WET		21.10	0	1.5	1	0	0	0	23	Y
7.1 UPL		21.64	>12	>12	0	>12	>12	0	0	N
3rd WET		19.70	6	3.5	-2	0	0	0	23	Y
3rd UPL		20.08	>12	>12	0	>12	10	-2	0	N

ATTACHMENTS

B PLANT LIST

ATTACHMENT B

ATLANTIC NURSERY PLANT LIST – TABLES 1 & 2

Compiled by Clayton Antineau, SPU Botanist, February 23 and 25, 2010.

Table 1: Throughout Site (Wetland Areas, Upland Areas, Along and In Ditch; * = not native)

Agrostis sp*	Bent grass
Athyrium filix-femina	Lady fern
Callitriche sp.	Water starwort
Cardamine hirsuta*	shotweed
Carex pendula*	Weeping sedge
Convolvulus sepium	bindweed
Dactylis glomerata*	Orchard grass
Equisetum telmateia	Horsetail
Festuca arundinacea*	Tall fescue
Glyceria sp.	Manna grass
Iris pseudacorus*	Yellow flag
Juncus effusus	Soft rush
Lamium purpureum*	Dead-nettle
Lemna minor	Duckweed
Ludwigia palustris?	Water-purslane
Lythrum salicaria*	Purple loosestrife
Phalaris arundinacea	Reed canarygrass
Polygonum cuspidatum*	Japanese knotweed
Populus balsamifera	Black cottonwood
Ranunculus repens*	Creeping buttercup
Rubus armeniacus*	Himalayan blackberry
Rubus spectabilis	Salmonberry
Scirpus microcarpus	Small-fruited bulrush
Taraxacum officinale*	Dandelion
Typha latifloia	Cattail
Veronica americana	American brooklime
Numerous grass species not identifiable at this time.	

Table 2: Remnant Nursery Stock Plants (mostly in Southwest Corner of Site; * = not native)

Acer palmatum*	Japanese maple
Ajuga reptans*	Bugleweed
Aristolochia durior*	Dutchman's pipe
Betula cf pendula*	Birch
Calocedrus decurrens*	Incense-cedar
Carex pendula*	Weeping sedge
Cornus sericea	Redtwig dogwood
Corylus cf cornuta	Western hazelnut
Euonymus cf europaeus*	Spindle-tree
Hedera helix*	English ivy
Liquidambar styraciflua*	Sweet gum
Quercus cf bicolor"	Swamp white oak
Salix matsudana 'Tortuosa'*	Corkscrew willow
Vaccinium corymbosum	Highbush blueberry

ATTACHMENTS

C WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Atlantic Nursery City/County: Seattle Sampling Date: 2/23, 25/2010

Applicant/Owner: Sea Parks State: ______ Sampling Point: 'D' Wet

Investigator(s): M Bohoff, C Artileau Section, Township, Range: S35 T24N R4E

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): None Slope (%): 1-7

Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: ______

Soil Map Unit Name: ______ NWI classification: PemCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 2m)			
1. Buttercup Ru re	80	Y	FACW
2. Unk grass 1 (large)	30	Y	?
3. Dandelion Ta of	40	Y	FACU
4. Unk grass 2 - Agrostis	70	Y	?
5. Dead nettle	T	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	220	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 or more (A)

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	80	x 2 = 160
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Wetland Non-Vascular Plants[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:

*1&2 Unk - ID missing, no floral or other structures present

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					LOAMY SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X **No** _____

Remarks:

Evidence of small distributaries, plant litter
Hydric soil assumed based on presence of soil pit, 72 hrs in growing season

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes X No ____ Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: ATHALIC WEST City/County: SEATTLE Sampling Date: 2/23/10

Applicant/Owner: SEA TAC State: WA Sampling Point: D UPL

Investigator(s): M. BOWER C. WHITE Section, Township, Range: S35 T24N R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): NONE Slope (%): 1-2

Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: _____

Soil Map Unit Name: _____ NWI classification: PEMEx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

AREAS OF FILL EVIDENCE

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2M)			
1. RUBUS LACINIATA	30	Y	FACW
2. SOW THISTLE SONCHUS	10	N	FACW
3. DANDELION TARAXACUM	<5	N	UPL
4. BUTTERCUP RANUNCULUS	<5	N	FACW
5. BENTGRASS - AGROSTIS	65	Y	FAC
6. WILD OATS	4	N	-
7. " "	1	N	-
8.			
9.			
10.			
11.			
	109 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	80	x 2 =	160
FAC species	65	x 3 =	195
FACU species	_____	x 4 =	_____
UPL species	_____	x 5 =	_____
Column Totals:	145 (A)		355 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes Y No _____

Remarks:

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Loam	Asphalt, gravels (2" 12")

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil disturbance - Fill

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): > 18"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Atlantic Nursery City/County: Seattle Sampling Date: 2/23 & 5/20/10

Applicant/Owner: Sea Mass State: WA Sampling Point: 15A Wet

Investigator(s): V. Benoit & Antieau Section, Township, Range: S35 T24N R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): None Slope (%): 1-7

Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: _____

Soil Map Unit Name: _____ NWI classification: PemCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Canary grass Phar	40	Y	FACW
2. Butter cup Ranu	20	Y	FACW
3. Soft Rush Juef	35	Y	FACW
4. Bentgrass Agca	45	N	FAC
5. Common Horsetail Eq ar	1	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species 165	x 2 =	330
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 165 (A)		330 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					SILTY CLAY	
6-16	10YR 7/2	100					SILTY CLAY LOAM	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Evidence of past plowing in 2ND horizon

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes X No ___ Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Atlantic City City/County: Seattle Sampling Date: 2/23, 25/2010
Applicant/Owner: Sea "Parks" State: WA Sampling Point: 15A Up!
Investigator(s): M Boroff, C Altieau Section, Township, Range: S35 T24N R4E
Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): None Slope (%): 1.7
Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: ______
Soil Map Unit Name: ______ NWI classification: PemCx
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? N (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes ___ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 2M)			
1. Unk grass 1	80	Y	?
2. Buttercup Ru re	50	Y	FACW
3. Canarygrass Ph ar	15	N	FACW
4. Goosegrass Ag re	20	Y	FACU
5. Dandelion Ta of	20	Y	FACU
6. Tall Fescue Fe ar	<5	N	FAC-
7. Unk grass 2	T	N	?
8.			
9.			
10.			
11.			
	___ = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum ______			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 or more (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	50	x 2 = 100
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50% *
- ___ Prevalence Index is ≤3.0[1] *
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ___

Remarks:
*-1 Dom. lacks ID.; no F(i)m / or other structures present

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					SiLm	
8-16	2.5Y 5/1	90	5Y 5/8	10	D	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X **No** _____

Remarks:

Evidence of Soil Disturbance, plowing

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes ____ No X Depth (inches): >18"

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Atlantic Harbor City/County: Seattle Sampling Date: 2/23/25

Applicant/Owner: Sea Parks State: WA Sampling Point: 27 Wet

Investigator(s): M. Bonds & Partners Section, Township, Range: S35 T24N R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): None Slope (%): 1-7

Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: _____

Soil Map Unit Name: _____ NWI classification: Sem Sx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: 2M)			
1. Spotlessness - Ra Ca	80	Y	FAC
2. Buttercup Ra re	70	Y	FACW
3. Cheatgrass Bro re	50	Y	FACU
4. Dandelion Ta re	5	N	FACU
5. Tall fescue La pu	T	N	NL
6. Red clover Tr pr	T	N	FACU
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
	205 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 70	x 2 = 140
FAC species 130	x 3 = 390
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 200 (A)	530 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2						Sandy loam	
10-16	10YR 3/2							

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soil disturbance, plowing
Assume hydric soil based on soil pit. w/ 2,7 weeks in growing season.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1/2

Water Table Present? Yes X No ____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Atlantic Nursery City/County: Seattle Sampling Date: 2/23.25/2020

Applicant/Owner: Soo Yuks State: _____ Sampling Point: 27 WP

Investigator(s): D Ranft C Antieau Section, Township, Range: S35 T24N R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 4.7

Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: _____

Soil Map Unit Name: _____ NWI classification: PemCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2M)			
1. Rubus spec	70	Y	?
2. Unknown grass 2	25	Y	?
3. Phalaris arundinacea	15	N	FACW
4. Ranunculus repens	15	N	FACW
5. Agrostis stolonifera	5	N	FAC
6. Trifolium repens	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	135 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? ? Yes _____ No _____

Remarks:

Both wetland & non-wetland plants present.

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					SiCL(OM)	Fill
8-16	2.5Y 3/3	95	2.5Y 5/6	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

matrix not low chroma ≤ 2
Soil disturbed, fill

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): > 18"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Atlantic Nursery City/County: Seattle Sampling Date: 2/23, 25/10

Applicant/Owner: Sea. Parks State: WA Sampling Point: 27 Wet

Investigator(s): M. Boloff, C. Antieau Section, Township, Range: S 35 T24N R4E

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): None Slope (%): 1.7

Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: ______

Soil Map Unit Name: ______ NWI classification: PEMCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

VEGETATION – Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: 2m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Canarygrass Ph ar	100	Y	FACW
2. Sm Fr Bulrush Sc mi	40	Y	FACW
3. [illegible] Ru re	T	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	140		

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	140	x 2 = 280
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	140 (A)	280 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet) *

__ Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

Adventitious roots of sweet gum + other nursery trees

SOIL

Sampling Point: ____________

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					SILT LOAM	
10-14	" "	100					" "	Plowed
14-18	2.5Y 6/2						Silty Clay Loam	Plowed

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

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

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1) **(except MLRA 1)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ 2 cm Muck (A10)
__ Red Parent Material (TF2)
__ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ____________________

Depth (inches): ____________________

Hydric Soil Present? Yes X No ____

Remarks: Athough depleted matrix is below 10", hydric soil assumed based on presence of soil sat w/in 12" > 2 weeks in growing season. Soil disturbance, plowing

HYDROLOGY

Wetland Hydrology Indicators:

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

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
__ Salt Crust (B11)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Stunted or Stressed Plants (D1) **(LRR A)**
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Saturation Visible on Aerial Imagery (C9)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)
__ Raised Ant Mounds (D6) **(LRR A)**
__ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Atlantic Nursery City/County: Seattle Sampling Date: 2/23, 25/10

Applicant/Owner: Sea-Tac State: WA Sampling Point: 3W UPL

Investigator(s): D. Bangle, C. Patrick Section, Township, Range: S25 T24N R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): None Slope (%): 1-7

Subregion (LRR): A Lat: 47 31 36 Long: 122 15 46 Datum: _____

Soil Map Unit Name: _____ NWI classification: PEMCx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No _____	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Lamiastrum Acar	90	Y	FACW
2. Polygonum Ag CA	15	N	FAC
3. Sm. Ft. Bullush Sc mo	35	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	140 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 = _____	
FACW species 125	x 2 = 250	
FAC species _____	x 3 = _____	
FACU species _____	x 4 = _____	
UPL species _____	x 5 = _____	
Column Totals: 125 (A)	250 (B)	

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100					Silt Loam	
11+	10YR 3/1	85	5YR 5/8	15			Silty Clay	Rhizospheres present

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Depleted matrix not starting within 10" Soil disturbance, plowing

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): 21"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

ATTACHMENTS

D AREA VIEWS AND DATA PLOT PHOTOS

Atlantic Nursery - Wetland Views

Wetland A from South

Wetland B from North showing ditch and field to right

Wetland B from North looking Southwest

Wetland B from Southwest looking Northeast

Wetland C from South showing ditch and field to left

Wetland C from Southwest looking Northeast

Wetland D from Northwest to South showing Forested section

Wetland D from North showing ditch, fields to right and left

Wetland D from North looking Southeast

Berm and South Ditch at South Fenceline

ATLANTIC NURSERY WETLAND DATA PITS

Wetland B Data Pit "D" Wet

Wetland B Data Pit "D" Upland

Wetland C Data Pit #15 Wet

Wetland C Data Pit #15 Upland

Wetland D Data Pit #27 Wet

Wetland D Data Pit #27 Upland

Wetland D Data Pit #37 Wet

Wetland D Data Pit #37 Upland

ATTACHMENTS

E WASHINGTON STATE WETLAND RATING FORM

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Atlantic City Nursery Date of site visit: 2/23, 25, 26/2010

Rated by M Bond F, C Patterson Trained by Ecology? Yes X No___ Date of training 11/08

SEC: 35 TWNSHP: 24N RNGE: 2E Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure 5 **Estimated size** 1.54 A

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30		
	Score for Water Quality Functions	10
	Score for Hydrologic Functions	5
	Score for Habitat Functions	13
	TOTAL score for Functions	28

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

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

Summary of basic information about the wetland unit

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

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

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

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

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

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

Wetland name or number _____

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
X The wetland is on a slope (*slope can be very gradual*),
X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
X The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 **YES** – The wetland class is **Slope**

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

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

____ The overbank flooding occurs at least once every two years.

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

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

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

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

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

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

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

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

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

S	**Slope Wetlands** WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure 4 3
S	**Total for S 1** *Add the points in the boxes above*	5
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* [ ] Grazing in the wetland or within 150ft [ ] Untreated stormwater discharges to wetland [ ] Tilled fields, logging, or orchards within 150 feet of wetland [X] Residential, urban areas, or golf courses are within 150 ft upslope of wetland [ ] Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 *Add score to table on p. 1*	10

Comments

Wetland name or number _____

S	**Slope Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	**Points** (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	3
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. (YES) points = 2 NO points = 0	2
S	*Add the points in the boxes above*	5
S	**S 4. Does the wetland have the opportunity 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? *Note which of the following conditions apply.* [redacted] Wetland has surface runoff that drains to a river or stream that has flooding problems [redacted] Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 70)* multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	5

Comments

Wetland name or number _____

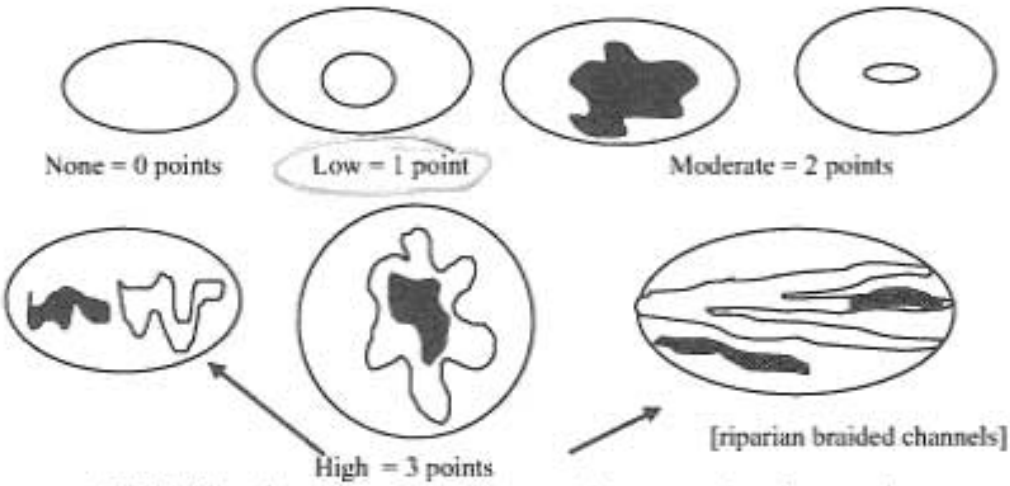
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure** ___
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ____Aquatic bed X Emergent plants ____Scrub/shrub (areas where shrubs have >30% cover) X Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ____The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 Map of Cowardin vegetation classes	1
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure** ___
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) X Permanently flooded or inundated X Seasonally flooded or inundated ____Occasionally flooded or inundated X Saturated only ____ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ ***Lake-fringe wetland* = 2 points** ____ ***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 3 types present points = 2 2 types present point = 1 1 type present points = 0 Map of hydroperiods	2
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft². *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: ≥ 19 species points = 2 *List species below if you want to:* 5 - 19 species points = 1 < 5 species points = 0	2

Total for page 5

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

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

Figure ___



1

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

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

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

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

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

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

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

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

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

1

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

7

Comments

H 2. Does the wetland unit have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see p. 80)*

Figure 4

Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."

- [redacted]00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5**
- [redacted]00 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4**
- [redacted]0 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4**
- [redacted]00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3**
- [redacted]0 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3**

If buffer does not meet any of the criteria above

- [redacted]o paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**
- [redacted]o paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** 2
- [redacted]eavy grazing in buffer. **Points = 1**
- [redacted]egetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.**
- [redacted]uffer does not meet any of the criteria above. **Points = 1**

Aerial photo showing buffers

H 2.2 Corridors and Connections *(see p. 81)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*).

YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2

H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? 1

YES = **2 points** (*go to H 2.3*) NO = H 2.2.3

H 2.2.3 Is the wetland:

within 5 mi (8km) of a brackish or salt water estuary OR
within 3 mi of a large field or pasture (>40 acres) OR
within 1-mi of a lake greater than 20 acres?

YES = **1 point** NO = **0 points**

Total for page 3

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report)***

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile. BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	13