Wetland Delineation Report for Meydenbauer Bay Park and Land Use Plan

Prepared for:

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ACRONYMS AND ABBREVIATIONS

| - | negative |
|---------|--|
| + | positive |
| BMC | Bellevue Municipal Code |
| CWA | Clean Water Act |
| Ecology | Washington State Department of Ecology |
| EUB | estuarine unconsolidated bottom |
| FAC | Facultative |
| FACU | Facultative Upland |
| FACW | Facultative Wetland |
| GIS | geographic information system |
| HGM | Hydrogeomorphic |
| LUC | City of Bellevue Land Use Code |
| NI | No Indicator |
| NL | Not Listed |
| NRCS | Natural Resources Conservation Service |
| NWS | National Weather Service |
| OBL | Obligate |
| OHWM | ordinary high water mark |
| PDD | palustrine drainage ditches |
| PEM | palustrine emergent wetlands |
| RD | riparian deciduous forest |
| SEPA | State Environmental Protection Act |
| UD | deciduous forest |
| UG | upland grass |
| UMDC | mixed deciduous -conifer forest |
| UPL | Obligate Upland |
| US | upland shrub |
| USACE | U.S. Army Corps of Engineers |
| USGS | U.S. Geological Survey |
| WAU | Wetlands Assessment Unit |
| WDFW | Washington State Department of Fish and Wildlife |

Meydenbauer Bay Park and Land Use Plan: Wetland Delineation Report Acronyms and Abbreviations

EXECUTIVE SUMMARY

Meydenbauer Beach Park (the park) is a 2.85 acre local waterfront park on the west side of Bellevue, Washington containing a steep, forested ravine that slopes west to an armored shoreline, grass lawn near-shore area, and small sand swimming beach. The City of Bellevue (Bellevue) owns the park and has purchased additional property adjacent to the park, with the intention of implementing a master plan for a new waterfront park. Goals for the Meydenbauer Bay Park and Land Use Plan (the plan) include better utilization of the unique natural setting of the park for both people and ecological function. The wetland delineation report will inform the design and discussion of how best to integrate the goals for the future of the park and to ensure that wetland resources are included early in the design and planning process.

Based on data collected according to regulatory guidelines, three small wetlands were delineated within the park boundary. All three wetlands are within 100 feet of the Meydenbauer Bay shoreline, and in close proximity to one another. The combined wetland area is approximately 1,976 square feet, and all wetlands are dominated by herbaceous vegetation. A wetland rating was performed using the Wetland Rating System for Western Washington, Revised (Hruby 2004). Results of the rating exercise indicate that the wetlands are a mosaic, and should be considered a single Category IV wetland unit, the lowest of the four wetland categories. Wetland buffers for a Category IV wetland within a City of Bellevue developed site are 40 feet (LUC 20.25H.095). Category IV wetlands and buffers may be altered under some circumstances, when appropriate mitigation and enhancement is implemented to ensure no habitat, water quality or hydrologic function is lost. These wetlands present substantial opportunities for enhancement of habitat, water quality and hydrologic functions.

In addition to wetlands, the park and adjacent lands contain a small historic stream under the paved access road, Shorelines of the State along Meydenbauer Bay, habitat associated with species of local importance critical areas, federally threatened fish species and the park supports state protected species such as bald eagles. The piped stream, under the paved park access road (TWC 2008), currently has no protection under Bellevue critical areas codes or Washington Department of Ecology (Ecology) regulations, however redesign of this feature may require local and state permits.

Meydenbauer Bay Park and Land Use Plan: Wetland Delineation Report Executive Summary Additional environmental permits that may be required for master plan implementation include:

- City of Bellevue Shoreline Substantial Development Permit
- City of Bellevue Shoreline Conditional Use Permit
- City of Bellevue Critical Areas Land Use Permit (s) for alteration of a shoreline critical area, alteration of habitat associated with species of local importance critical area, and or alteration of wetlands and wetlands buffers critical areas, including monitoring and mitigation plans.
- State Environmental Protection Act (SEPA) Checklist
- State Dept. of Fish and Wildlife Hydraulic Project Approval to restore historic stream flow
- State Dept. of Ecology Section 401 permit for projects needing fill or excavation in state waters
- National Pollution Discharge Elimination System (NPDES) Storm-water Construction and Municipal Compliance permits
- U.S. Army Corps of Engineers Section 10 compliance for work in, over or under navigable waters of the United States
- U.S. Army Corps of Engineers Section 404, Clean Water Act compliance, for projects requiring discharge of fill or dredge in Water of the United States
- U.S. Fish and Wildlife Service/ National Marine Fisheries Service Biological Assessment due to the presence of Threatened Fish Species under the Endangered Species Act. (Chinook, bull trout, and steelhead).

Primary opportunities for enhancement of the park's ecological features include reduction of invasive plant species, enhancement of native forest tree, shrub and groundcover species, reduction of impervious surfaces, and enhancement of wetlands. through stewardship of natural vegetation, topography and hydrology. Additionally, the shoreline armoring substantially limits natural vegetation, sediment and nutrient transport, and habitat for fish and other animals. Removal of the armoring and development of a vegetated shoreline with native plant species would improve the condition of fish and wildlife habitat. Finally, the piped stream under the park access road presents an opportunity to restore an historic riparian feature in the park. Daylighting of the stream would improve riparian and aquatic habitat and provide environmental education opportunities. Wetlands, shorelines, wildlife habitat, and the historic stream are being considered throughout the design and planning process; these elements are discussed in detail in the Baseline Habitat and Vegetation Functional Analysis (EDAW 2008).

Meydenbauer Bay Park and Land Use Plan: Wetland Delineation Report Executive Summary

1.0 INTRODUCTION AND DESCRIPTION OF GENERAL SITE CONDITIONS

1.1 Project Description

The Meydenbauer Bay Park and Land Use Plan (the plan) is designed to incorporate scientific data, stakeholder input, and urban recreational values into an integrated and creative design for land use within and around Meydenbauer Beach Park (the park). Early planning stages of the master plan identified a broad set of goals, including the desire for ecological sustainability within the park and better stewardship of the urban waterfront. This wetland delineation report was performed to identify and characterize wetland resources within the area affected by the Meydenbauer Bay Park and Land Use Plan, and to ensure compliance with local, state and federal regulations.

Wetland data were collected on June 6, 2008, and June 27, 2008. Functions and values of the identified wetlands will be incorporated in the new design of the park. Currently, the park is primarily used as a recreational beach site, including a grass lawn and a sand beach swimming area. The wetland delineation report may help guide development of specific ecological and recreational goals, and allow for identification of wetland resources to be integrated at each level of the planning process.

1.2 Project Area

The project area is located on the central shoreline of Meydenbauer Bay, on the eastern shore of Lake Washington, between the city of Medina and the downtown core of the City of Bellevue (Bellevue), Washington. The project study area includes the current site of Meydenbauer Beach Park, all single family properties adjacent to the park west of Lake Washington Boulevard and north of 99th Avenue NE; the Bellevue Marina at Meydenbauer Bay (the marina); and properties falling north of Meydenbauer Way SE, Northwest of 101st Avenue Southeast, west of Northeast 1st Street and south of 99th Avenue northeast until it meets Lake Washington Boulevard, as depicted in Figure 1.2-1. City owned properties include the park, the marina, nine single-family homes south of the park, two duplexes, and two apartment parcels containing the Bayvue Village Apartments, and two street rights-of-way that end at the lake shore. Additionally, the project study area includes parcels not owned by the city in order to evaluate critical areas and potential corridors to connect the park, the shoreline, and uplands. Properties within the study area were evaluated for wetlands and other critical areas to ensure complete information availability at the planning and discussion stages.

Large trees and native vegetation within the study area are primarily located within the park and adjacent single family homes on the north side of the study area. Significant tree cover is present only on the north side of the project area due to the dominance of impervious surface and concentrated urban land use in the south portion of the study area.





The study area slopes generally west toward the lake, with steeper slopes along 98th Place NE and on properties north of 99th Avenue NE. Urban land uses have altered the topography of the study area. South of the study area, at the southern portion of Meydenbauer Bay, is a wetland of over three acres adjacent to Meydenbauer Creek. Topography generally slopes west towards the bay and gently south towards the creek in the southern portion of the site. Surface water flows were likely more common historically before the installation of storm sewers to divert flows, and impervious surfaces leading to greater run-off. Portions of Meydenbauer Creek are piped, and some water inputs that would drain to the creek have been diverted directly to Meydenbauer Bay (Entranco 1998) to alleviate flooding in the creek. Topography of the study area is shown in Figure 1.2-2.

The climate of Western Washington, including the City of Bellevue and Meydenbauer Bay, is dominated by maritime influences, with mild temperatures and moderately high precipitation. Winter daily lows average in the mid 30s (Fahrenheit), with the coldest months from December through February. Summer average daily high temperatures are in the high 70s to low 80s in July and August. Precipitation is approximately 36 inches per year, with 2/3 of that falling between November 1 and March 15 (WRCC 2006). Meydenbauer Beach Park and the study area may have a wider temperature, humidity and precipitation range due to the lakefront location, steep topography, and western aspect.

2.0 METHODOLOGY

2.1 Determination of Potential USACE Jurisdictional Wetlands and Other Waters of the U.S.

Field wetland delineations were completed according to state and federal standard methods and procedures to objectively evaluate physical and biological features for wetlands. Wetlands are defined as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (EPA, 40 CFR 230.3; CE, 33 CFR 328.3)

2.1.1 Field Delineation Methods for USACE Jurisdictional Wetlands

Methods used during the wetland delineation to evaluate hydrophytic vegetation, hydric soils, and wetland hydrology criteria follow those of the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory 1987), the Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (the Regional Supplement) (USACE 2008) and the Washington State Wetlands Identification and Delineation Manual (Ecology 1997), and are described below.

Determination of Hydrophytic Vegetation

Potential wetland sites are considered to have positive indicators of hydrophytic vegetation if greater than 50% of the dominant plant species include FAC, FAC+, FACW, or OBL species (Reed 1988). Most plant species have been given a wetland indicator status, a rating that indicates the probability that a particular plant species will occur in a wetland. Indicator status categories are defined as follows (Reed 1988):

- Obligate (OBL) almost always occurs in wetlands (>99% probability of occurring in wetlands);
- Facultative Wetland (FACW) usually occurs in wetlands (67-99% probability of occurrence in wetlands);
- Facultative (FAC) equally likely to occur in wetlands or non-wetlands (34-66% of occurrence in wetlands);
- Facultative Upland (FACU) usually occurs in non-wetlands, but occasionally occurs in wetlands (1-33% of occurrence in wetlands);
- Obligate Upland (UPL) almost never occurs in wetlands (1% probability of occurrence in wetlands), and
- ▶ No Indicator (NI) no status assigned because information is lacking.

A positive (+) or negative (-) sign in the regional plant indicator status list is used to define the regional frequency of occurrence in wetlands. The positive sign indicates that a facultative plant is more frequently found in wetlands (FAC+), and a negative sign

indicates that a facultative plant is less frequently found in wetlands (FAC-). However, the USACE's Interim Regional Supplement, Western Mountains, Valleys, and Coast Region, gives equal weight to all FAC designated species (USACE 2008), regardless of -/+ sign. Therefore, all species in this report listed as FAC-, FAC, and FAC+ plants are treated as FAC species. Sampling locations, also known as data points, were considered dominated by hydrophytic vegetation if the percentage of hydrophytic species was greater than 50 percent. Species observed within the study area that are not listed on the wetland indicator species list are designated as "NL." Species designated as NI (No Indicator) or NL are not considered hydrophytic.

Determination of Hydric Soils

Soil survey information was reviewed for the Meydenbauer Bay Park and Land Use Plan study area. Soils were evaluated in the field using the Munsell soil color chart, hand texturing, and an assessment of diagnostic hydric soil features (e.g., redoximorphic features, oxidized root channels, reduced matrix, etc.). In most cases, the following indicators were used to determine the presence of hydric soils in the study area:

- soil indications of saturation for extended periods of time during the growing season, such as mottles or concretions
- aquic moisture regime; and/or
- positive indicators of anaerobic activity, such as oxidized root channels or sulfidic odor.

Determination of Wetland Hydrology

Wetland hydrology is typically determined to be present if a site exhibits one or more of the following characteristics:

- landscape position and surface topography typical of wetlands (e.g., position of the site relative to an upslope water source, location within a distinct wetland drainage pattern, and concave surface topography);
- inundation or saturation for long durations (either inferred based on field indicators or observed during field surveys during the growing season); and
- residual evidence of ponding or flooding (e.g., scour marks, sediment deposits, algal matting, and drift lines).

Long duration is defined by the Natural Resources Conservation Service (NRCS) as inundation from a single event in which the inundation ranges from 7 days to 1 month. The presence of water for one week or more during the growing season typically creates anaerobic conditions in the soil, and these conditions limit the types of plants that can grow in soils that develop under oxygen depleted conditions.

As additional guidance to determine the period of inundation or saturation required to meet the wetland hydrology criteria, the 1987 USACE Wetland Delineation Manual modified their hydrological classification system for non-tidal areas based on periods of inundation or soil saturation. According to this classification system, areas that are inundated for less than 5% of the growing season are not considered wetlands. Areas

that are regularly inundated or saturated between 5% and 12.5% of the growing season may or may not be wetlands. For this wetland delineation, wetland hydrology was inferred due to saturated soils and landscape position of the site relative to an upslope water source. All data points where hydrology was inferred had positive indicators of hydrophytic vegetation and hydric soils.

2.1.2 Field Delineation Methods for Other Waters of the U.S.

Waters of the United States encountered in the study area also include the Meydenbauer Bay shoreline and a small seep water feature. The full length of the shoreline in the study area is armored, and the Ordinary High Water Mark (OHWM) was determined to be at the horizontal mid-point of the armoring. A single water feature was identified seventy-five feet northeast of the east edge of the wetlands along the property line of two single-family properties. The feature lacks a defined bed or bank and is absent any presence of an Ordinary High Water Mark (OHWM), although it flows into a small grate with a buried outflow pipe four inches under the soil surface. The feature appears to be draining upslope grass lawn areas with the water source coming from precipitation sheet flow. The grate and underground pipe were likely installed by the previous property owners to assist in moving water down slope during storm events. This feature is discussed in Section 3.3 and 3.4.2. Wetland ecologists collected the following information concerning this water feature:

- ► designation as an ephemeral, intermittent or perennial water feature
- dominant plant species within bed and bank and adjacent to the drainage;
- hydrological connection (direct, or indirect via another tributary) to a navigable waterway, waterbody with interstate commerce use(s), or other potential USACEjurisdictional feature; and
- presence of adjacent jurisdictional wetlands or other sensitive resources, such as riparian habitat.

2.2 Wetland Classification

The Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et. al. 1979) was used to classify and map wetland habitats in the study area. This classification system defines wetland habitats based on hydrophytic plants, hydric soils, and frequency of flooding; the document also includes classification for deepwater habitats that often do not support hydrophytic vegetation. The classification hierarchy consists of Systems, Subsystems, Classes, Subclasses, Dominance Types and various modifiers to describe more specific attributes of related hydrology, soils and vegetation. Wetland habitats in this report are mapped to the Class level of the Cowardin classification system. System is the highest level of the classification hierarchy, and is based on the water source: Marine, Estuarine, Riverine, Lacustrine and Palustrine. Of these, Palustrine and Lacustrine wetlands are present in the study area.

Palustrine System - The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents and emergent mosses or lichens. Palustrine habitats occur in tidal areas only when water salinity is <0.5%. In the absence of vegetation cover, a palustrine habitat must meet the following four conditions: 1) area less than 20 acres, 2) active wave-formed or bedrock shoreline features lacking, 3) water depth in the deepest part of basin less than 2 m at low water, and 4), salinity due to ocean-derived salts less than 0.5%. There are no subsystem levels within Palustrine Systems. One Palustrine Class is present in the study area: Emergent Wetland.

The Class-level characteristics of emergent Palustrine wetlands include a vegetated substrate dominated entirely by emergent herbaceous angiosperms.

Lacustrine System – The Lacustrine System includes wetlands and deepwater habitats with all of the three following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30 percent aerial coverage; and (3) the total area exceeds 20 acres. Similar wetland and deepwater habitats totaling less than 20 acres are also included in the Lacustrine System if an active wave formed or bedrock shoreline feature makes up all or part of the boundary or if the water depth in the deepest part of the lake exceeds 6.6 feet at low water. Lacustrine waters may be tidal or nontidal, provided that ocean-derived salinity is less than 0.5 %. The boundary between wetland and deepwater habitats lies at a depth of 6.6 feet below water; however, if emergents, shrubs, or trees grow beyond this depth, their deepwater edge is the boundary. (Cowardin et al. 1979) Lacustrine limnetic habitats (L1 on NWI maps) are classified as deepwater, while Lacustrine littoral habitats (L2 on NWI maps) are wetlands.

The upland habitats in the study area follow no published vegetation classification. Descriptions of upland habitat types are based on the dominant, tallest vegetation layer that also exceeds 10% aerial cover (e.g. herb, shrub and tree layer). Urban and residential areas are also depicted within the study area. The upland vegetation types and wetland are described in Section 3.4.1.

2.3 Review of Existing Information

The pre-field investigation consisted of a review of existing information and determination of requirements for the field survey. Prior to the initiation of the field survey, EDAW wetland specialists reviewed the following sources of information:

- ▶ U.S. Geological Survey (USGS) Mercer Island 7.5-minute topographic map;
- NRCS King County soil survey (1979);
- ► Aerial photography (1920's era, 1936 and 2005)
- NWI Wetlands Inventory Mapping; and
- GIS hydrography layer
- King County iMap sensitive areas and property information GIS layers

2.4 Field Investigation

EDAW wetland specialists performed the wetland delineation in late spring of 2008. The field delineation was conducted on June 6th, and additional site information was gathered on June 27th. The purpose of this investigation was to identify, delineate, and map USACE jurisdictional wetlands and waters of the United States.

2.4.1 Wetland Delineation

Initial reconnaissance was conducted throughout the study area to determine areas for focus of data collection. Suspected areas of possible wetlands were examined for positive hydrologic indicators, through examination of surface soils and dominant plants. Suspect areas were the near-shore of the lake within 50 feet of the OHWM, the break-in-slope in areas of steeper topography, and any areas with plant species known to be hydrophytic or facultative, including grass lawns and patches of Himalayan blackberry (*Rubus armeniacus*). On the date of the wetland delineation, 0.36 inches of rain was recorded (NWS 2008) and delineations were performed in wet conditions.

Due to the frequent use of the park and the location of the wetland areas within grass lawns on occupied single-family properties along the waterfront, wetland boundaries were not marked in the field. Wetland data points and wetland boundary points were collected with a Trimble GeoXH hand held unit, capable of sub-meter point location accuracy.

Soils were assessed by digging soils pits with a shovel to a depth of 20 inches or greater, and evaluated for the presence of positive hydric indicators. Vegetation was assessed through thorough plant species identification, and hydrology was evaluated based on topography, soil saturation indicators, and observation of signs of water.

Wetland delineation data forms were completed in the field to provide contrasting data, i.e. wetland data points and closely adjacent upland or non-wetland sites were sampled to provide paired data for each wetland identified. The wetland and upland data were used to compare soils, vegetation, and hydrology between wetland and upland sites and to determine wetland boundaries. The three wetland criteria were assessed using the Regional Supplement (USACE 2008.). All wetland delineation data forms completed for the study area are included in Appendix B. Digital photographs were taken of all potential jurisdictional features and at representative upland locations (Appendix C).

Soils, hydrology and vegetation data meeting hydrophytic wetland criteria in the study area are discussed in Section 3.0, Results.

2.4.2 Wetland Boundary Determinations, Mapping and Acreage Calculations

The wetland-upland boundary was determined based on the presence of positive indicators of all three mandatory criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Wetland boundaries were identified in the field, however due to the park and single-family waterfront homes on the site, and the potential for sensitivity to

aesthetics, wetland boundaries were delineated directly into a handheld GPS unit and digitized into a wetland map. The wetland polygons were digitized using ArcMap 7.0 software based on field mapped data points, and finalized in ArcGIS 9.2. Wetland areas were derived through a direct calculation of the geographic information system (GIS) polygon area attributes.

2.5 Wetland Rating System

The Washington State Wetland Rating System for Western Washington, revised (the Ecology rating system) (Hruby 2004) was applied as the method of functional assessment for wetlands delineated in the study area. Wetlands are rated on the basis of their functions for three ecological services: habitat function, water quality function and hydrologic function.

2.5.1 Washington State Wetland Rating System for Western Washington

The Ecology rating system is designed to differentiate between wetlands based on specific attributes such as rarity, sensitivity to disturbance, ecological function, and our ability to replace these functions and values if the wetland structure were to be altered or compromised. The system is based on the Hydrogeomorphic (HGM) classification system (as opposed to the Cowardin classification system).

Characteristics of the classification system consider the water quality functions, hydrological functions, and habitat functions of a site. The system uses a standardized form (Version 2 – Updated July 2006) and series of questions about the hydrogeomorphic class, the potential and opportunity for the wetland to improve water quality and hydrologic functions, and the habitat structure of the wetland and adjacent landscape (Hruby 2004). Each wetland site is assigned a Category (I through IV) based on the total point score it receives for the series of questions.

Category I Wetlands are those that 1) represent a unique or rare wetland type; or 2) are more sensitive to disturbance than most wetlands; or 3) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or 4) provide a high level of functions. These include relatively undisturbed estuarine wetlands larger than one acre; Natural Heritage Wetlands (wetlands identified by scientists of the Washington Department of Natural Resources, Natural Heritage Program as high quality, relatively undisturbed wetlands, or wetlands that support State listed threatened, endangered, or sensitive plants; bogs; mature and old-growth forested wetlands over one acre in size; wetlands in coastal lagoons; and wetlands that perform many functions very well (wetlands scoring 70 points or more on the questions related to functions).

Category II Wetlands are difficult, though not impossible, to replace, and provide high levels of some or all functions. These include estuarine wetlands smaller than one acre, or those that are disturbed and larger than one acre; interdunal wetlands greater than one acre; and wetlands that are providing high levels of water quality, hydrologic and/or habitat functions (score between 51-69 points on the questions related to functions).

Category III Wetlands are wetlands that provide a moderate level of function for water quality, hydrology and/ or habitat (scores between 30-50 points). Interdunal wetlands between 0.1 and one acre in size are also Category III wetlands.

Category IV Wetlands have the lowest level of functions (scores less than 30 points) and are often heavily disturbed. These are wetlands that are potentially replaceable, and in some cases, have the potential to be enhanced. Many wetlands in urban and suburban areas fall into this category.

2.5.2 Determination of Wetland Assessment Units

For purposes of the rating system, where wetlands form large contiguous areas, Wetland Assessment Unit (WAU) boundaries may be set where natural or man-made features create an abrupt change in the volume, flow, or velocity of the water (Hruby 2004). Identified wetland features within the study area are small and relatively close in proximity, with no large scale changes in hydrology, soils, topography or man made features that warrant distinction between them. The WAU for this study is simply the wetland unit.

3.0 RESULTS

3.1 Summary of USACE Jurisdictional Features

A single 1,976 square foot potential USACE jurisdictional waters of the United States was delineated in the study area. The wetland habitat consists of a three smaller mosaic wetland units, mapped as wetland 1, wetland 2 and wetland 3. These wetland units are all of a single vegetation type, and are typical of disturbed urban wetlands in maintained lawns and of wetlands at the break in slope near a lake front. The entire wetland unit, Wetland A is an emergent wetland with both Palustrine and Lacustrine sources of hydrology, with mainly Palustrine in-flows in wetland 1, and Lacustrine inflows in wetlands 2 and 3. Wetland A has a clear hydrologic connection to Meydenbauer Bay, a feature that the USACE regulates under Section 404 of the Clean Water Act (CWA). The Meydenbauer Bay/ Lake Washington OHWM (Shoreline of the State) was digitized along the armored edge throughout the study area, and the OHWM also is the western delineated edge of wetlands 2 and 3 within Wetland A.

Additionally, a wet slope of less than 10 square feet was identified 75 feet NE of the eastern portion of the wetland unit. This water feature lacks surface water connections to any identified wetlands or to Meydenbauer Bay, does not exhibit an OHWM, and is lacking vegetation. The drainage feature is below minimum size thresholds for wetlands regulations under the City of Bellevue Critical areas code (LUC 20. 25H.095). Upland habitats in the study area include approximately 1.2 acres of contiguous canopy urban forest, and 31.8 acres of disturbed urban residential lands, including landscaped grass lawns.

Field data were collected at eight sample point locations to describe soils, hydrology, and habitat types in the study area. The results are presented below in Sections 3.2 through 3.4. Figure 3.1-1 shows the three small wetlands that form a single mosaic wetland rating unit, Wetland A, as well as all data point locations, and illustrates the applicable buffer under Bellevue's critical areas code.

The following narrative provides a description of the soils, vegetation, and hydrology of the jurisdictional wetland identified during the field investigations and as mapped on Figure 3.1-1.



3.2 Wetland A

Soils

Two soil types are mapped in the study area by the Natural Resources Conservation Service (NRCS) *Soil Survey for King County* (SCS 1973). Alderwood gravelly sandy loams, 15-30% slopes, are mapped on about 13 acres of the study site, extending from the park access road at 98th Place NE west and south along the shoreline, and extending slightly into Meydenbauer Bay (SCS 1973). Arents, Alderwood material, 6-15% slopes are mapped on approximately 20 acres of the study site, primarily in the upland areas, beginning about 150 feet east of the Meydenbauer Bay shoreline.

Arents, Alderwood material, are moderately well drained Alderwood type soils that have been disturbed through agricultural or other land use practices, and have lost their natural profile and some of their distinguishing characteristics (SCS 1973). Alderwood sandy gravelly loams are moderately well drained, soils underlain by consolidated glacial till at 24 to 40 inches (SCS 1973). Neither of these soils is on the National Hydric Soils List for Washington State (NRCS 2007b). Both soil types typically can be described as brown to dark brown gravelly sandy loam. Of the eight soil pits dug over the site, five had positive indicators for hydric soils, although data points one and two met the criteria for hydric soils based on color alone. The color of surface soils may have been altered by historic or current agricultural or maintenance practices.

Hydrology

Sources of hydrology include upland sub-surface sheet flowing west toward the breakin-slope at the eastern edge of wetland 1. Soils are saturated primarily from upland flow, however winter storms and seasonal variation in Lake Washington water levels may contribute occasionally to shallow groundwater associated with the lake-fringe reaching the eastern most unit of wetland 1. Wetland 2 and wetland 3 derive hydrology primarily from the shallow water table associated with the lake-fringe of Meydenbauer Bay, however surface flow was readily observed entering from the east in areas where soils are dominated by large rock and cobble, and interstitial spaces are large enough to observe slow, thin flows. Of the eight data points taken within the study area, only three data points met the criteria for wetland hydrology. Each of the data points that met the criteria for wetland hydrology are in Wetland A.

Vegetation

Vegetation at the sample locations within the study area are dominated by highly adaptable vegetation, including several grass species common in western Washington, and other adaptable plants such as common rush (*Juncus effusus*, FACW) and creeping buttercup (*Ranunculus repens*, FACW). Only two sample locations did not meet the criteria for hydrophytic vegetation, data points one and five. Vegetation over the entire study area is simplified, due to the dominant urban and residential land uses, and maintenance of the park as a recreational waterfront with expanses of grass lawn. Wetland A has only one vegetative layer, the herbaceous layer, and is substantially simplified due to maintenance as a landscaped lawn area.

3.3 Wetland rating

Wetland A was rated a Category IV wetland with an overall score of 23 points for all functions using the Ecology rating system (Hruby 2004). EDAW ecologists gave the wetland a score of eight points for water quality functions, four points for hydrologic functions, and 11 points for habitat functions, mainly due to the wetland's location adjacent to Meydenbauer Bay.

3.3.1 Determination of HGM Classes

Two hydrogeomorphic wetland classes are present within the wetland unit, slope and lake fringe. The slope wetland class describes wetlands whose water source flows in one direction through the wetland unit and leaves the wetland without being impounded. Lake fringe wetlands describe those wetlands on the shores of a body of water greater than 20 acres in size and 6.6 feet deep (Hruby 2004). Each of the characteristics is present in Wetland A.

3.3.3 Wetland assessment units and rating

Wetland A is the only wetland assessment unit within the study area. Wetland A is a small mosaic palustrine emergent and lacustrine emergent wetland in a maintained grass lawn adjacent to the Meydenbauer Bay shoreline. The overall topography slopes (1 – 3% slopes) from east to west, becoming gentler westward toward the shoreline. Wetland A was rated using the lake-fringe HGM class in the Ecology rating form due to the dominance of the lake fringe ecology over both the site and the characteristics of the wetland. Wetland A receives its water approximately equally from the precipitation fed sheet flow from upslope, and the shallow groundwater table associated with the Meydenbauer Bay. Water typically flows east to west through the wetland, and the area contains characteristics of slope and lake-fringe HGM classes in approximately equal proportion. Since slope wetlands are common and often form a component of other wetland types, and each HGM class is approximately equally represented, Wetland A was assigned a lake-fringe HGM class for the purposes of the rating system.

Wetland A

Wetland A is an Ecology **Category IV** wetland, with an overall score of 23 points and relatively low scores for all functions, including water quality, hydrology, and habitat (Appendix E). The following is a summary of wetland functions for Wetland A.

Functions

Flood Flow Alteration – Wetland A is small and provides a relatively low level of flood flow attenuation due to low microtopography, maintained urban vegetation, and an armored shoreline, preventing hydrologic and vegetative connectivity with the shoreline. The surface water flows that reach Wetland A are small in volume, though it is providing benefits on the small scale of its size.

Sediment Removal – Wetland A provides a relatively low level of sediment removal as it receives much of its water from the shallow water table associated with the lakes, and lacks the microtopography and dense vegetation that would assist in sediment trapping.

Nutrient and Toxicant Removal – Wetland A is providing some nutrient and toxicant removal through the grasses and other emergent vegetation dominating the wetland unit, however it is likely not taking up the levels of nutrients toxicants that would typically be in urban and suburban run-off and sheet flows due to typical maintenance practices, including application of fertilizers and pesticides.

Erosion Control and Shoreline Stabilization – Wetland A likely has very minor effects in controlling erosion or run-off due to the lack of small depressions, woody vegetation or other features that would result in a higher residency times for peak flows and storm events.

Production of Organic Matter and its Export – Wetland A produces very little organic matter due to its maintenance as a landscaped area.

General Habitat Suitability – Wetland A provides very little habitat value. Wetland A provides no cover and very little plant diversity, and is in an exposed area with no woody debris and very little vegetation structure. No specific wildlife features are present in Wetland A.

Habitat for Aquatic Invertebrates – Wetland A provides very little high quality aquatic invertebrate habitat due to the lack of seasonal or permanent water over the area. Habitat for Amphibians – Wetland A provides no amphibian habitat due to the lack of vegetation along the lacustrine portion of the wetland, and no seasonal or permanent water in the palustrine portion of the wetland. However, there are other wetlands within 0.5 mile that may support amphibian breeding and/or seasonal use, most notably south of the study area, near Meydenbauer Creek.

Habitat for Wetland-Associated Mammals – Wetland A provides very little habitat for wetland associated mammals due to the shoreline armoring and lack of vegetative cover along the shoreline or within the wetland.

Habitat for Wetland-Associated Birds – Wetland A provides no habitat for wetland associated birds or waterfowl, although these animals may occasionally use Meydenbauer Bay.

General Fish Habitat – Wetland A does not provide fish habitat due to lack of permanent water, although Meydenbauer Bay is home to many species of fish, including federally threatened Chinook salmon, steelhead, and bull trout.

Native Plant Richness – Wetland A provides a very low level of native plant richness. Wetland A is primarily grasses and common species, including some contains a variety of plant assemblages has a high number of native plant species. However, greater than 50% of the WAU is comprised of mowed grass fields with a large proportion of nonnative grass species. The WAU includes some mature trees, but contains no bog areas. **Educational or Scientific Value** – WAU 1 does not have educational or scientific value.

Uniqueness or Heritage – Wetland A does not provide uniqueness or heritage value.

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APPENDIX A

Historical Aerial Photography



Appendix A. Historical Aerial Photographs Meydenbauer Bay Park and Land Use Plan

Meydenbauer Bay 1936, Courtesy King County GIS, with Current Parcels



Meydenbauer Bay 1936, Courtesy King County GIS, without current parcels

APPENDIX B

Wetland Determination Data Forms

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

| Project/Site: Meydenbaur | City/County: | King Co. | _ Sampling Date: 6-6-08 |
|---|-----------------------|------------------------------|-----------------------------|
| Applicant/Owner: Bellevue | | State: <u></u> | Sampling Point: <u>MS I</u> |
| Investigator(s): Howard, Dwer/Kotte | Section, Tow | nship, Range: | |
| Landform (hillslope, terrace, etc.): | Local relief (| concave, convex, none): | Slope (%): |
| Subregion (LRR): | Lət: | Long: | Datum: |
| Soll Map Unit Name: | | NWI classit | fication: |
| Are climatic / hydrologic conditions on the site typical for this | time of year? Yes | No (If no, explain in | Remarks.) |
| Are Vegetation, Soil, or Hydrology sig | nificantly disturbed? | Are "Normal Circumstances" | present? Yes No |
| Are Vegetation, Soil, or Hydrology na | turally problematic? | (If needed, explain any answ | vers in Remarks.) |
| | | فيستحصنها والافقا والالافة | |

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

| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes No Yes No Yes No | is the Sampled Area within a Wetland? | Yes No |
|---|----------------------------|--|--------|
| Remarks: Fourie descursion | a dealle a test f | | |

dominance o reclatence to 37 101 VCS

VEGETATION – Use scientific names of plants.

| 73"2.6h | Tree Stratum (Plot size:) 1 | Absolute % Cover | Dominant Indicator Species? Status FACU FACU | Dominance Test worksheet: Number of Dominant Species |
|---------|---------------------------------------|---|---|--|
| | 3. Catalipa ? Lis (ladsonge) 4. | | | Species Across All Strata: (B) |
| | Sapting/Shrub Stratum (Plot size:) | | = Total Cover | That Are OBL, FACW, or FAC: (A/B) |
| 3" 264 | 1. Hydrangea landscape | 2 | X FACU | Total % Cover of: Multiply by: |
| ٤ | 3. Acer macrophyllum | 5 | X FACU | OBL species $x_1 = 0$ FACW species $x_2 = 2$ |
| | 5 | | | FAC species 5 $x3 = 15$ |
| | Herb Stratum (Plot size: 20 dia) | 12 | _= Total Cover | FACU species 73 $x4 = 63$ UPL species 2 $x5 = 75$ |
| | 1. Juncus tenus 2. Correx auregana | | X EACU | Column Totals: 27 (A) 77 (B) 3.67 |
| | 3. Crevanium volaert | <u> 12 </u> | X FAC | Prevalence Index = B/A = Hydrophytic Vegetation Indicators: |
| | 5. Polystichum munitum (som landscope | <u> </u> | X FALL | $\frac{N}{N}$ Dominance Test is >50% $\frac{N}{N}$ Prevalence Index is $\leq 3.0^{1}$ |
| | 6 7 | | | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| | 8 | ····· | | Wetland Non-Vascular Plants ¹ |
| | 10 | | | ¹ Indicators of hydric soil and wetland hydrology must |
| | Woody Vine Stratum (Plot size:) | 26 | _= Total Cover | |
| | 1. Hedera hebx | 80 | <u>NL</u> | Hydrophytic Vegetation |
| | 2 | 80 | _= Total Cover | Present? Yes No A |
| | Remarks: Try dominates Seeply Spot | g and | scape plan is | along trail * |

US Army Corps of Engineers

SOIL

| Profile Description: (Describe to the dep | | |
|--|---|---|
| | oth needed to document the indicator or confirm | the absence of indicators.) |
| Depth Matrix | Redox Features | |
| incries) <u>Color (moist)</u> <u>%</u> | Color (moist) % Type' Loc' | Parilly + smooth |
| 10 4-10 10 VIC 172 100 | ······ | Variable depth, likely disticul |
| 10 10 20 2.57 5/1 100 | 5724/6 3-5 | than smooth report distinct patched |
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| ype: C=Concentration, D=Depletion, RM | =Reduced Matrix, CS=Covered or Coated Sand Gr | ains, ² Location: PL=Pore Lining, M=Matrix, |
| ydric Soil Indicators: (Applicable to all | LRRs, unless otherwise noted.) | Indicators for Problematic Hydric Soils ³ : |
| _ Histosol (A1) No | Sandy Redox (S5) As | 2 cm Muck (A10) |
| Histic Epipedon (A2) No | Stripped Matrix (S6) 735 | Red Parent Material (TF2) |
| Hydrogen Sulfide (A4) Ath | Loamy Mucky Minerar (F1) (except MLRA 1) | Other (Explain in Remarks) |
| Depleted Below Dark Surface (A11) | Depleted Matrix (F3) | |
| _ Thick Dark Surface (A12) Ab | Redox Dark Surface (F6) | ³ Indicators of hydrophytic vegetation and |
| Sandy Mucky Mineral (S1) At a | Depleted Dark Surface (F7) | wetland hydrology must be present, |
| _ Sandy Gleyed Matrix (S4) | Redox Depressions (F8) | unless disturbed or problematic. |
| estrictive Layer (if present): | | |
| Туре: | <u></u> | |
| Depth (inches): | <u></u> | Hydric Soil Present? Yes No |
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| _ Surface Water (A1) _ High Water Table (A2) _ Saturation (A3) _ Water Marks (B1) Sediment Deposits (B2) | Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Satt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) | Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imageny (C9) |
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US Army Corps of Engineers

No.

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

| Project/Site: Meyden baner | _ City/County: Kinc | | Sampling Date: 15-08 |
|---|------------------------------|----------------------|----------------------------|
| Applicant/Owner: <u>Belleym</u> | | State: <u>WA</u> | Sampling Point: <u>MBQ</u> |
| Investigator(s): Haward, NurerlKotte | Section, Township, Range: | | |
| Landform (hillslope, terrace, etc.): | Local relief (concave, conve | ex, none): | Siope (%): |
| Subregion (LRR): Lat: | Lón | ġ; | Datum: |
| Soil Map Unit Name: | , | NWI classific | cation: |
| Are climatic / hydrologic conditions on the site typical for this time of | year? Yes No | (If no, explain in F | (emarks.) |
| Are Vegetation, Soil, or Hydrology significant | ly disturbed? Are "Norm | al Circumstances" | present? Yes No |
| Are Vegetation, Soil, or Hydrology naturally p | problematic? (If needed | , explain any answe | ers in Remarks.) |

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

| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes X Yes X Yes | No No No_X | Is the Sampled Area within a Wetland? | Yes | No |
|---|-----------------------|------------------|--|----------|--|
| Remarks: Soil in pit sca Water table assoc | turated w | , but likely d | y below) satur | iction 2 | in Full. No high one to 22" indepth |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size:) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL_EACW or EAC: 3 (A) |
|----------------------------------|---------------------|----------------------|---------------------|--|
| 2 3 | | | | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| 4 | | = Total Co | wer | Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B) |
| 1. Thuy's plicate | | <u> </u> | FAC | Prevalence Index worksheet: Total % Cover of: Multiply by: |
| 3. | , | · | · ······ | OBL species x1 = CACW/exercise x2 = |
| 4. | | | | FAC species X3 = |
| Herb Stratum (Pint size: 15 x15' | | = Total Co | ver | |
| 1. Tuncus elluous | 2 | | FALW | OPL species x o = Column Totals: (A) |
| 3 Epilopun tiliatum | | · | FACH | Prevalence Index = B/A = |
| 4 FAILARDIA AVVIENAL | | X | FAC. | Hydrophytic Vegetation Indicators: |
| 5. Conduct Annalis | | | FACW | ✓ Dominance Test is >50% |
| 6. Ranusseulas repens | 7.6 | X | FACW | Prevalence Index is ≤3.0 ¹ |
| 7 | | E | , | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 9 | | · '' | ·i | Wetland Non-Vascular Plants ¹ |
| 10. | | | | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 11. | | | | ¹ Indicators of hydric soil and wetland hydrology must |
| Woody Vine Stratum (Plateizer | 61 | = Total Co | ver | |
| 1. Hederahelix | <u> </u> | | NL | Hydrophytic Versetation |
| 2 | | = Total Co | ver | Present? Yes No |
| Remarks: | | | | |
| nonalto, | | | | |
| | | | | |

US Army Corps of Engineers

SOIL

Sampling Point MBL

| Depth | Matrix | | Red | lox Features | \$ | | | | | |
|--|--|-------------------------------|--|---|--|--|--|---|--|--|
| (inches) | Color (moist) | % | Color (moist) | % | Туре | Loc ² | Texture | | Remarks | |
| 2 K- 4-2" | 2.5 Y 3/1 | 100 | | | | | 1-2" grif | ų | | |
| -8-22" | 254 6/1 | 00 | 10YR 5/6 | 10-15% | · | | > 2" gritte | • | | |
| | | | | | | | 1007 01100 | | | |
| <u> </u> | | | | | | | | <u></u> | | |
| | | | <u></u> | | | | | <u></u> | | |
| | | | | <u> </u> | _ | | · | | | |
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| . <u></u> | | | | | | | | | - farthuman management and a start party of | |
| | | - | | | | | •••••••••• | | | |
| Type: C=Cor | centration, D=Dep | letion, RM | =Reduced Matrix, C | S=Covered | or Coate | ed Sand Gi | rains. | Location: PL | =Pore Lining, N | =Matrix. |
| lydric Soll In | dicators: (Applic | able to all | LRRs, unless oth | erwise note | ed.) | | Indic | ators for Pro | blematic Hydr | ic Solls": |
| Histosol (/ | A1)NO | | Sandy Redox | (S5) | | | | 2 cm Muck (A | 10) | |
| Histic Epi | pedon (A2) AV | | Stopped Matri | X (S6) | Variani | | I | Keo Parent M | aterial (1+2) | |
| Diack riisi | | | Loarny Mucky | Material (F1 Materix (E2) |) (ехсеря \ | (MERAI) | · • ` | Juei (cxhaii | in Remarks) | |
| Denleted | Balow Dark Surfac | e (A11) در | X Depleted Matr | iviaunx (FZ) |) | | | | | |
| Thick Dar | k Surface (A12) (| 2 2 | Redox Dark S | urface (F6) | | | ³ India | ators of hvdn | obylic vecetati | on and |
| Sandy Mu | icky Mineral (S1) | | Depleted Dark | (Surface (F | 7) | | W | etland hydrolc | gy must be pre | sent, |
| Sandy Glo | eyed Matrix (S4) | | Redox Depres | sions (F8) | - | | ័យវ | nless disturbe | d or problemati | |
| Restrictive La | yer (if present): | | | | | | | | | 5.4.4 |
| Type: | | | | | | | | | \mathbf{i} | |
| Depth (incl | ies): | | <u></u> | | | | Hydric S | ioli Present? | Yes 🔨 | No |
| Zamarive' | | | | | | | | | | |
| vermon and the | a barrisen | - rue al / tour | - x725-1 | | | | X- 52 | - do olet | I marri | i CS |
| Territorina. | p horizon ut | rad/lor | WWW. | | ~ . / | \sim | ¥F3 | - de plet | 2 matri | i wi in thick |
| vot All be | p horizon un | rallior | ion ver not dur | \$ | e L | \wedge | ¥F3 | - deplet roma < 1 b" start | with m | in thick |
| Not All be | p horizen un cause Surfe Not A12 bec | " Treat/lor ren lan | non per not dury Face lauge Va | o Jue | - | | ¥ F3 of | - de plet roma < 1 10" start 11 sur fo | I matri) 2 with mi ing with | k = 0 in thick in 10^{11} or |
| Not All be | p horizon un cause Surfe Not A 12 beca oc 1233 | re lan | ser not dui p face lauge Va | s Jue | s ¹⁷ 4 (| | ¥F3 of | - de plet noma c b" start il surfe | ed matri: 2 with mi ing with ee | in thick |
| Not All be | p horizon ut cause Surfe Not A12-bea or 10-51- | radillor ice tae | nom ser not du p ferentaye. Va | s Aue | e ¹¹ 4 (Con te | 15' Isnven Valty Dat | ¥ F3 of so | - deplet norma < 10" start il surfe | ed matri 2 with m ing with | in thick |
| Not All be | p horizon wh cause Surfe Not A12 bac oc less. Y ology Indicators: | " rad/lor ne lag | nom ser not der f feren leuge: Va | s tue | e 1. 2 (| 15' 13.400 V4 14. 200 | ¥F3 of so | - de plet roma < b" start il surfe | ed matri: 2 with m ing with ce | in thick |
| YDROLOG Wetland Hydr | p horizon uh causa Surfe Not A 12 bece ac bes s iy rology Indicators: tors (minimum of c | nce lay | non er not der fere legge Va d: check all that app | o due oly | 6550C | Is' Tanvin va hi vat | 4 F3 of 50 50 | - de plet roma < bill start il sur fe | ed matri: 2. with ming with ing with | (w) in thick in 10 ¹¹ of <u>e required</u>) |
| YDROLOG Wetland Hydr Surface W | p horizon uh causa Surfe Not A 12 bac ac lass rology Indicators: tors (minimum of c /ater (A1) | ne require | cron not der face lage Va d: check all that app Water-St | o due oly) ained Leave | canic (es (B9) (e | Is' Ianun vu hi Daf | A F B C F B | e de plet roma e b" start il sur se condary Indic Water-Stain | ed matri: 2. with ming with ing with ators (2 or mor ed Leaves (B9) | (س) ۱۳ ۲۲، ۲۲، ۲۲ ۱۳ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۱۰ (MLRA 1, 2 |
| YDROLOG Vetland Hydr Primary Indica — Surface W | Phorizan ut COMENENTS Not A 12-bec in tess iv pology Indicators: tors (minimum of c /ater (A1) or Table (A2) | ncu lag mgu suf | ter not der tere hoge va d: check all that app Water-St 1, 2, 4 | o Jue oly) ained Leave | eant cant es (B9) (e | Is' Tanun Whi Dof xcept MLI | * F 3 of 50 | econdary Indice Water-Stain 4A, and | ed matri 2. with m ing with ators (2 or mor ed Leaves (B9 4B) | (س) ۱۳ ۲۲،۵۷ ها ۱۳ ه <u>ا ۱۳</u> ها ۱۳ ها |
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| YDROLOG Vetland Hydr Primary Indica Surface W High Wate Saturation Water Mar | e herrizen ut course Surfa Not A 12 bac or less if ology Indicators: tors (minimum of a /ater (A1) or Table (A2) +(A3) | nce la me se | d: check all that app | bly) ained Leave IA, and 4B) it (B11) nvertebrates | cerric (es (B9) (e s (B13) | Isaven Isaven ve bi Jort | KA Se | eondary India Water-Stain 4A, and Drainage Pi Dry-Season | ators (2 or mor ed Leaves (B9 4B) Water Table (| (w) in thick in 10 ¹¹ e ¹ e required) (MLRA 1, 2 22) |
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| Vetland Hydr Primary Indica | Course Surfie Not A12 bick ology Indicators: tors (minimum of c /ater (A1) or Table (A2) (A3) rtks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) t Visible on Aerial I /egetäted Concave ttions: Present? Yresent? Yresent? Yresent? Yresent? Yesent? Yaay fringe) rded Data (stream | magery (B es gauge, mo | d: check all that app face lawye Va d: check all that app Water-St 1, 2, 4 Salt Crus Aquatic la Hydroger Oxidized Presence Recent lr Stunted c 7) Other (E) B8) No Depth (in No Depth (in No Depth (in point cin part is C | Date of Reduced or Stressed I constrained leaves of Reduced or Stressed I constrained in Reduction reducti | es (B9) (e s (B13) lor (C1) es along d fron (C4 on in Tilleo Plants (D marks) | Living Roc) xcept MLI Living Roc) d Soils (Ce 1) (LRR A Wetta pections), + notes | A F 3 of of So RA pits (C3) pits (C3) and Hydrol if available: | econdary Indic Water-Stain 4A, and Drainage Pi Dry-Season Saturation \ Geomorphic Shallow Aqu FAC-Neutra Raised Ant Frost-Heave | ators (2 or mor ed Leaves (B9 4B) atterns (B10) Water Table (/isible on Aeria : Position (D2) uitard (D3) il Test (D5) Mounds (D6) (I e Hummocks (I ? Yes | () in thick in 10 ¹¹ o e required) (MLRA 1, 2 22) Imagery (C |
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US Army Corps of Engineers

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

| Project/Site: Meydenbaur | City/County: | Kin, Co. | Sampling Date: |
|--|--------------------------|----------------------------|--|
| Applicant/Owner: | ···· | State: <u></u> | Sampling Point: $MB3$ |
| Investigator(s): Howard, Diver 1Kotte | Section, Tov | mship, Range: | |
| Landform (hillslope, terrace, etc.): | Local relief (| (concave, convex, none): | Slope (%): |
| Subregion (LRR): | Lat: | Long: | Datum: |
| Soll Map Unit Name: | · | NWI clas | sification: |
| Are climatic / hydrologic conditions on the site typical for t | his time of year? Yes | No (If no, explain | in Remarks.) |
| Are Vegetation, Soil, or Hydrology | significantly disturbed? | Are "Normal Circumstance | es" present? Yes No |
| Are Vegetation, Soil, or Hydrology | naturally problematic? | (If needed, explain any an | swers in Remarks.) |
| SUMMARY OF SINDINGS Attach atta | | | an en an |

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

| Hydrophytic Vegetation Present? | Yes No | for the Constitution States | | |
|---------------------------------|------------------|-----------------------------|---------|--------|
| Hydric Soil Present? | Yes <u>X</u> No | is the Sampled Area | X V | - • |
| Wetland Hydrology Present? | Yes No | wauna wetano? | res A | NO |
| Remarks: | adde Alexand - U | / // / / / / / / / / | 1.5 7 7 | |

Remarks: Hatword seepage of to of stops feeds highly distanted wettand, super saturated in portion of mound lawn. Main seepade diverted in grated cover over of pine. to

VEGETATION - Use scientific names of plants.

| | Absolute | Dominant Indicato | r Dominance Test worksheet: |
|---|----------------|---------------------|--|
| 1. Salix babytomea (out) | <u>% Cover</u> | Species? Status | Number of Dominant Species 2 (A) |
| 2. 3. | | | Total Number of Dominant Species Across All Strata; (B) |
| 4 Sapling/Shrub Stratum (Plot size:) | · | _= Total Cover | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>////</u> (A/B) |
| 1 | | | Prevalence Index worksheet: |
| 2. | | | Total % Cover of:Multiply by: |
| 3. | | | OBL species x 1 = |
| 4 | | | FACW species x 2 = |
| 5 | No. | | FAC species x 3 = |
| | | = Total Cover | FACU species X 4 = |
| Herb Stratum (Plot size:) (7 |) | · · | UPL species x 5 = |
| 1. Kurppa Makey bush- aquannum? | | 10 X OBC | - Column Totals: (A) (B) |
| 2. Konuneul s V. o deris | | 1 <u>5 X FAAN</u> | - |
| 3. <u>Kalmi E.V. Cwi Apula</u> | | 8 Facily | _ Prevalence Index = B/A = |
| 4. <u>Strong pricypractics</u> | | <u>z osl</u> | Hydrophytic Vegetation Indicators: |
| 5. Light Marking americandial amongs | | | Dominance Test is >50% |
| 6. <u>Thisks</u> Antonia 2000 | | <u>2</u> <u>081</u> | _ Prevalence Index is ≤3.0' |
| 7. Injuicitium arvense 8. Injuicitium lanatum | | Ear | _ Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) |
| 9. Asvastic Sa FactEaris | | 5 | Wetland Non-Vascular Plants ¹ |
| 10. | · | | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 11 | · | | Indicators of hydric soil and wetland hydrology must be present upless disturbed or problematic |
| $\frac{50\%}{1000} = 34\%$ | 49 | = Total Cover | |
| 1, | | | Hydronhytic |
| 2 | ******* | | Vegetation |
| % Bare Ground in Herb Stratum | . <u>.</u> | = Total Cover | Present? Yes // No |
| Remarks: ground in this area sho attempts to drain are | ws ob a. Sn | prives distan | rbanes of soils, probably from wide) drainage a rooves lined win |

US Army Corps of Engineers Present.

| COL | | |
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| Profile Description: (Description: Redox Features Color (moist) % Color (moist) % Type Loc ² Texture Clear (moist) % Color (moist) % Type Loc ² Texture Clear (moist) % Color (moist) % Type Loc ² Texture Clear (moist) % Color (moist) % Type Loc ² Texture Type: Ceconcentration D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. % coated Sand Grains. | MB 3 Sempling Point: |
|---|--|
| epiths Matrix Redox Features Color (moist) % Color (moist) % Texture Class #### | of indicators.) |
| Inches) Color (moist) % Color (moist) % Trype Loc ² Texture Class Start Color (moist) % Color (moist) % Texture Class Start Color (moist) % Color (moist) % Texture Class Start Color (moist) % Color (moist) % Texture Plack Class Start Color (moist) % Color (moist) % Texture Proper Color (moist) Start | · · · · · · · · · · · · · · · · · · · |
| Class State | Remarks |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 1 ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicator Histosoi (A1) Sandy Redox (S5) 2 cm Histosoi (A1) Sandy Redox (S5) 2 cm Histosoi (A2) Stripped Matrix (S3) Redox Jenzeted Below Dark Surface (A11) Depleted Matrix (F3) Oth Depleted Below Dark Surface (A12) Redox Dark Surface (F5) Indicator Sandy McKy Mineral (S1) Depleted Matrix (F3) unles Sandy McKy Mineral (S1) Depleted Matrix (S4) wetland Sandy McKy Mineral (S1) Depleted Dark Surface (F7) wetlat Sandy McKy Mineral (S1) Depleted Dark Surface (F7) wetlat Sandy McKy Mineral (S1) Matrix (F3) Hydrology Sandy McKy Mineral (S1) Water Stained Leaves (B9) (except MLRA W Surface Water (A1) Water Stained Leaves (B9) (except MLRA W Surface Water (A1) Water Stained Leaves (B9) (except MLRA W Water Marks (B1) Aquatic Investorates (B13) D Surface Soil (B2) Hydrogen Sulfide Odor (C1) S | ······································ |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc Hitsic Epipeod (A2) Sindy Redox (S5) 2 cc Hitsic Epipeod (A2) Stripped Matrix (F3) Otherwise noted.) Indicator Hitsic Epipeod (A2) Stripped Matrix (F3) Otherwise noted.) Otherwise (F1) Otherwise (F1) Depleted Biotor Dark Surface (A11) Depleted Matrix (F2) Depleted Matrix (F2) *Indicator Sandy Micky Mineral (S1) Depleted Dark Surface (F7) weta *indicator Sandy Kleyed Matrix (S4) Redox Dark Surface (F7) weta *indicator Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) weta *indicator Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) weta *indicator Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) weta *indicator Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) weta *indicator Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) weta *indicator Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) weta *indicator | <u> </u> |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc yfici Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicator Histos (A1) Sandy Redox (S5) 2 cor Histic Epipedon (A2) Stripped Matrix (S6) Red ylack Histic (A3) Learny Gleyed Matrix (F2) Other Matrix (S6) Redox Dark Sturface (F5) Phick Dark Sturface (A11) Depleted Matrix (F2) Redox Dark Sturface (F6) *Indicator Sandy Mucky Mineral (S1) Depleted Dark Sturface (F6) *Indicator *Indicator Sandy Mucky Mineral (S1) Depleted Dark Sturface (F7) wella Sandy Oleyed Matrix (S4) Redox Dark Sturface (F7) wella Sandy Mucky Mineral (S1) Depleted Dark Sturface (F7) wella Broth COGY sturface Kater (A1) Water And A Dark Matrix (S4) - A Sturface Kraiter Table (A2) (G' 1, 2, 4A, and 4B) Saturation (A3) D Sturface Kraiter Table (A2) (G' 1, 2, 4A, and 4B) Saturation (A3) D Sturface Kraiter Table (A2) (G' 1, 2, 4A, and 4B) Saturation (A3) | |
| Ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc ydric Soli Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicator Histic Epipedon (A2) | |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. %Loc ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. %Loc ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. %Loc Histos (A1) Sindy Redox (S5) 2 cm Histos (A1) Sindy Redox (S5) 2 cm Histos (A1) Depleted Matrix (F3) Redox Dark Surface (F1) weta Depleted Blow Dark Surface (A1) Depleted Matrix (F2) %Indicate Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) weta Sandy Kucky Mineral (S1) Redox Dark Surface (F7) weta Sandy Kucky Mineral (S1) Redox Dark Surface (F7) weta Sandrow Gloved Matrix (S4) Redox Dark Surface (F7) weta Sandrow Gloved Matrix (S4) Redox Dark Surface (F7) weta Sandrow Gloved Matrix (S4) Redox Dark Surface (F7) weta Sandrow Gloved Matrix (S4) Redox Dark Surface (F7) weta Sandrow Gloved Matrix (S4) Redox Dark Surface (F7) weta Sandrow Gloved Matrix (S4) Redox Dark Surface (F7) weta Sandrox Surface (A1) Quota Surfac | · · · · · · · · · · · · · · · · · · · |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coaled Sand Grains. *Loc yfor Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicato Histic Epipedon (A2) Stripped Matrix (S6) 2 cr. Histic Epipedon (A2) Stripped Matrix (S6) Red Depleted Below Dark Surface (A11) Depleted Matrix (F2) Other Surface (A12) Thick Dark Surface (A12) Redox Dark Surface (F6) *Indicato Sandy Gleged Matrix (S4) Depleted Matrix (F3) unless Sandy Gleged Matrix (S4) Redox Dark Surface (F7) wetla Sandy Gleged Matrix (S4) Redox Depressions (F6) unless strictive Layer (if present): Trype: Hydric Soil Type: | |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ³ Loc ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ³ Loc yfric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicator Histos (LA1) Sandy Redox (S5) 2 cr Histic Epipedon (A2) Stripped Matrix (S6) Redox Just (A1) Learny Mucky Mineral (F1) (except MLRA 1) Other Hydrogen Sulfde (A4) Learny Gleyed Matrix (F3) ************************************ | |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicator Histic Epipedon (A2) Stripped Matrix (S5) 2 cr Histic Epipedon (A2) Stripped Matrix (S6) Red Depleted Below Dark Surface (A11) Depleted Matrix (F2) Other Core (F7) Sandy Gleyed Matrix (S4) Redox Dark Surface (F6) *Indicator Sandy Gleyed Matrix (S4) Redox Depressions (F8) unles saftrictive Layer (if present): Type: Hydric Soil Type: | |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 1/2 covered Sand Grains. <td></td> | |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 1coveration ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicato Histos Epideon (A2) Stripped Matrix (S5) Red Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Oth Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (except MLRA 1) Oth Popteted Black Watrs Ca(A12) Redox Dark Surface (F6) Indicato Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) wetla Sandy Gleyed Matrix (S4) Redox Depressions (F8) unles strictive Layer (if present): Trype: | |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Loc ype: C=Concentration, D=Depletion all LRRs, unless otherwise noted.) Indicator Histo Epipedon (A2) Stripped Matrix (S6) Red Black Hists (A3) Learny Mucky Mineral (F1) (except MLRA 1) Oth Depleted Balow Dark Surface (A11) Depleted Matrix (F2) Pepleted Balox Surface (F6) *Indicator Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetla Sandy Gleyed Matrix (S4) Redox Depressions (F8) unles estrictive Layer (iff present): Type: | with different thread a firm of the state of |
| ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Log ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicator Histos (A1) | |
| ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicator _ Histosci (A1) | cation: PL=Pore Lining, M=Matrix. |
| Histosol (A1) | ors for Problematic Hydric Soils ³ : |
| Histic Epipedon (A2) | m Muck (A10) |
| Instact Exploring Complex Maths (30) (c) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Oth Hydrogen Suffide (A4) Loamy Gleyed Matrix (F2) Pepleted Balow Dark Surface (A12) Redox Dark Surface (F7) wetla Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetla unles Sandy Gleyed Matrix (S4) Redox Depressions (F8) unles strictive Layer (if present): Type: | + Parant Material (TE2) |
| Declarity Multicle (A) | er (Evolsin in Remorks) |
| Instruction Image: Control of the second | er (Explain in Romaiks) |
| Dependence below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) *Indicate Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetla Sandy Gleyed Matrix (S4) Redox Depressions (F8) unlee strictive Layer (if present): Type: | |
| Inick Dark Surface (A12) | no po preso ante e a la composición a companya de la comp |
| | ors of hydrophytic vegetation and |
| | and hydrology must be present, |
| Imarks: | ss disturbed or problematic. |
| Type: | |
| Depth (inches): Hydric Soil pmarks: Of S & Standard Mass Mark Mark Mark Mark Mark Mark DROLOGY Mark Mark Mark Mark Mark Mark Mark Mark | |
| DROLOGY off S S Start (start) | Densont? Yos V No |
| marks: Of S S Swith M. Mark M. Mark M. | |
| fetland Hydrology Indicators: Second Surface Water (A1) Water-Stained Leaves (B9) (except MLRA W High Water Table (A2) (6 1, 2, 4A, and 4B) D Saturation (A3) Satt Crust (B11) D Water Marks (B1) Aquatic Invertebrates (B13) D Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) S Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) G Algal Mat or Crust (B4) Presence of Reduced Iron (C4) S Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) F. Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) R Innundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Fi Spärsely Vegetated Concave Surface (B8) Image Present? Yes No Inface Water Present? Yes No Depth (inches): Wetland Hydrology scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: S S smarks: Satt Crust Streage Math Math Math Math Math Math Math Math | |
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| Inigit water Table (A2) I.G. 1, 2, 4A, and 4B) Saturation (A3) | vater-otatieu Leaves (Do) (intrite 1, 2, |
| | 4A, 3NO 4B) |
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| Iron Deposits (B5) | |
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| Spärsely Vegetäted Concave Surface (B8) Id Observations: If ace Water Present? Yes No Depth (inches): | rost-Heave Hummocks (D7) |
| ald Observations: No Depth (inches): | |
| Inface Water Present? Yes No Depth (inches): | |
| ater Table Present? Yes X No Depth (inches): 12" turation Present? Yes X No Depth (inches): 12" Cludes capillary fringe) scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: marks: Saturatur at Surflog I and panager dark deve had att darks were seed | |
| Auration Present? Yes X No Depth (inches): <u>Sur Parc</u> Wetland Hydrology <u>cludes capillary fringe</u>) worker and surfaces to the parager and the parager and the surfaces the surfaces the surfaces the surfaces to the surface | |
| marks: Solution Present? Yes <u>No</u> Depth (inches): <u>Subtacc</u> Wetland Hydrology iscribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: marks: Solution that Surforg (and proceeding of the proceeding of the | - · · · · · · · · · · · · · · · · · · · |
| marks: Schurakul at Surforg (and panagers lars deve here all down or such | y Present? Yes 🔼 No |
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US Army Corps of Engineers

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Western Mountains, Valleys, and Coast - Interim Version

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

| Project/Site: Meychanbauer | City/County: Kine | Ca- | Sampling Date: (-6-08 | |
|---|--|--|---|--------------|
| Applicant/Owner: Bellevus | \mathcal{O} | State: VH | Sampling Point MB4 | |
| Investigator(s): Heward Downlhotte | Section, Township, Ra | ange: | | |
| Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, | convex, none): | Slope (%): | |
| Subregion (LRR):Lat: | | Long: | Datum: | . |
| Soil Map Unit Name: | | NWI classifi | cation: | |
| Are climatic / hydrologic conditions on the site typical for this time of y | ear? Yes No | (if no, explain in F | lemarks) | |
| Are Vegetation, Soil, or Hydrology significantl | v disturbed? Are | "Normal Circumstances" | present? Ves No | |
| Are Vegetation, Soil, or Hydrology naturally p | roblematic? (If n | eeded, explain any answe | rs in Remarks) | ***** |
| SUMMARY OF FINDINGS - Attach site map showin | g sampling point l | ocations, transects | , important features, etc | 5. |
| Hydrophylic Vegetation Present? Yes X No | | 2 | | |
| Hydric Soil Present? Yes X No | Is the Sampled | f Area | N V | |
| Wetland Hydrology Present? Yes <u>No X</u> | within a Wetlai | nd? Yes | No _/ | |
| Remarks: Pit located between francing + what of d landscaping (laurels) bouter between Wald seguration in pland portion of man | + Looks Letter and Antaining pro- | all + in front of | fralk 1- 2 ft high | |
| VEGETATION - Use scientific names of plants. | ltyping and de | sking with a com | ent structure by read) | - Also in |
| Tree Stratum (Plot size:) Absolute 1. Lawred Cover Absolute % Cover 1. Lawred Clandscape type OH | Dominant Indicator Species? Status | Dominance Test work Number of Dominant S That Are OBL EACW | sheet: pecies 2 crEAC: (a) | This acre |
| 2 | - | | (A) | |
| 3 | · · · · · · · · · · · · · · · · · · · | Species Across All Stra | ant Q (B) | |
| A <u>a saata ay aana ahaa ahaa ahaa ahaa ahaa ahaa </u> | | Baranat of Damianal C | CT/ | |
| Sapling/Shrub Stratum (Plot size:) | _ = Total Cover | That Are OBL, FACW, | or FAC: <u>100</u> (A/B) | |
| | <u></u> | Prevalence Index wor | ksheet: | |
| | | Total % Cover of: | Multiply by: | |
| · · · | | OBL species | x1= | |
| | <u> </u> | FACW species | x2= | |
| · · · · · · · · · · · · · · · · · · · | = Total Cover | FACIL species | X3≍ | |
| Herb Stratum (Plot size:) | | UPL species | ×77 | |
| 1. Enusetum av rener | <u> </u> | Column Totals: | (A) (B) | |
| 2 testuca ar unding caus | EAC | | and the second | |
| | X FAC | Prevalence Index | = B/A = | |
| | , | V Dominance Toet is | Indicators: | |
| 6. | • ; | Prevalence Index is | <30 ¹ | |
| 7. | • • • • • • • • • • • • • • • • • • • | Morphological Adag | stations' (Provide supporting | |
| | | data in Remarks | or on a separate sheet) | |
| 9 | · | Wetland Non-Vascu | Jar Plants ¹ | |
| 10 | ······································ | Problematic Hydrop | hytic Vegetation ¹ (Explain) | |
| The | | be present, unless distu | and wetland hydrology must rbed or problematic. | l. |
| <u>Woody Vine Stratum</u> (Plot size:) | _= Total Cover | | , التي المراجع المراجع المراجع المراجع | |
| 100 2 | . <u></u> <u></u> | Hydrophytic Vegetation | | |
| ·**• | - Tatal Course | Present? Yes | <u></u> No | |
| % Bare Ground in Herb Stratum | | | · · · · · · · · · · · · · · · · · · · | |
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US Army Corps of Engineers
SOIL

Sampling Point: MB4

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| 2-10 | OYK 3/1 | • s ino no d i sei | | | | . <u></u> | 1 # 487 1 1 - 1 | <u>runbbon</u> |
| 4-20 8 | SY 5/2 | Z_= | 5 YK 4/6 | 10 | _ have a | M | | 41" ribben Griffe |
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| | | . ¹ 8 | | | | | | |
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| ¹ Type: C=Cor | centration, D=Dep | etion, RM=R | duced Matrix, C5 | S=Covere | d or Coate | d Sand Gr | ains. ² Lo | cation: PL=Pore Lining, M= |
| Hydric Soil In | dicators: (Applic | able to all LF | Rs, unless other | rwise no | ted.) | | Indicat | ors for Problematic Hydric |
| Histosol (/ | ¥1) | | Sandy Redox (| 55) No | | | 2 c | m Muck (A10) 心 |
| - Histic Epi | edon (A2) | <u></u> | Stripped Matrix | (S6) No | | | Re | d Parent Material (TF2) ನಂ |
| Black Hist | ic (A3) |) , | Loamy Mucky N | Aineral (F | 1) (except | MLRA 1) | Ott | ner (Explain in Remarks) |
| Hydrogen | Sulfide (A4) No | | Loamy Gleyed | Matrix (F | 2) No | | | |
| Depleted | Below Dark Surfac | e (A11) 🗛 🔤 | Depleted Matrix | (F3) ∧>> | | | | |
| Thick Dar | k Surface (A12) 🗠 | سنب در | Redox Dark Su | rface (F6 |) Nº - | | ³ Indicat | ors of hydrophytic vegetatio |
| Sandy Mu | cky Mineral (S1) A | | Depleted Dark | Surface (| F7) ND | | weti | and hydrology must be pres |
| Sandy Glo | yed Matrix (S4) 🛝 | ينير ول | Redox Depress | ions (F8) | 1 No | | unle | ss disturbed or problematic. |
| Restrictive La | iyer (if present): | | | | | | | |
| Type: | | | _ | | | | | |
| Depth (incl | es): | | | | | | Hydric Soi | Il Present? Yes 📉 |
| Pamariza- | | ····· | | | | | 1 | |
| No No Possibly | A = beca $F = A = beca$ $F = F = beca$ $A = aquicc$ W | uise kayer nuse dept nuse dept ometition | · above dep . matrix do . matrix do . matrix do . present c | l.mat es not sn't st <u>clorec</u> | rix dox - start tartub s/soms | -s not h w/in 1 n 10" .artific | an valu a" of soils int draw | $u \leq 2.5$ to at leas 1 surfice. urfice. |
| المان محمد المالي Wetland Hydr | F = A + B = beca $F = F = beca$ $F = A - beca$ $A = -aquic c$ $F = aquic c$ $F = aquic c$ $F = aquic c$ $F = aquic c$ | uise hogen mise dept one dept | above dep . matrix du . matrix du . matrix du . present c | limat es not sn't st <u>ilong</u> o | rix dox - start tartuli s/sorms | -s not h 15/10 1 n 10" .actific | an valu a" of soil = iel drav | $u \leq 2.5$ to at less 1 surfice. rrage |
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| No No YDROLOG Wetland Hydi Primary Indica Surface V | F = A + D = beca F = A + D = beca F = B = beca A = | une hogen me dept one tron | above dep . matrix due . matrix due . matrix due . <u>present c</u> | ined Lea | rix dox - Start tortub s/Soms ves (89) (8 | -s not h w/in 1 n 10" .actific xcept MLI | an value 2" of soil s int dravit s int drav Second | u = 2.5 to at lass 1 sarfice. |
| No No Primary Indica Surface V High Wata | F = A + D = beca F = A + D = beca A = beca | uise hogen me dept one ition | natrix due matrix due <u>present</u> c <u>heck all that appl</u> Water-Sta 1, 2, 4/ | 1. mat es not sn't St slong co v) ined Lean A, and 4E | rix dox - start tart uli s/ Sorms ves (89) (e 3) | -s not h w/in 1 n 10 ¹¹ .actific xcept MLF | an valu 2" of soil S ist drav Second | u = 2.5 to at lass 1 sarfice. mage andary Indicators (2 or more Water-Stained Leaves (B9) 4A, and 4B) |
| Person Service Person Service Primary Indice Primary Indice | F = A + B = beca F = A + B = beca A = beca | une hogen me dept one trion | heck all that appl Water-Sta 1, 2, 44 Mater-Sta 1, 2, 44 Salt Crust | y ined Lean (B11) | rix da - start tort whi s/ Sorms ves (69) (e 3) | -s not h 10/10 1 n 10 ¹⁰ .actific xcept MLI | an valu 2" of soil 5 ist drav Seco XA | u = 2,5 to at lass 1 surfice. urfice. andary Indicators (2 or more Water-Stained Leaves (B9) 4A, and 4B) Drainage Patterns (B10) |
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| Primary Indica Primary Indica Surface V High Water Saturation Water Ma Sediment | F = A + B = beca F = A + B = beca A = beca | une hogen me dept ond inton | heck all that appl Water-Sta 2, 44 Mater-Sta 1, 2, 44 Aquatic In Hydrogen | I. mat son't Si <u>long C</u> ined Leas (B11) vertebrat Sulfide C | rix da - start tart ub / some ves (89) (e 3) es (813) Ddor (C1) | -s not h 15/10 1 n 10 ¹⁰ .actific xcept MLF | 20 value 20 of soil 5 22 2 2 m 22 2 2 m 24 2 m 24 1 5 24 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | u E 2.5 to at lass I surfice. urfice. mage water-Stained Leaves (B9) 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C Saturation Visible on Aerial I |
| V Providence of the second se | F = A + B = becomes A = A + B = becomes A = - b | une hogen me dept one inton | heck all that appl Water-Sta 2, 44 Mater-Sta 1, 2, 44 Aquatic In Oxidized F | V. mat sn't St sn't St long C v) ined Leas (B11) vertebrat Sulfide C Rhizosphi | rix da - start tratuli / Some ves (89) (e 3) es (813) Ddor (C1) eres alona | -s not h is/in 1 n 10 ¹¹ .actific xcept MLF | 2" of soil 5 of soil 5 iel 2 ray XA ts (C3) | u ≦ 2.5 to at lass L surfice. urfice. mage water-Stained Leaves (B9) i 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C: Saturation Visible on Aerial I Geomorphic Position (D2) |
| Primary Indica Primary Indica Primary Indica Primary Indica Primary Indica Surface V High Water Saturation Water Ma Sediment Drift Depo Alogi Mat | F = A + B = becomesA = beco | une hogen me dept one inton | heck all that appl Water-Sta 1, 2, 4 Aquatic In Dividized F Presence | V. v) v) ined Lease (B11) vertebrall Sulfide C Shizosphi of Reduc | rix da start start s/soms ves (89) (e 3) es (813) Ddor (C1) eres elong ed Iron (C | -s not h is/in 1 n 10 ¹¹ .act.Eic xcept MLF Living Roc | 2" of soil 5 of soil 5 iel 2 m XA ts (C3) | u ≤ 2.5 to at lass L surfice. urfice. water-Stained Leaves (B9) i 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C: Saturation Visible on Aerial I Geomorphic Position (D2) Shallow Aguitard (D3) |
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| Project/Site: Ney domb and Park | City/County: _ | | Sampling Date: MB4 |
|--|----------------------------|----------------------------|--------------------|
| Applicant/Owner: | | State: | Sampling Point: |
| Investigator(s) | Section, Towr | nship, Range: | |
| Landform (hillslope, terrace, etc.): hillslope | @Local relief (c | oncave, convex, none): | Slope (%) |
| Subregion (LRR) | Lat: | Long: | Datum: |
| Soil Map Unit Name: | | NWI clas | ssification: |
| Are climatic / hydrologic conditions on the site typical for | r this time of year? Yes 🚬 | No (If no, explain | in Remarks.) |
| Are Vegetation <u> </u> | significantly disturbed? | Are "Normal Circumstance | es" present? YesNo |
| Are Vegetation, Soil, or Hydrology naturally problematic? (i | | (if needed, explain any an | swers in Remarks.) |
| | 5 E E | and the second second | |

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

| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes No Yes No Yes No | Is the Sampled Area within a Wetland? | Yes | No |
|---|----------------------------|--|-----|----|
| Remarks | Vez - | | | |

VEGETATION – Use scientific names of plants.

| Handham In | Absolute | Dominant Indicator | Dominance Test worksheet: | |
|--|-------------|--|--|---------------------------------------|
| I ree Stratum (Plot size:) | % Cover | Species? Status | Number of Dominant Species | |
| 1 | | | That Are OBL, FACW, or FAC: | (A) |
| 2 | | | | |
| 3 | | | Total Number of Dominant | |
| | | | Species Across All Strata: | (B) |
| 4 | | | Percent of Dominant Species | |
| | | = Total Cover | That Are OBL, FACW, or FAC: | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | <u> </u> |
| 1 | | | Prevalence Index worksheet | |
| 2 | | | Total % Cover of: | Multiply by: |
| 3. | | | OBL species | x 1 = |
| 4. | | ······································ | FACW species | x 2 = |
| 5 | | | FAC species | x3= |
| · · · · · · · · · · · · · · · · · · · | | = Total Cover | FACU species | x4= |
| Herb Stratum (Plot size:) | | • | UPL species | x5= |
| 1. 5 quisetur arvense | <u>61</u> | | Column Totals: | (A) (B) |
| 2. F. arwedin a can | | | | · · · · · · · · · · · · · · · · · · · |
| 3. F. rubra | | / | Prevalence Index = B/A | Z |
| 4 | | | Hydrophytic Vegetation India | ators: |
| 5. | | | Dominance Test is >50% | |
| 6. | | | Prevalence Index is <3.0 ¹ | |
| 7 | ···· | | Morphological Adaptations | ¹ (Provide supporting |
| 8 | | | data in Remarks or on a | a separate sheet) |
| a | | ······ | Wetland Non-Vascular Pla | nts ¹ |
| 10 | | | Problematic Hydrophytic V | egetation ¹ (Explain) |
| 44 | | | ¹ Indicators of hydric soil and w | etiand hydrology must |
| state and the second se | <u></u> | | be present, unless disturbed or | problematic. |
| Moodel Vine Charten (Olistation | | = Total Cover | <u> </u> | |
| woody vine Stratum (Piot size:) | | \sim | · · · · | |
| 1. <u>NUDUS NESCOLOF</u> | 10 \$ {. | · | Hydrophytic | |
| 2 | | | Propert2 Von | 3 1 - |
| | | = Total Cover | riesentr ies | 0 |
| % Bare Ground in Herb Stratum | | | 1 Million 4 (19) (1) (1) | |
| Remarks: | | | | |
| | | | | |
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| Samulina | Print P P | |

| | | | - | | | | | 1.12 million | | |
|--|---|---|--|--|--|---|--|---|---|--|
| nches) | Color (moist) | % | Color (moist) | % | Type | Loc ² | Texture | | Ren | narks |
| -16 (| 第 新年 (| 0YA 3/1 | | | | | arit is | ander en | <u> ~ 2"</u> | r (bbar) |
| - 79 | 54/51 | en en | 7.510.410 | 10 | Ċ. | M | • | <u>م المجار</u> | ribbon | |
| | | | | | | | • • <u>••••••</u> • | * | | <u>, J.</u> |
| | | | | ······································ | · | | • •••••••••••••••••••••••••••••••••••• | 1 | 11-1-1-28 | |
| | | <u></u> | | | <u> </u> | | | | "" | |
| | | | | | · · · · · · · · · · · · · · · · · · · | | • •••••••••••••••••••••••••••••••••••• | | | MeMire Instantion and the second |
| ype: C=Con | centration, D=De | pletion, RM | =Reduced Matrix, C | S=Covere | d or Coate | d Sand G | Grains, ² Lo | cation: P | L=Pore Li | ning, M=Matrix. |
| dric Soil In | dicators: (Appli | cable to all | LRRs, unless othe | rwise not | ed.) | | indicate | ors for P | roblematio | : Hydric Soils ³ : |
| _ Histosol (A | A1) | | Sandy Redox (| S5) | | | 2 ci | n Muck (/ | A10) | |
| _ Histic Epip | edon (A2) | | Stripped Matrix | (S6) | | | Red | Parent I | Vaterial (T | F2) |
| _ Black Hist | ic (A3) | | Loamy Mucky | Mineral (F | 1) (except | MLRA 1 |) Oth | er (Expla | in in Rema | arks) |
| Hydrogen | Sulfide (A4) | | Loamy Gleyed | Matrix (F2 | 2) | | ţ | | n soudig d | |
| _ Depleted I | Below Dark Surfa | ce (A11) | Depleted Matri | x (F3) | ¢., | | Sec. and a | | handa ka sa sa sa sa | |
| I NICK Uari | (SURACE (A12) | | Kedox Dark St | Inace (F6) Surferent |) 571 | | "Indicăti | лsornyc webere | NODELAIC A | egeranon and |
| Sandy MU | ury Milleral (S1) | | Depieted Dark | Junace (I sione /EP) | -() | | WGUS | a dieturb | wyy alust ed or proh | ue present, lematic |
| estrictive I | ver (if precent). | | ivenov mehiesi | auria (FO) | | | | | | |
| Tuno | yor in presenti. | | | | | | | | | |
| a ype: | | | <u></u> | | | | Line | I Plastantina | | V |
| Depth (inch | es): | | | | | | | Fresent | res_ | - NO |
| emarks: DROLOG | Ŷ | | | | | | riyune sor | | | |
| emarks: /DROLOG /etland Hydr | Υ ology Indicators | | | | | | | | | |
| emarks: /DROLOG /etland Hydr rimary Indica | Y ology Indicators tors (minimum of | :: one require | d; check all that app | ly) | | | Seco | ndary Ind | licators (2 | or more required) |
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| YDROLOG Yetland Hydr Yimary Indica Surface W High Water Saturation Sediment Drift Depo Algal Mat Iron Depo Surface So Inundation Sparsely \ Ield Observa surface Water Vater Table Phi aturation Pre- includes capill bescribe Reco | Y ology Indicators tors (minimum of fater (A1) or Table (A2) (A3) (ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) oil Cracks (B6) oil Cracks (B6) oil Cracks (B6) visible on Aerial fegetated Concav tions: Present? resent? sent? ary fringe) rded Data (stream | imagery (B Imagery (B re Surface (Yes Yes n gauge, mo | d: check all that app Water-Sta 1, 2, 4. | hy) ained Leav A, and 4B t (B11) wertebrate of Reduct of Reduct r Stressed plain in Re aches): aches): photos, pr | ves (B9) (e b) dor (C1) eres along ed iron (C4 ion in Tille I Plants (D emarks) | xcept ML Living Rc 4) d Soils (C 1) (LRR / — — — — Wet | <u>Seco</u> RA V t t t S | ndary Inc Vater-Sta 4A, an Drainage Dry Seasc Saturation Shallow A C-Neut Raised Ar Frost-Hea | licators (2 ined Leave d 4B) Patterns (I on Water T i Visible or nic Position quitard (D rai Test (D nt Mounds ve Hummo nt? Yes | or more required) es (B9) (MLRA 1, 310) able (C2) Aerial Imagery (1 (D2) 3) (D6) (LRR A) boks (D7) |
| Vetland Hydr Vetland Hydr Vetland Hydr Vetland Hydr I Saturation Water Mai Sediment Drift Depo Algal Mat Surface So Inundation Sparsely \ Ield Observa urface Water fater Table Pl aturation Pre- ncludes capill escribe Reco | Y ology Indicators tors (minimum of fater (A1) or Table (A2) (A3) tks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) i Visible on Aerial fegetated Concav tions: Present? resent? sent? ary fringe) rded Data (stream | imagery (B Imagery (B Imagery (B Ves Yes n gauge, mo | d: check all that app Water-Sta 1, 2, 4. | hy) ained Leav A, and 4B t (B11) wertebrate of Reduct of Reduct r Stressed plain in Re aches): aches): photos, pr | res (B9) (e b) dor (C1) eres along ed iron (C4 ion in Tille I Plants (D emarks) | xcept ML Living Rc 4) d Soils (C 1) (LRR / — — — — — — — — — — — — — — — — — — — | <u>Seco</u> <u>Seco</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> | ndary Inc Vater-Sta 4A, an Drainage Dry-Seasc Saturation Shallow A Sc-Neut Raised Ar Prost-Hea | licators (2 ined Leave d 4B) Patterns (I on Water T i Visible or nic Position quitard (D rai Test (D nt Mounds ve Hummo nt? Yes | or more required) es (B9) (MLRA 1, 310) able (C2) Acrial Imagery (1 (D2) 3) (D6) (LRR A) boks (D7) |
| emarks: (DROLOG /etland Hydr rimary Indica | Y ology Indicators tors (minimum of fater (A1) or Table (A2) (A3) tks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) oil Cracks (B6) oil Cracks (B6) visible on Aerial fegetated Concav tions: Present? resent? sent? ary fringe) rded Data (stream | imagery (B re Surface (Yes Yes n gauge, mo | d: check all that app Water-Sta 1, 2, 4. | hy) ained Leav A, and 4B t (B11) wertebrate of Reduct on Reduct r Stressed plain in Re aches): aches): photos, pr | ves (B9) (e b) es (B13) dor (C1) eres along ed iron (C4 ion in Tille I Plants (D emarks) | xcept ML Living Rc 4) d Soils (C 1) (LRR / — — — — — — — — — — — — — — — — — — — | <u>Seco</u> <u>Seco</u> t t t t t t f F A) F F tland Hydrolog | ndary Inc Vater-Sta 4A, an Drainage Dry Seasc Saturation Shallow A RC-Neut Raised Ar Prost-Hea | licators (2 ined Leave d 4B) Patterns (I on Water T i Visible or nic Position quitard (D ral Test (D nt Mounds ve Hummo | or more required) es (B9) (MLRA 1, 310) able (C2) Aerial Imagery (1 (D2) 3) (D6) (LRR A) boks (D7) |

US Army Corps of Engineers

| Project/Site: May demonstration Part K | City/County: | | Sampling Date: 👃 | 14108 |
|--|-------------------|----------------------------|--------------------|----------|
| Applicant/Owner: | | State: | Sampling Point: | PMBS |
| Investigator(s): | Section, Tow | nship, Range: | | |
| Landform (hillslope, terrace, etc.): hile og | Local relief (| concave, convex, none): | Siope | (%): 25% |
| Subregion (LRR): L | ət: | Long: | Datum: | |
| Soll Map Unit Name: | | NWI clas | ssification: | |
| Are climatic / hydrologic conditions on the site typical for this tim | e of year? Yes | No (If no, explain | in Remarks.) | |
| Are Vegetation, Soil, or Hydrology signif | cantly disturbed? | Are "Normal Circumstance | es" present? Yes | No |
| Are Vegetation, Soil, or Hydrology natur | ally problematic? | (If needed, explain any an | swers in Remarks.) | |
| and the second | | · · | , | |

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

| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes Yes Yes | No 7 | Is the Sampled Area within a Wetland? | Yes | No | |
|---|-------------------|------|--|-----|----|---|
| Remarks: | | | | | | - |

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: 20 () | Absolute % Cover | Dominant Species? | Indicator | Dominance Test worksheet: | |
|------------------------------------|---------------------|----------------------|-------------------|--|------|
| 1. Lawrel (landscupe trees) | 100 | <u> </u> | | Number of Dominant Species That Are OBL, FACW, or FAC: | 5 |
| 2. Corgins connetter | | <u></u> | FACN | Total Number of Dominant | |
| 3. Pseudd Sute menzics Si (1) | | | FACH | Species Across All Strata: (B) |) |
| | | = Total Cov | | Percent of Dominant Species | |
| Sapling/Shrub Stratum (Plot size:) | | | | That Are OBL, FACW, or FAC: (A | 8) |
| 1, | | , | | Prevalence Index worksheet: | |
| 2, | | · | | Total % Cover of:Multiply by: | |
| 3 | | | | OBL species x 1 = | |
| 4 | | | | FACW species x 2 = | |
| 5 | | | | FAC species x 3 = | |
| Binste Charteren (Distantion | · | := Total Cov | er | FACU species x 4 = | |
| | | | | UPL species x 5 = | |
| 2 | | | · | Column Totals: (A) (E | 3Ĵ |
| 3 | | ····· | | Prevalence Index = B/A = | |
| 4 | | | | Hydrophytic Vegetation Indicators: | |
| 5 | | | | Dominance Test is >50% | |
| 6 | | | | Prevalence Index is s3.01 | |
| 8 | | | 742. | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | |
| | | | | Wetland Non-Vascular Plants ¹ | |
| 10 | | | | Problematic Hydrophytic Vegetation ¹ (Explain) | |
| 11 | | | | ¹ Indicators of hydric soil and wetland hydrology must | |
| Woody Vine Stratum (Distalian | | = Total Cove | э г | vo prosent, unless disturbed of problematic. | |
| (For size,) | 105 | U | 111 | | |
| 2 | 801 | | | Hydrophytic Vegetation | |
| % Bare Ground in Herb Stratum | | = Total Cove | r | Present? Yes No | |
| Remarks: P. douglesi, Ilex, Haller | redeve v | Ny Charles | ero/ _y | Simplifich of pression edge. | **** |

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Interim Version

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Sampling Point: MB 5

| Profile Description: (Describe to the o | lepth needed to document the indicator or con | ifirm the absence of indicators.) |
|--|---|--|
| Depth <u>Matrix</u> | Redox Features | •••••• |
| (inches) Color (moist) % | Color (moist)%Type1Loc2 | ² <u>Texture</u> Remarks |
| 0-20 1044 3/1 | | $\leq 1^n$ (ibbon |
| | | |
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| | | |
| | · | |
| ¹ Type: C=Concentration, D=Depletion, F | M=Reduced Matrix, CS=Covered or Coated Sand | d Grains. ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil Indicators: (Applicable to | all LRRs, unless otherwise noted.) | Indicators for Problematic Hydric Soils ³ ; |
| Histosol (A1) | Sandy Redox (S5) | 2 cm Muck (A10) |
| Histic Epipedon (A2) | Stripped Matrix (S6) | Red Parent Material (TF2) |
| Black Histic (A3) | Loamy Mucky Mineral (F1) (except MLRA | A 1) Other (Explain in Remarks) |
| Hydrogen Sulfide (A4) | Loamy Gleyed Matrix (F2) | |
| Depleted Below Dark Surface (A11) | Depleted Matrix (F3) | _ |
| Thick Dark Surface (A12) | Redox Dark Surface (F6) | ³ Indicators of hydrophytic vegetation and |
| Sandy Mucky Mineral (S1) | Depleted Dark Surface (F7) | wetland hydrology must be present, |
| Sandy Gleyed Matrix (S4) | Redox Depressions (F8) | unless disturbed or problematic. |
| Restrictive Layer (if present): | | |
| Туре: | | |
| Depth (inches): | <u></u> | Hydric Soil Present? Yes No |
| Remarks: | della sul | |
| Sugard ware start | I New Strange | |
| | | |
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| · · · · · · · · · · · · · · · · · · · | | · · · · · · · · · · · · · · · · · · · |
| HYDROLOGY | | |
| Wetland Hydrology Indicators: | | |
| Primary Indicators (minimum of one requ | ired: check all that apply) | Secondary Indicators (2 or more required) |
| | | |

| 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) (exception) 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livir Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled So Stunted or Stressed Plants (D1) (L Other (Explain in Remarks) | pt MLRA Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Ing Roots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) sils (C6) FAC-Neutral Test (D5) |
|--|--|---|
| Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) No Describe Recorded Data (stream gauge, monito Remarks: | Depth (inches): Depth (inches): Depth (inches): ring well, aerial photos, previous inspect | Wetland Hydrology Present? Yes No tions), if available: |

US Army Corps of Engineers

| Project/Site: Maydenbauer | City/County: King Co | Sampling Date: 6-6-08 |
|---|---|------------------------------|
| Applicant/Owner: Bollenger | State: | Sampling Point: <u>MB5</u> |
| Investigator(s): Howard, Durentkott | Section, Township, Range: | |
| Landform (hillslope, terrace, etc.): hillslage | _ Local relief (concave, convex, none): $\underline{\sub{o}}$ | <u>∕ use (%):</u> Slope (%): |
| Subregion (LRR): Lat: | Lönğ: | Datum: |
| Soil Map Unit Name: | NWI clas | ssification: |
| Are climatic / hydrologic conditions on the site typical for this time of y | ear? Yes No (If no, explain | in Remarks.) |
| Are Vegetation, Soil, or Hydrology significantly | y disturbed? Are "Normal Circumstance | es* present? Yes No |
| Are Vegetation, Soil, or Hydrology naturally p | roblematic? (If needed, explain any an | swers in Remarks.) |

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

| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes No Yes No Yes No | is the Sampled Area within a Wetland? | Yes No |
|---|----------------------------|--|--------|
| Remarks: | | | |

VEGETATION -- Use scientific names of plants.

| | Absolute | Dominant Indicator | Dominance Test worksheet: |
|---|--------------|---------------------------------------|--|
| Tree Stratum (Plot size:) | % Cover | Species? Status | Number of Dominant Species |
| 1-Launels Clandsapp.) | · | Non | That Are OBL, FACW, or FAC: (A) |
| 2. Con lus comutta | <u> </u> | FACN | Total Number of Dominant |
| 3. Paperlats - in mennicoin (1) | 5 | FACU | Species Across All Strata: |
| 4. Alex Chandselpe) | 1 | None | |
| | 11 | = Total Cover | That Are OBL FACW or FAC: |
| Sapling/Shrub Stratum (Plot size:) | | | |
| 1 | | | Prevalence Index worksheet: |
| 2. | | | Total % Cover of: Multiply by: |
| 3 | . | | OBL species x 1 = |
| 4 | | | FACW species x 2 = |
| 5. | | | FAC species x3 = |
| | | = Total Cover | FACU species 10 x 4 = 40 |
| Herb Stratum (Plot size:) | \ | • | UPL species x 5 = |
| 1. Vincaminar Gandscaped |) | None | Column Totals: 10 (A) 46 (B) |
| 2 | | | |
| 3. | | | Prevalence index = $B/A = \frac{40/105}{4}$ |
| 4. | | | Hydrophytic Vegetation Indicators: |
| 5. | | | N_ Dominance Test is >50% |
| 6. | | | M Prevalence Index is ≤3.0 ¹ |
| 7 | | · · · · · · · · · · · · · · · · · · · | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 8 | | | Wetland Non-Vascular Plants ¹ |
| 9 | <u> </u> | | N Problematic Hydrophytic Vegetation ¹ (Explain) |
| 10 | | · | ¹ Indicators of hydric soil and wetland hydrology must |
| 11. <u></u> | <u>.</u> | | be present, unless disturbed or problematic. |
| 1 Mint all Mint Directions (Directions | 3-14-1-14- | _= Total Cover | |
| Woody Vine Stratum (Plot size: | .") | ×11 | 16.2 |
| 1. Heling heather (unelscape last, | | | Vegetation |
| 2 | | | Present? Yes No |
| % Bare Ground in Herb Stratum | | _= Total Cover | |
| Remarks: Soil oit located in Laure | Utree. | wove . Notio | a valio sume channel ohic |
| position used for veg. | | су ^т | l and the second se |

US Army Corps of Engineers

SOIL

| epth | Matrix | | Rede | ox Features | 5 | | | | | |
|--------------|---|---------------|-----------------|-------------|--|------------------|--|---|--|------------------------|
| nches) | Color (moist) | <u>%C</u> | olor (moist) | % | Type ¹ | Loc ² | Texture | · | Remarks | |
| 22 | INVE 3/1 | | | | | | | (manico a.e. | He than a | www.ukler |
| | <u>, , , , , , , , , , , , , , , , , , , </u> | | | | | | | | | <u>1 11 78 14 39 3</u> |
| | | | | | | | | time (1 1 a bry ()) | <u>)</u> | |
| | | | | | | | <u>.</u> | | | |
| | | | | | | | | | | |
| a- | | | | | | | #~#################################### | . 4.6-5-4.116-1-5-1-5-1-5-1-5-14.20-5-5-2-4.5-5-5-2-4.5-5-5-5- - | -10146-1010-101-10-10-10-10-10-10-10-10-10-10- | |
| | | <u></u> | | | ······································ | | | · · · · · · · · · · · · · · · · · · · | | |
| | | | | <u> </u> | · <u></u> | <u> </u> | | | | |
| ••• | • | | | | | | | | | |
| ····· | | | | | | | * | | | |
| | • • • | | | | | <u> </u> | | · • | | |
| pe: C=Co | ncentration, D=Deplet | on, RM=Red | uced Matrix, C | S=Covered | or Coate | d Sand Gri | ains. ² Lo | cation: PL=Pol | e Lining, M= | Matrix. |
| tric Soil In | idicators: (Applicab | le to all LRR | s, unless othe | erwise note | ed.) | | Indicat | ors for Probler | natic Hydric | Soils ³ : |
| Histosol (| A1) | | Sändy Redox (| (\$5) | | | 2 c | m Muck (A10) | | |
| Histic Epi | pedon (A2) | 1 | Stripped Matrix | (56) | | | Re | d Parent Materi | al (TF2) | |
| Black His | tic (A3) | ! | Loamy Mucky | Mineral (F1 |) (except | MLRA 1) | Oti | ner (Explain in P | emarks) | |
| Hydroger | Sulfide (A4) | | Loamy Gleyed | Matrix (F2 |) | | | | | |
| Depleted | Below Dark Surface (| A11) | Depleted Matri | x (F3) | | | | | | |
| Thick Da | k Surface (A12) | 1 | Redox Dark Su | urface (F6) | | | ³ Indicat | ors of hydrophy | tic vegetation | and |
| Sandy Mi | ucky Mineral (S1) | I | Depleted Dark | Surface (F | 7) | | wet | and hydrology n | ust be prese | int, |
| Sandy Gl | eyed Matrix (S4) | (| Redox Depres | sions (F8) | | | unle | ss disturbed or | problematic. | |
| strictive L | ayer (if present): | | | | | | | | | |
| Type: | | | | | | | | | | |
| Denth (inc | | | | | | | Hydric Soi | i Drocont? V | ÓP. | No X |
| | ····· | 2 | | | | | Tiyana oo | in Filoadinii - F | | <u>10 / (</u> |
| marks: N | o aquic cor | dores | ct. dr. | à mange | s. Dre | sot. | | | | |
| | \bigcirc | | | 0 |) ^y | | | | | |

HYDROLOGY

| Wetland Hydrology Indicators: | | | | | | | |
|---|---|--|--|--|--|--|--|
| Primary Indicators (minimum of one required; check all that apply) | Secondary Indicators (2 or more required) | | | | | | |
| Surface Water (A1) Water-Stained Leaves (B9) (exception) High Water Table (A2) 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Drift Deposits (B3) Oxidized Rhizospheres along Livin Algal Mat or Crust (B4) Presence of Reduced from (C4) Iron Deposits (B5) Recent Iron Reduction in Tilled So Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (L Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) | pt MLRA Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ng Roots (C3) Geomorphic Position (D2) Shailow Aquitard (D3) ills (C6) FAC-Neutral Test (D5) RR A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hurnmocks (D7) | | | | | | |
| Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: | Wetland Hydrology Present? Yes No ions), if available: | | | | | | |
| | | | | | | | |

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| Project/Site: Mendenbauer Park | City/County: | | Sampling Date: |
|--|-------------------|-----------------------------|----------------------------|
| Applicant/Owner: | | State: | Sampling Point:/ () (the |
| Investigator(s): | Section, Town | ship, Range: | ,, |
| Landform (hillslope, terrace, etc.): too of stop | Local relief (c | oncave, convex, none): | Siope (%): |
| Subregion (LRR): La | nt: | Long: | Datum: |
| Soll Map Unit Name: | | NWI class | ification: |
| Are climatic / hydrologic conditions on the site typical for this time | e of year? Yes | No (If no, explain in | Remarks.) |
| Are Vegetation, Soil, or Hydrology signifi | cantly disturbed? | Are "Normal Circumstances | s" present? Yes No |
| Are Vegetation, Soil, or Hydrology nature | ally problematic? | (If needed, explain any ans | wers in Remarks.) |

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

| Hydrophytic Vegetation Present? Hydric Soll Present? Wetland Hydrology Present? | Yes No Yes No Yes No | Is the Sampled Area within a Wetland? | Yes | No |
|---|----------------------------|--|-----|----------------------|
| Remarks: on whe adar | L'algère a pl | Call and the | | all was to the south |

build up and wicking lake water provide Englandosy,

VEGETATION - Use scientific names of plants.

| The Contraction of the Second | Absolute | Dominar | nt Indicator | Dominance Test works | neet: |
|------------------------------------|--|-------------------|---------------|---|---|
| | <u>% Cover</u> | Species' | <u>Status</u> | Number of Dominant Spe | cies |
| 2 | | | ••• | THAT ALE ODE, FAULT, O | PAC: (A) |
| 3 | | | | Total Number of Dominar | nt |
| | | | | Species Across All Strata | : (B) |
| | | | | Percent of Dominant Spe | cies |
| Sapling/Shrub Stratum (Plot size:) | <u>.</u> | = Fotal C | over | That Are OBL, FACW, or | FAC: (A/B) |
| 1 | <u> </u> | . <u></u> | | Prevalence Index works | heet: |
| 2. | ····· | | - | Total % Cover of: | Multiply by: |
| 3. | | | | OBL species | x1= |
| 4 | <u> </u> | . <u> </u> | - <u></u> | FACW species | x2= |
| 5 | <u> </u> | · | | FAC species | X3 = |
| Hart Otaching (Dick store) | | ≓ Total C | over | FACU species | x 4 = |
| | 1 4 | | | UPL species | x5= |
| 1. Sarpas microcarpus | <u> </u> | | . | Column Totals: | (A) (B) |
| 2. Standie extracts | <u> </u> | | | 4 4 4 4 | _11 |
| 3. FRANKIS ANUDA MIRSON | <u> </u> | <u>\</u> | <u>-ac</u> | Prevalence Index = | B/A = |
| 4. Jour pus acutus | | · | | Hydrophytic Vegetation | Indicators: |
| 5. <u>Equicitum avense</u> | <u> </u> | ····· | | Dominance Test is >5 | 50% |
| 6. Convolvulus: sp- | _ <u>501</u> | | • | Prevalence Index is ≤ | 3.0' |
| 7. <u>Honegentete sp</u> . | _ 22 | | · | Morphological Adapta data in Remarks o | ations ¹ (Provide supporting r on a separate sheet) |
| Q. | | | • | Wetland Non-Vascula | ir Plants ¹ |
| ۵ ۱۹ | · | · · · · · · · · · | · ······ | Problematic Hydrophy | vtic Vegetation ¹ (Explain) |
| 14 | ······································ | | | ¹ Indicators of hydric soil a | nd wetland hydrology must |
| | | | | be present, unless disturb | ed or problematic. |
| Woody Vine Stratum (Plot size; | | = I otal Co | ver | | |
| 1. Q. Liscolor | 14 | | | Hydrophytic | |
| 2 | | | | Vegetation | \searrow |
| · · · · · | | = Total Co | vər | Present? Yes_ | No |
| % Bare Ground in Herb Stratum | | | | | |
| Remarks: | | 4 | Udropan | 16 Salatava ? | |
| | | | 1 1 1 | ware for the first state | |
| | | | | | |

US Army Corps of Engineers

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| rofile Description: (Describe to the de | epth needed to document the indicator or confirm | the absence of indicators.) |
|---|--|---|
| Depth Matrix | Redox Features | |
| inches) Color (moist) % | Colar (moist) % Type ¹ Lac ² | Remarks |
| -14 7.5YR # 2.5/1 | | 1-honzon |
| | | 1-7" ribboo war with which sie |
| | | |
| | | , |
| | | |
| | | |
| | , <u>`</u> | |
| <u> </u> | | |
| | | |
| | | |
| Iumo: C-Concentration DriBenletion P | M=Peduced Natrix, CS=Covered or Costed Send Gr | aine ² I acation: DI = Pore Lining M=Matrix |
| vdric Soil Indicators: (Applicable to a | Il LRRs, unless otherwise noted.) | Indicators for Problematic Hydric Solls ³ : |
| Historol (A1) | Sandy Podoy (S5) | 2 cm Muck (A10) |
| Listic Eninedon (A2) | Stripped Matrix (SS) | 2 diff much (r(to) Red Parant Material /TE2) |
| Black Histic (A3) | Loamy Mucky Mineral (F1) (except MI RA 1) | Other (Explain in Remarks) |
| Hydronen Shiffide (A4) | Loamy Gleved Matrix (E2) | Other (Explain in reariansy |
| Depleted Below Dark Surface (A11) | Depleted Matrix (F3) | |
| Thick Dark Surface (A12) | Redox Dark Surface (F6) | ^a Indicators of hydrophytic venetation and |
| Sandy Mucky Mineral (S1) | Depleted Dark Surface (F7) | welland hydrology must be present. |
| Sandy Gleved Matrix (S4) | Redox Depressions (F8) | unless disturbed or problematic. |
| estrictive Layer (if present): | | |
| Type: | | |
| Denth (inches) | | Hydric Soil Present? Yes No |
| , , , , , , , , , , , , , , , , , , , | | |
| Oxidized root por | = s; roots down to 20" | |
| Oridized root por (DROLOGY fetland Hydrology Indicators: | = s; roots down to 20" | |
| Oridized root por DROLOGY Atland Hydrology Indicators: | red; check all that apply) | Secondary Indicators (2 or more required) |
| OKILIZCL root por DROLOGY retland Hydrology Indicators: rimary Indicators (minimum of one require Surface Water (A1) | red; check all that apply) Water-Stained Leaves (B9) (except MLF | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, |
| OKILIZCL root por DROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one require Surface Water (A1) High Water Table (A2) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1. 2. 4A. and 4B) | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, # 4A, and 4B) |
| OKILIZCL root por DROLOGY Vetland Hydrology Indicators: mary Indicators (minimum of one requir _ Surface Water (A1) _ High Water Table (A2) Saturation (A3) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Draipage Patterns (B10) |
| OKILIZCL root por DROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one requir Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Acutatic Invertebrates (B13) | <u>Secondary Indicators (2 or more required)</u> RA Water-Stained Leaves (B9) (MLRA 1, 2, |
| OKILIZCL root por DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one require Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Satiment Dencets (B2) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Order (C1) | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, |
| Oridized root por DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one require Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B2) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Sait Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Ovidized Phizeenheres along Living Poo | Secondary Indicators (2 or more required) A Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ate (C3) |
| Oridized root por DROLOGY etiand Hydrology Indicators: <u>imary Indicators (minimum of one requinators)</u> Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Atrait Matter Caust (B4) | red; check all that apply) | Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 44, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Stailow Aguitard (D3) |
| DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one require Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) | s; roots down to 20¹¹ water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Percent Iron Reduction in Tilled Soile (C6) | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) EAC-blautral Test (D5) |
| Oridized root por DROLOGY etiand Hydrology Indicators: imary Indicators (minimum of one requir 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 Sell Crasks (P6) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Struct of | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, |
| OKILIZEL root por DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one requir 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) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) | Secondary Indicators (2 or more required) RA |
| Oridized root por Original States | S; roots down to 20¹¹ Water-Stained Leaves (B9) (except MLF 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Stunted or Stressed Plants (D1) (LRR A) (B7) 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 Staturation Visible on Aerial Imagery (C9 Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) |
| Oridized root por Original Sectors Ori | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Stunted or Stressed Plants (D1) (LRR A) (B7) Other (Explain in Remarks) | Secondary Indicators (2 or more required) RA |
| Oridized root por DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one requir 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 (Sparsely Vegetated Concave Surface eld Observations: Vegetated Concave Surface | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) (B7) Other (Explain in Remarks) (B8) | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, # 4A, and 4B) Drainage Patterns (B10) |
| Oridized root por DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one requir 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 (Sparsely Vegetated Concave Surface eld Observations: urface Water Present? Yes | red; check all that apply) | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, 2, 20, 20, 20, 20, 20, 20, 20, 20, |
| Oridized root por Oridized root por Original Statement Provided and Pr | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Stunted or Stressed Plants (D1) (LRR A) (B7) Other (Explain in Remarks) (B8) No Depth (inches): | Secondary Indicators (2 or more required) RA Water-Stained Leaves (B9) (MLRA 1, 2, 30%) Water-Stained Leaves (B9) (MLRA 1, 2, 30%) Water-Stained Leaves (B9) (MLRA 1, 2, 30%) Drainage Patterns (B10) Dry-Season Water Table (C2) |
| Oridized root por Original Sectors Ori | red; check all that apply) | Secondary Indicators (2 or more required) RA |
| Oridized root por //DROLOGY //etland Hydrology Indicators: rimary Indicators (minimum of one require | red; check all that apply) | Secondary Indicators (2 or more required) RA |
| Oxidited root por /DROLOGY //etiand Hydrology Indicators: rimary Indicators (minimum of one requires) | red; check all that apply) Water-Stained Leaves (B9) (except MLF 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Stunted or Stressed Plants (D1) (LRR A) (B7) Other (Explain in Remarks) (B8) No Depth (inches): No No No Depth (inches): No | Secondary Indicators (2 or more required) RA |
| Oridited root por //DROLOGY //etiand Hydrology Indicators: rimary Indicators (minimum of one requit | red; check all that apply) | Secondary Indicators (2 or more required) RA |
| Oridital root por /DROLOGY //etland Hydrology Indicators: rimary Indicators (minimum of one requires) | red; check all that apply) | Secondary Indicators (2 or more required) RA |
| Oxidited root por /DROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one requires) | red; check all that apply) | Secondary Indicators (2 or more required) RA |
| Oridization por 'DROLOGY 'etland Hydrology Indicators: rimary Indicators (minimum of one require | <pre>red; check all that apply)</pre> | Secondary Indicators (2 or more required) RA |
| Oxidited root por /DROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one require | red; check all that apply) | Secondary Indicators (2 or more required) RA |

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| Line A | the sta | | <u> </u> | | Oldly Odi | opengri venc | Y Same & G |
|--|---------------------------|----------------------------|---|-----------------|--|--|------------|
| vestigator(s): <u></u> | A LA RATER | | Section, | Township, Ra | ange: | | |
| andform (hillslope, terrace, etc.): | | <u></u> | Local re | elief (concave, | convex, none): | Slope | (%): |
| ubregion (LRR): | | Lat: | | | _ Long: | Datum: | |
| oil Map Unit Name: | | | | | NWI classification | : <u> </u> | |
| re climatic / hydrologic conditions on I | the site typical fo | or this time of ye | ar? Yes | No | (If no, explain in Rema | rks.) | |
| re Vegetation, Soil, or | · Hydrology | significantly | disturbe | d? Åre | "Normal Circumstances" prese | nt? Yes | No |
| re Vegetation, Soil, or | Hydrology | naturally pro | blematic | c? (if ne | eeded, explain any answers in | Remarks.) | |
| UMMARY OF FINDINGS - A | ttach site m | ap showing | samp | ling point l | locations, transects, im | portant feat | ures, e |
| Hydrophytic Vegetation Present? | Yes X | No | | | * •• | | |
| Hydric Soil Present? | Yes X | No | | s the Sampled | | Ň- | |
| Wetland Hydrology Present? | Yes 🔀 | No | | viunin a vvenai | nd? tes <u>~</u> | NO | |
| Log niprap losse alla EGETATION - Use scientific | na isodim c names of p | ant to frui Mants. | <u> </u> | p + brick | and of lake water of | provides h | Jerd. |
| ree Stratum (Plot size: |) . | Absolute <u>% Cover</u> | Domin Specie | ant Indicator | Dominance Test workshee | H: | |
| . Salip babylonica | (out) | | | FACW | That Are OBL, FACW, or FA | No:/ | (A) |
| V | | | | | Total Number of Dominant | | |
| • | | | <u> </u> | | Species Across All Strata: | | (B) |
| ,,,,,,, | | | | | Percent of Dominant Specie | ۹ n | |
| Sanling/Shruh Stratum (Plot size | ۱. | | = Total | Cover | That Are OBL, FACW, or FA | c: 1004 | (A/ |
| | | | | | Prevalence Index workshe | et: | |
| | | | p == | | Total % Cover of: | Multiply b | v |
| · · · · · · · · · · · · · · · · · · · | | | | | OBL species | _ x1= | |
| • | | | | | FACW species | x2= | |
| | | <u> </u> | | | FAC species | x 3 = | |
| loth Stratum (Dist since | λ. | | = Total | Cover | FACU species | x 4 = | ····· |
| Philostatum (Piot size: |)^` | UD | \checkmark | (and) | UPL species | x 5 = | |
| Complander Co | , (Ayora) | <u>_</u> | <u> </u> | ALOUE | Column Totals: | (A) | |
| Lonicera sa | | <u>v v</u> | | ALANE | Prevalence Index = B | Å = | |
| Equipetan common | <u></u> | 1 | Anno 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1 | FAC | Hydrophytic Vegetation In | dicators: | |
| Sanas acutas | | / | | 032 | Dominance Test is >50 | % | |
| Sugar mino ca | Azarra | 1 | | OBL | Prevalence Index is <3 | 21 | |
| Junas efficies | <i>i</i> | | | FAUL | Morphological Adaptatio | ns ¹ (Provide su | pporting |
| | | | | | Walland Non-Vaccular | u a separate sn Plante ¹ | eet) |
| · · · · · · · · · · · · · · · · · · · | | | · | | Problematic Hydrophytic | : Vegetation ¹ /F | Yolain\ |
| U | | | <u></u> | <u></u> | ¹ Indicators of hydric soil and | wetland hydrold | av must |
| 4 | | | | n i | be present, unless disturbed | or problematic. | <i>41</i> |
| 1 | | · | = 10tal t | Jover | | | |
| 1 Voody Vine Stratum (Plot size: | | | | | 1 · · · | | |
| 1 <u>Voody Vine Stratum</u> (Plot size: - Rubus dryalo | edge) | / | | NL | Hydrophytic | | |
| 1 <u>Voody Vine Stratum</u> (Plot size: - <u>Rubuc divido</u> | edge) | / | | | Hydrophytic Vegetation Present? | 57- | |
| 1 (Plot size: | edyn) | | ≖ Total (| Cover | Hydrophytic Vegetation Present? Yes | No | |

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| OIL | | Sampling Point: <u>MBU</u> |
|---|---|---|
| Profile Description: (Describe to the | depth needed to document the indicator or confirm | n the absence of indicators.) |
| Depth Matrix | Redox Features | |
| (inches) Color (moist) % | Color (moist) % ivpe Loc | lexture Remarks |
| 5-14 7.5 YR 2.5/1 | | 1-2 ribban |
| · · · · · · · · · · · · · · · · · · · | | man chitte than Smoth |
| | | e d |
| | | <u>, , , , , , , , , , , , , , , , , , , </u> |
| | nya mita manana mana |), 91,91,91,14,11,12,12,14,14,14,14,14,14,14,14,14,14,14,14,14, |
| | <u></u> | ····· |
| | | |
| | | • |
| anlikaturinikaturinikatikat fickunitatisikaturun kiristinikaturinik anallantu | | |
| | | |
| ype: C=Concentration, D=Depletion, | RM=Reduced Matrix, CS=Covered or Coated Sand G | rains. 'Location: PL=Pore Lining, M=Matrix. |
| ydric Soil Indicators: (Applicable to | o all LRKs, unless otherwise noted.) | Indicators for Problematic Hydric Solls : |
| _ Histosol (A1) | Sandy Redox (S5) | 2 cm Muck (A10) |
| Histic Epipedon (A2) | Stripped Matrix (Sb) | Red Parent Material (172) |
| Black Histic (A3) | Loamy Glaved Matrix (E2) | |
| Depleted Below Dark Surface (A11 | Depleted Matrix (F3) | |
| Thick Dark Surface (A12) | Redox Dark Surface (F6) | ³ Indicators of hydrophytic vegetation and |
| Sandy Mucky Mineral (S1) | Depleted Dark Surface (F7) | wetland hydrology must be present, |
| Sandy Gleyed Matrix (S4) | Redox Depressions (F8) | unless disturbed or problematic. |
| estrictive Layer (if present): | | |
| Type: | | ./ |
| Depth (inches): | | Hydric Soil Present? Yes X No |
| ordinal most | provision to 20 | • |
| ADROLOGY | | |
| renand rejurology indicators. | wired: check all that apply) | Secondary Indicators (2 or more required) |
| Surface Water (A1) | Mater Stained Leaves (P0) (except MI | DA Water Steined Leaves (SO) (NLDA 1.2 |
| _ Soliace Water (AT) | 1.2 44 and 4P | AA and AD |
| | 1, 2, 4A, dita 4D) | HA, and HD) |
| _ Saturation (AS) | Sali Clusi (B11) | Drainage Fallerins (D10) |
| vvater marks (D1) | Hudragon Sulfide Oder (C1) | Solucition Visible on Astal Imperior (CO |
| _ Sediment Deposits (D2) | Hydrogen Suilide Odor (C1) | Geometric Decision (D2) |
| _ Dilit Deposits (B3) | Decence of Reduced inter (C4) | Shallow Aquitard (D2) |
| Algar Mat of Crust (64) | Presence of Reduced from (C4) | EAC Neutral Test (D5) |
| Surface Soil Cracks (PS) | Stunted or Stressed Diants (D1) / DD A | Raised Ant Mounds (DS) (ERR A) |
| _ Garries Obil Gracks (DO) | nr (B7) Other (Evaluin in Remarks) | Frost Heave Hummorks (D7) |
| Sharedu Variation Concour Surf | | |
| _ operations: | | |
| | | |
| unace water Present? Yes | | |
| vater Table Present? Yes | No Depth (inches): | \vee |
| aturation Present? Yes X | No Depth (inches): Wetl | land Hydrology Present? Yes A No No |

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

Saturated to surface . no surface water, but pit is located water samply ant of log. rip rap. water likely entire from Remarks: bachara.

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| Project/Site: Menderbauer Part | City/County: | King con. | Sampling Date: 87 |
|--|-------------------|------------------------------|--------------------------------------|
| Applicant/Owner: | | State: <u>\.)}7</u> | _ Sampling Point: <u>Lelle 10 16</u> |
| Investigator(s): His was by Drumalk stre | Section, Town | nship, Range: | · · · |
| Landform (hillslope, terrace, etc.): toe of stope | Local relief (c | concave, convex, none): | Slope (%): |
| Subregion (LRR): La | t: | Lõng: | Datum; |
| Soil Map Unit Name: | | NWI classi | fication: |
| Are climatic / hydrologic conditions on the site typical for this time | of year? Yes | No (If no, explain in | Remarks.) |
| Are Vegetation, Soil, or Hydrology signific | cantly disturbed? | Are "Normal Circumstances | * present? Yes No |
| Are Vegetation, Soil, or Hydrology natura | lly problematic? | (If needed, explain any answ | vers in Remarks.) |
| SUMMARY OF FINDINGS - Attach site map show | wing sampling | point locations, transec | ts, important features, etc. |

| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes Nó Yes No Yes No | Is the Sampled Area within a Wetland? | Yes | No |
|---|----------------------------|--|-----|----|
| Remarks: | | | | |

VEGETATION - Use scientific names of plants.

| | Absolute | Dominant Indicator | Dominance Test worksheet: | |
|---|----------------------------|---|---|--|
| Tree Stratum (Plot size:) 1)) | % Cover | <u>Species?</u> <u>Status</u> | Number of Dominant Species (A) | |
| 2 3 | - <u></u> | | Total Number of Dominant Species Across All Strata: (B) | |
| 4 | | = Total Cover | Percent of Dominant Species 100 9, (A/B) | |
| 1. | | | Prevalence index worksheet: | |
| 2. | | | Total % Cover of:Multiply by: | |
| 3 | | | OBL species x1 = | |
| 4 | | | FACW species x 2 = | |
| 5. | | | FAC species X3 = | |
| | · | = Total Cover | FACU species x 4 = | |
| Herb Stratum (Plot size:) | Ċ | t" A # a1 | UPL species x 5 = | |
| 1. Irobalain Pratiense | | | Column Totals: (A) (B) | |
| 2. Holcus anatus | | | | |
| 3. Poa annua | $\frac{10^{-1}}{\alpha s}$ | CM. | | |
| A. TOLCO PROPERTY | <u>- 1() -</u> | | Dominance Test is >50% | |
| 5. Kanuntultur () ppop | | <u>> PL_V*</u> | \sim Dominance results >50 % | |
| 0 | - 12- | <u> </u> | Morphological Adaptations¹ (Provide supporting data in Remarks or on a senarate sheet) | |
| 8. | | , managaran ang pang bang managaran sa kang | Wetland Non-Vascular Plants ¹ | |
| 9. | | | Problematic Hydrophytic Vegetation ¹ (Explain) | |
| 10 | · | ····· | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | |
| | _119 | = Total Cover | | |
| Woody Vine Stratum (Plot size:) | | | | |
| | | | Hydrophytic Vegetation | |
| 2. <u></u> | | | Present? Yes No | |
| % Bare Ground in Herb Stratum | · | = Total Cover | | |
| Remarks: Anon I (a long the come is | 7 ⁷⁷⁷ 1°. | | unsaved a lar 6 lama | |
| in a many must species i a many many many to the second | | | | |
| With and veg | | | | |

US Army Corps of Engineers

| SOIL | | | | | Sampling Point: MB7 |
|--|---|--|--------------------|-------------------|---|
| Profile Description: (Descri | be to the depth nee | eded to document the indicator or | confirm the | absence o | f indicators.) |
| Depth Matri | x | Redox Features | ******* | | |
| (inches) Color (moist) | <u> % </u> | lor (moist) % Type | Loc ^z T | exture | Remarks |
| 0-24 2.57 8/1 | | | | | 1-2" ribben |
| | | | | X | nora sandy than smooth |
| | | | | |) |
| · <u> </u> | | , <u>,</u> | , | <u></u> | |
| | | | <u></u> | | |
| | | ······································ | | | |
| | | | | ······ | |
| | | | | | |
| | | | | | |
| ¹ Type: C=Concentration D=I | Depletion RM=Redu | ced Matrix CS=Covered or Coated | Sand Grains | ² Loca | tion: PL=Pore Lining M=Matrix |
| Hydric Soil Indicators: (Ap) | plicable to all LRRs | , unless otherwise noted.) | | Indicator | s for Problematic Hydric Soils ³ : |
| Histosol (A1) | s | andv Redox (S5) | | 2 cm | Muck (A10) |
| Histic Epipedon (A2) | s | tripped Matrix (S6) | | Red F | Parent Material (TF2) |
| Black Histic (A3) | L | oamy Mucky Mineral (F1) (except M | ALRA 1) | Other | (Explain in Remarks) |
| Hydrogen Sulfide (A4) | L | oamy Gleyed Matrix (F2) | | | |
| Depleted Below Dark Sur | face (A11) D | epleted Matrix (F3) | | 3 | |
| Thick Dark Surface (A12) |)R | edox Dark Surface (F6) | | Indicator | s of hydrophytic vegetation and |
| Sandy Mucky Mineral (S Sandy Cloved Matrix /SA | ון <u>ה</u> ני | Pepieted Dark Surface (F7) | | wetian | d nydrology must be present, |
| Salidy Gleyed Malitix (34 | <u> </u> | | r | unicsa | distribed of problematic. |
| Tuna: | ···· | | | | |
| Donih (inchas): | | | 5 | udeio Soil E | Present? Yes No |
| | | · | 11) | Yunc Son F | |
| | | | | <u></u> | |
| | | | | | |
| Welland Hydrology molcald | 418; -f | | | Cana | |
| Primary moleators (minimum) | or one required; chec | | | <u>Second</u> | ary indicators (2 or more required) |
| Surface Water (A1) | - | water-Stained Leaves (B9) (exc | COPT MLRA | Wa | (A and (D) |
| High water Table (Az) | | 1, 2, 4A, and 4B) | | | 4A, and 4B) |
| Motor Morke (P1) | - | Sait Grust (B11) | | Dra | (Searen Mater Table (C2) |
| Sediment Denosite (B2) | • | Hudrogen Sulfide Odor (C1) | | Di) Sai | hurstion Visible on Aerial Imagen (CO) |
| Drift Denosite (B3) | in the second | Ovidized Rhizospheres along Li | vina Roots (C | 31 Ge | omorphic Position (D2) |
| Algal Mat or Crust (84) | - | Presence of Reduced from (C4) | ang 1000 (0 | ~) <u> </u> | allow Applied (D3) |
| Iron Deposits (B5) | - | Recent Iron Reduction in Tilled | Soils (C6) | FA | C-Neutral Test (D5) |
| Surface Soil Cracks (B6) | - | Stunted or Stressed Plants (D1) | (LRR A) | Ra | ised Ant Mounds (D6) (LRR A) |
| Inundation Visible on Aer | ial Imagery (B7) | Other (Explain in Remarks) | | Fre | st-Heave Hummocks (D7) |
| Sparsely Vegetated Conc | ave Surface (B8) | • • | | — | |
| Field Observations: | | <u> </u> | 1 | | |
| Surface Water Present? | Yes No | Depth (inches): | _ | | |
| Water Table Present? | Yes V No | Depth (inches); 24" | _ | | . / |
| Saturation Present? (includes capillary fringe) | Yes <u>X</u> No | Depth (inches): 10° | Wetiand | Hydrology | Present? Yes No |
| Describe Recorded Data (stre | am gauge, monitorir | ig weil, aenal photos, previous inspe | ections), it ava | aliable; | |
| Demedici | | | | | |
| Remarks: water com | 10510 2- | fre and the second an | 10 ¹¹ € | | |
| * Scenerar | non zorr d | rwalle table not - | ria tri | | on surrences |
| | | | | | |

| Project/Site: Meydenbaum | City/County: 16106 CD. | _ Sampling Date: <u>(0-(0-08</u> |
|---|--|----------------------------------|
| Applicant/Owner: <u>Pellevue</u> | State: <u>\v A</u> | _ Sampling Point: <u>MBX</u> |
| Investigator(s): Howard, Duer/Kotte | Section, Township, Range: | |
| Landform (hillslope, terrace, etc.): | _ Local relief (concave, convex, none): | Slope (%): |
| Subregion (LRR): Let: | Löng: | Datum: |
| Soil Map Unit Name: | NWI classi | fication: |
| Are climatic / hydrologic conditions on the site typical for this time of y | ear? Yes No (If no, explain in | Remarks.) |
| Are Vegetation, Soil, or Hydrology significantly | y disturbed? Are "Normal Circumstances" | present? Yes No |
| Are Vegetation, Soil, or Hydrology haturally p | roblematic? (If needed, explain any answ | vers in Remarks.) |

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

| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes No Yes No Yes No | is the Sampled Area within a Wetland? | Yes | No |
|---|----------------------------|--|-----|----|
| Remarks: Marginal wettan | nd at best | | | |

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant Indicator | Dominance Test worksheet: |
|---|----------------|---------------------------------------|---|
| Tree Stratum (Plot size:) 1.) | <u>% Cover</u> | Species? Status | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| 2. | | | Total Number of Dominant |
| 3 | | | Species Across All Strata: (B) |
| 4 | | | Demont of Dominant Speciet |
| | | = Total Cover | That Are OBL, FACW, or FAC:(A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | |
| 1, | · | · · · · · · · · · · · · · · · · · · · | Prevalence index worksneet: |
| 2 | | · | |
| 3. | | · | |
| 4. | | . <u></u> | FACW species x2 = |
| 5 | | · ····· | |
| Hast Otation (Distance) | | _= Total Cover | ACU species X4 = |
| | 17. | Fills | |
| 1. <u>The curr solutions of</u> | <u> </u> | Cole | Column Totals: (A) (B) |
| 2 Conserver privatos | 2_ | CALW | Prevalence Index = B/A = |
| S. <u>Concerts anonactions ca</u> | | FAC | Hydrophytic Vegetation Indicators: |
| 4. <u>Agrostis complicaria</u> | | | Dominance Test is >50% |
| Blankton in a site | | <u>га</u> Е М | Prevalence Index is ≤3.0 ¹ |
| 7. Plantaso lancestate | 3 | FACV | Morphological Adaptations ¹ (Provide supporting |
| -8. Venanica | 7 | | data in Remarks or on a separate sneet) |
| 9. Convolvulus sp | 10 | · | wetland Non-Vascular Plants |
| 10. Ortranium robertiamin | - 15 | FACU | Problematic Hydrophytic Vegetation (Explain) |
| 11. Itypericum | 12 | - | be present, unless disturbed or problematic. |
| | <u> </u> | _= Total Cover | · · · · · · · · · · · · · · · · · · · |
| Woody Vine Stratum (Plot size:) | | | |
| 1 | | | Hydrophytic . |
| 2 | | | Present? Yes No |
| % Bare Ground in Herb Stratum | | _= Total Cover | |
| Remarks: 10 At Julia of VIDD. And | amone Alberto | M | |
| veg a sep of riplian con | PRAK CHINAK | - 4 | |
| | | | |

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SOIL

Sampling Point: <u>MR X</u>

| Depth Matrix | Redox Features | |
|---------------------------------------|---|---|
| inches) Color (moist) % | <u>Color (moist) % Type¹ Loc²</u> | Texture Remarks |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | ана — маласка жалаана алаан алаан алаан — — — — — — — — — — — — — — — — — — |
| Type: C=Concentration, D=Depletion, I | RM=Reduced Matrix, CS=Covered or Coated Sand (| Grains. ² Location: PL=Pore Lining, M=Matrix. |
| ydric Soil Indicators: (Applicable to | all LRRs, unless otherwise noted.) | Indicators for Problematic Hydric Soils ³ : |
| _ Histosol (A1) | Sändy Redox (S5) | 2 cm Muck (A10) |
| _ Histic Epipedon (A2) | Stripped Matrix (S6) | Red Parent Material (TF2) |
| _ Black Histic (A3) | Loamy Mucky Mineral (F1) (except MLRA 1 | 1) Other (Explain in Remarks) |
| Hydrogen Sulfide (A4) | Loamy Gleyed Matrix (F2) | |
| _ Depleted Below Dark Surface (A11) | Depleted Matrix (F3) | |
| Thick Dark Surface (A12) | Redox Dark Surface (F6) | ³ Indicators of hydrophytic vegetation and |
| Sandy Mucky Mineral (S1) | Depleted Dark Surface (F7) | wetland hydrology must be present. |
| _ Sandy Gleyed Matrix (S4) | Redox Depressions (F8) | unless disturbed or problematic. |
| estrictive Layer (if present): | | |
| Туре: | <u></u> | |
| Depth (inches): | | Hydric Soil Present? Yes No |
| emarks: No cail oit due to | chillour president dout of a | nit alread south and a |
| for a serie faire excert for | and the contractions and conduct of 20 | on above rock riprap |
| | | , |

HYDROLOGY

| Wetland Hydrology Indicators: | |
|---|---|
| Primary Indicators (minimum of one required; check all that apply) | Secondary Indicators (2 or more required) |
| Primary indicators (minimum of one required; check all that apply) | 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) Oils (C6) FAC-Neutral Test (D5) LRR A) Raised Ant Mounds (D6) (LRR A) Froet-Heave Hummocks (D7) |
| Sparsely Vegetated Concave Surface (B8) | |
| Field Observations: | |
| Surface Water Present? Yes No X Depth (inches): | |
| Water Table Present? ² Yes No Depth (inches): | |
| Saturation Present? ? Yes No Depth (inches): | Wetland Hydrology Present? Yes No |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec | tions), if available: |
| Remarks: Wiching through tiprap into shallow soils which of include water; wethand species it's or deeper vook systems. | in voland species not receiving in voobed in tower position |

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Sum

APPENDIX C

Representative Photographs

Appendix C Representative Photos: Meydenbauer Bay Park and Land Use Plan



Contiguous Canopy over 98th Place NE in Meydenbauer Beach Park



Typical grass and landscaping in park and residential areas



Residential Shoreline in Study Area



Invasive vegetation and wet lawn



APPENDIX D

NRCS Soil Maps

Soil Map–King County Area, Washington (Meydenbauer NRCS soils)





Map Unit Legend

| King County Area, Washington (WA633) | | | | |
|--------------------------------------|---|--------------|----------------|--|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI | |
| AgC | Alderwood gravelly sandy loam, 6 to 15 percent slopes | 21.4 | 2.9% | |
| AgD | Alderwood gravelly sandy loam, 15 to 30 percent slopes | 17.6 | 2.4% | |
| AmC | Arents, Alderwood material, 6 to 15 percent slopes | 368.7 | 49.9% | |
| КрВ | Kitsap silt loam, 2 to 8 percent slopes | 2.9 | 0.4% | |
| КрD | Kitsap silt loam, 15 to 30 percent slopes | 66.0 | 8.9% | |
| No | Norma sandy loam | 16.5 | 2.2% | |
| RdE | Ragnar-Indianola association, moderately steep | 3.1 | 0.4% | |
| Sk | Seattle muck | 14.0 | 1.9% | |
| Totals for Area of Interest (AC |)) | 739.0 | 100.0% | |

APPENDIX E

Wetlands Assessment Rating Forms

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated June 2006 to increase accuracy and reproducibility among users

Name of wetland: Meydenbauer Bay Park and Land use Plan Wetlands Date of site visits: June 6&27 2008 Rated by: Amberlynn Pauley Trained by Ecology? Yes X No Date of training OCT 2006

SEC: NE31 TWNSHP: 25N RNGE: 5E Is S/T/R in Appendix D? Yes___ No_X_

Map of wetland unit: Figure 3.1-1 Estimated size: 1,976

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I____ II___ 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 | 8 |
|-----------------------------------|----|
| Score for Hydrologic Functions | 4 |
| Score for Habitat Functions | 11 |
| TOTAL score for Functions | 23 |

Category based on SPECIAL CHARACTERISTICS of wetland I____ II___ Does not Apply X

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

Summary of basic information about the wetland unit

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

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 | YES | NO |
|--|-----|----|
| (in addition to the protection recommended for its category) | | |
| SP1. Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)? | | X |
| For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database. | | |
| 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 | | X |
| SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state? | | X |
| SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance. | | X |

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

The hydrogeomorphic classification groups wetlands into those that function in similar ways. 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.

Classification of Wetland Units in Western Washington

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.

 \bigcirc NO – go to 3 \bigcirc 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?
 - X____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;
 - X____At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4 **VES** – 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.*

 $\overline{\text{NO} - \text{go to 7}}$ **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.

 $\underbrace{NO-go \text{ to -8}}_{NO-go \text{ to -8}} YES - The wetland class is$ **Depressional**

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

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

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

| L | Lake-fringe Wetlands | Points |
|----|---|---------------------------|
| | WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions | (only 1 score per box) |
| | to improve water quality | • · |
| L | L 1. Does the wetland unit have the <u>potential</u> to improve water quality? | (see p.59) |
| L | L 1.1 Average width of vegetation along the lakeshore (<i>use polygons of Cowardin classes</i>): | Figure 3- 1.1 |
| | Vegetation is more than 33ft (10m) widepoints = 6Vegetation is more than 16 (5m) wide and <33ftpoints = 3Vegetation is more than 6ft (2m) wide and <16 ftpoints = 3 | 0 |
| | $\frac{1}{1}$ Vegetation is less than 6 ft wide points = 0 | |
| | Map of Cowardin classes with widths marked | |
| L | L 1.2 Characteristics of the vegetation in the wetland: <i>choose the appropriate</i> <i>description that results in the highest points, and do not include any open water in</i> <i>your estimate of coverage. The herbaceous plants can be either the dominant form or</i> <i>as an understory in a shrub or forest community. These are not Cowardin classes.</i> <i>Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous</i> <i>does not include aquatic bed.</i> | Figure A |
| | Cover of herbaceous plants is >90% of the vegetated areapoints = 6Cover of herbaceous plants is >2/3 of the vegetated areapoints = 4Cover of herbaceous plants is >1/3 of the vegetated areapoints = 3Other vegetation that is not aquatic bed or herbaceous covers > 2/3 unitpoints = 3Other vegetation that is not aquatic bed in > 1/3 vegetated areapoints = 1Aquatic bed vegetation and open water cover > 2/3 of the unitpoints = 0Map with polygons of different vegetation types | |
| T. | Add the points in the boxes above | <u> </u> |
| L | L 2. Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. <i>Note which of the following</i> <i>conditions provide the sources of pollutants. A unit may have pollutants coming</i> <i>from several sources, but any single source would qualify as opportunity.</i> Wetland is along the shores of a lake or reservoir that does not meet water quality | (see p.61) |
| | standards Grazing in the wetland or within 150ft XPolluted water discharges to wetland along upland edge Tilled fields or orchards within 150 feet of wetland XResidential or urban areas are within 150 ft of wetland | multiplier |
| | X_Parks with grassy areas that are maintained, ball fields, golf courses (all within 150 ft. of lake shore) X Power boats with gasoline or diesel engines use the lake | 2 |
| | Other | |
| | YES multiplier is 2 NO multiplier is 1 | |
| L | TOTAL - Water Quality Functions Multiply the score from L1 by L2 Add score to table on p. 1 | 8 |

| L | Lake-fringe Wetlands | Points (only 1 score per |
|---|--|----------------------------------|
| | reduce shoreline erosion | box) |
| L | L 3. Does the wetland unit have the <u>potential</u> to reduce shoreline erosion? | (see p.62) |
| L | L 3 Distance along shore and average width of Cowardin classes along the lakeshore (do not include aquatic bed): (choose the highest scoring description that matches conditions in the wetland) > ³ / ₄ of distance is shrubs or forest at least 33 ft (10m) wide points = 6 > ³ / ₄ of distance is shrubs or forest at least 6 ft. (2 m) wide points = 4 > ¹ / ₄ distance is shrubs or forest at least 33 ft (10m) wide points = 4 X Vegetation is at least 6 ft (2m) wide (any type except aquatic bed) points = 2 Vegetation is less than 6 ft (2m) wide (any type except aquatic bed) points = 0 Aerial photo or map with Cowardin vegetation classes Record the points from the box above | Figure 3- 1.1 2 |
| L | L 4. Does the wetland unit have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply. XThere are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other wetlands) than can be damaged by shoreline erosion Other | |
| | YES multiplier is 2 NO multiplier is 1 | 2 |
| L | TOTAL - Hydrologic Functions Multiply the score from L 3 by L 4 Add score to table on p. 1 | 4 |

Comments: Three small wetlands rated as a Mosaic; wetlands are within 100 feet of one another and are each smaller than an acre. Wetlands may be enclosed in a polygon that contains >50% of its area in wetland. (p.19 of WWA Wetland Rating System)

| These questions apply to wetlands of all HG HABITAT FUNCTIONS - Indicators that unit function | <i>M classes.</i> | nt habitat | Points (only 1 score per |
|--|--|--|-----------------------------|
| H 1. Does the wetland unit have the potential to n | rovide habitat for ma | ny species? | |
| H 1.1 <u>Vegetation structure</u> (see p. 72) Check the types of vegetation classes present (as define class is ¹ / ₄ acre or more than 10% of the area if unit i | d by Cowardin)- Size thro is smaller than 2.5 acres. | eshold for each | Figure 3- 1.1 |
| X_Emergent plantsScrub/shrub (areas where shrubs have >30% cover) Forested (areas where trees have >30% cover) | cover) | | 0 |
| If the unit has a forested class check if: The forested class has 3 out of 5 strata (canop | y, sub-canopy, shrubs, h | erbaceous, | |
| Moss/ground-cover) that each cover 20% | within the forested poly | gon | |
| and the number of vegetation structures that qualify. If | 4 structures or more | points = 4 | |
| | 3 structures | points = 2 | |
| | 2 structures | points = 1 | |
| | 1 structure | points = 0 | |
| H 1.2. <u>Hydroperiods (see p. 73)</u> Check the types of water regimes (hydroperiods) pr regime has to cover more than 10% of the wetland o descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated | resent within the wetland. r ¹ /4 acre to count. (see te 4 or more types prese 3 types present | The water xt for nt points = 3 points = 2 | 3 |
| XOccasionally flooded or inundated XSaturated only Permanently flowing stream or river in, or adj Seasonally flowing stream in, or adjacent to, to XLake-fringe wetland = 2 points Saturater tidal wetland = 2 points | 2 types prese 1 type present jacent to, the wetland the wetland Map of by | ent $point = 1$ points = 0 | |
| $\underline{\qquad} Treshwater tuat wetana = 2 \text{ points}$ | Map of hy | alopenous | |
| H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland th patches of the same species can be combined to me You do not have to name the species. Do not include Eurasian Milfoil, reed canarygr Thistle | nat cover at least 10 ft ² . (<i>et the size threshold)</i> cass, purple loosestrife, C | different Canadian | 0 |
| If you counted: List species below if you want to: | > 19 species5 - 19 species< 5 species | points = 2 points = 1 points = 0 | |
| | | | |



Comments

Grassy wetlands in park, few or no habitat features WITHIN wetland.

| H 2. Does the wetland unit have the opportunity to provide habitat for many species? | |
|---|--------------|
| H 2 1 Buffers (see n 80) | Figure 3-1.1 |
| <i>Choose the description that best represents condition of buffer of wetland unit. The highest</i> | |
| scoring criterion that applies to the wetland is to be used in the rating. See text for definition of | |
| "undisturbed." | |
| 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5 | |
| $\downarrow 100 \text{ m} (330 \text{ ft}) \text{ of relatively undisturbed vegetated areas, rocky areas, or open water } > 50\% \text{ circumference.} \text{Points} = 4$ | 1 |
| $\frac{1}{\sqrt{50 \text{ m}}}$ 50 m (170ft) of relatively undisturbed vegetated areas rocky areas or open water >95% | |
| circumference. | |
| \downarrow 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > | |
| 25% circumference, . Points = 3 | |
| \downarrow 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > | |
| 50% circumference. Points = 3 | |
| If buffer does not meet any of the criteria above | |
| \downarrow No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% | |
| circumference. Light to moderate grazing, or lawns are OK. Points = 2 | |
| \downarrow No paved areas or buildings within 50m of wetland for >50% circumference. | |
| Light to moderate grazing, or lawns are OK.Points = 2 | |
| $\downarrow \text{Heavy grazing in buffer.} \qquad Points = 1$ | |
| \downarrow Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields paying basalt bedrock extend to edge of wetland Points = | |
| 0. | |
| Buffer does not meet any of the criteria above. Points = 1 | |
| H 2.2 Corridors and Connections (see p. 81) | 1 |
| H $\overline{2.2.1}$ Is the wetland part of a relatively undisturbed and unbroken vegetated corridor | l I |
| (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 | |
| the question shove? | |
| 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 | |
| X within 1 mi of a lake greater than 20 acres? | |
| YES = 1 point NO = 0 points | |

Total for page:

2

| H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82) | 2 |
|---|---|
| Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE</i> : | 3 |
| the connections do not have to be relatively undisturbed. | |
| These are DFW definitions. Check with your local DFW biologist if there are any questions. | |
| X Riparian : The area adjacent to aquatic systems with flowing water that contains elements | |
| of both aquatic and terrestrial ecosystems which mutually influence each other. | |
| Aspen Stands: Pure or mixed stands of aspen greater than 0.8 ha (2 acres) | |
| Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft. | |
| Old-growth 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. | |
| Prairies: Relatively undisturbed areas (as indicated by dominance of native plants) where | |
| grasses and/or forbs form the natural climax plant community. | |
| 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. | |
| Caves: A naturally occurring cavity, recess, void, or system of interconnected passages | |
| Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where | |
| canopy coverage of the oak component of the stand is 25%. | |
| XUrban Natural Open Space : A priority species resides within or is adjacent to the open | |
| space and uses it for breeding and/or regular feeding; and/or the open space functions as a | |
| corridor connecting other <i>priority habitats</i> , especially those that would otherwise be | |
| isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha | |
| (10 acres) and is surrounded by urban development. | |
| Estuary/Estuary-like: Deepwater tidal habitats and adjacent tidal wetlands, usually semi- | |
| enclosed by land but with open, partly obstructed or sporadic access to the open ocean, | |
| and in which ocean water is at least occasionally diluted by freshwater runoff from the | |
| land. The salinity may be periodically increased above that of the open ocean by | |
| evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. | |
| Estuarine habitat extends upstream and landward to where ocean-derived salts measure | |
| less than 0.5ppt. during the period of average annual low flow. Includes both estuaries | |
| and lagoons. | |
| Marine/Estuarine Shorelines: Shorelines include the intertidal and subtidal zones of | |
| beaches, and may also include the backshore and adjacent components of the terrestrial | |
| landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to | |
| shoreline associated fish and wildlife and that contribute to shoreline function (e.g., | |
| sand/rock/log recruitment, nutrient contribution, erosion control). | |
| If wetland has 3 or more priority habitats = 4 points | |
| If we land has 2 priority habitats = 3 points | |
| If we land 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) | |

| H 2.4 <u>Wetland Landscape</u> (choose the one description of the landscape around the wetland that | |
|--|-----|
| best fits) (see p. 84) | |
| There are at least 3 other wetlands within $\frac{1}{2}$ 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 $\frac{1}{2}$ mile points = 5 | |
| There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are | |
| disturbed points = 3 | |
| X The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe | |
| wetland within $\frac{1}{2}$ mile points = 3 | |
| There is at least 1 wetland within $\frac{1}{2}$ mile. points = 2 | |
| There are no wetlands within $\frac{1}{2}$ mile. points = 0 | |
| | |
| H 2. TOTAL Score - opportunity for providing habitat | 8 |
| Add the scores from H2.1, H2.2, H2.3, H2.4 | Ŭ |
| TOTAL for H 1 from page 14 | 3 |
| | 3 |
| Total Score for Habitat Functions – add the points for H 1, H 2 and record the result | |
| on p. 1 | • • |
| | |

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

| Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.SC 1.0 Estuarine wetlands (see p. 86)NGDoes the wetland unit meet the following criteria for Estuarine wetlands? \downarrow 1 The dominant water regime is tidal, \downarrow 2 Vegetated, and \downarrow 3 With a salinity greater than 0.5 ppt. YES = Go to SC 1.1N/SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category IN/SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category IN/SC 1.2 Is the wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.N/ \downarrow 2 At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.N/ | Wetland Type | Category |
|---|---|-------------|
| appropriate criteria are met.N(SC 1.0 Estuarine wetlands (see p. 86)N(Does the wetland unit meet the following criteria for Estuarine wetlands? \downarrow 1 The dominant water regime is tidal, \downarrow 2 Vegetated, and \downarrow 3 With a salinity greater than 0.5 ppt. YES = Go to SC 1.1NO XSC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category IN/SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category INO = Category II \downarrow 1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.N/ \downarrow 2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.N/ | Check off any criteria that apply to the wetland. Circle the Category when the | |
| SC 1.0 Estuarine wetlands (see p. 86)NGDoes the wetland unit meet the following criteria for Estuarine wetlands? \downarrow 1 The dominant water regime is tidal, \downarrow 2 Vegetated, and \downarrow 3 With a salinity greater than 0.5 ppt. YES = Go to SC 1.1NO XSC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category INO NO go to SC 1.2 XN/ASC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category INO NO = Category IINO VAV1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.N/AV2 At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.N/A | ppropriate criteria are met. | |
| Does the wetland unit meet the following criteria for Estuarine wetlands? ↓1 The dominant water regime is tidal, ↓2 Vegetated, and ↓3 With a salinity greater than 0.5 ppt. N/ YES = Go to SC 1.1 NO X SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I N/ SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO SC 1.2 Is the wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. N/ V2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. NI | SC 1.0 Estuarine wetlands (see p. 86) | NO |
| ↓1 The dominant water regime is tidal, ↓2 Vegetated, and ↓3 With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO X SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2 X SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II ↓1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ↓2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. | Does the wetland unit meet the following criteria for Estuarine wetlands? | |
| ↓2 Vegetated, and ↓3 With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO X SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2 X N/A SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II ↓1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ↓2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. | $\downarrow 1$ The dominant water regime is tidal, | |
| ↓3 With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO X SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2 X N/A SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II ↓1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ↓2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. | $\downarrow 2$ Vegetated, and | N/A |
| YES = Go to SC 1.1NO XSC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category INO go to SC 1.2 XN/ASC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category INO = Category IINO\$\leftarrow 1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.N/A\$\leftarrow 2 At least 34 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.NID ft buffer of shrub, forest of the size for | \downarrow 3 With a salinity greater than 0.5 ppt. | |
| SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II ↓1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. N// ↓2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. NID ft buffer of shrub, forest, or un-grazed or un-mowed grassland. | YES = Go to SC 1.1 NO X | |
| YES = Category I NO go to SC 1.2 X N/A SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II NO = Category II NO ↓1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. \/2 At least 3⁄4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. N/A | SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational Environmental, or Scientific Reserve designated under WAC 332-30-151? | , NO |
| SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II ↓1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ↓2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. | YES = Category I NO go to SC 1.2 X | N/A |
| ↓3 The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. | SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II ↓1 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ↓2 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ↓3 The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. | |
| SC 2.0 Natural Heritage Wetlands (see p. 87) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (this question is used to screen out most sites before you need to contact WNHP/DNR) S/T/R information from Appendix D or accessed from WNHP/DNR web site YES contact WNHP/DNR (see p. 79) and go to SC 3.2 NOX SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I | N/A |
|---|-----------------|
| SC 3.0 Bogs (see p. 87) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions. | NOT A BOG |
| Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2 | N/A |
| 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? | |
| 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 | |
| NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. | |
| Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)? | |
| 2. YES = Category I No Is not a bog for purpose of rating | |

| SC 4.0 Forested Wetlands (see p. 90) Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? If you answer yes you will still need to rate the wetland based on its functions. ↓1 Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. | |
|--|-----|
| NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old- growth forests do not necessarily have to have trees of this diameter. | N/A |
| ↓2 Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); 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. | |
| YES = Category I NO _X | |
| SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ↓1 The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ↓2 The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) YES = Go to SC 5.1 NO not a wetland in a coastal lagoon SC 5.1 Does the wetland meets all of the following three conditions? ↓4 The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ↓5 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ↓6 The wetland is larger than 1/10 acre (4350 square feet) | N/A |

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| SC 6.0 Interdunal Wetlands <i>(see p. 93)</i> | NOT AN |
|---|---------------|
| Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland | |
| Ownership or WBUO)? | AL WETLAND |
| YES - go to SC 6.1 NO not an interdunal wetland for rating | WEILAND |
| If you answer yes you will still need to rate the wetland based on its | |
| functions. | |
| In practical terms that means the following geographic areas: | |
| 1 Long Beach Peninsula- lands west of SR 103 | |
| 2 Grayland-Westport- lands west of SR 105 | |
| 3 Ocean Shores-Copalis- lands west of SR 115 and SR 109 | |
| SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? | |
| $YES = Category II \qquad NO - go to SC 6.2$ | |
| SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? | |
| YES = Category III NO- Not an Interdunal wetland | |
| | |
| Category of wetland based on Special Characteristics | N/A |
| <i>Choose the "highest" rating if wetland falls into several categories, and record on p.</i> | |
| If you answered NO for all types enter "Not Applicable" on p.1 | |