

Wetland Delineation Report

Master Plan Update Improvements Seattle-Tacoma International Airport



Parametrix, Inc.
December 2000

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AR 047400

FINAL

**WETLAND DELINEATION REPORT
MASTER PLAN UPDATE IMPROVEMENTS
SEATTLE-TACOMA INTERNATIONAL AIRPORT**

Prepared for

PORT OF SEATTLE

Seattle-Tacoma International Airport
P.O. Box 68727
Seattle, WA 98168

Prepared by

PARAMETRIX, INC.
5808 Lake Washington Blvd. NE, Suite 200
Kirkland, WA 98033-7350

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TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY.....	iv
1. INTRODUCTION	1-1
1.1 PURPOSE OF REPORT	1-1
1.2 STUDY AREA.....	1-1
1.3 WETLAND JURISDICTION.....	1-2
2. METHODS	2-1
2.1 LITERATURE REVIEW.....	2-1
2.2 WETLAND DELINEATION.....	2-1
2.2.1 Hydrology.....	2-2
2.2.2 Soils.....	2-2
2.2.3 Vegetation	2-3
2.2.4 Disturbed Areas.....	2-4
2.3 OTHER WATERS OF THE U.S.....	2-4
2.4 FARMED WETLANDS AND PRIOR CONVERTED CROPLAND.....	2-4
3. RESULTS	3-1
3.1 GENERAL SITE DESCRIPTION.....	3-1
3.1.1 Streams and Surface Hydrology	3-1
3.1.2 Wetlands.....	3-3
3.1.3 Soils.....	3-6
3.1.4 Vegetation	3-7
3.2 WETLAND DESCRIPTIONS.....	3-11
3.2.1 North Employee Parking Lot Area	3-16
3.2.2 Runway Safety Area Extension	3-16
3.2.3 Third Runway Project Area	3-17
3.2.4 Borrow Areas 1 and 3	3-42
3.2.5 South Aviation Support Area (SASA)/Tyee Valley Golf Course.....	3-53
3.2.6 Industrial Waste System (IWS).....	3-58
3.2.7 SASA Detention Pond Area.....	3-59
4. SUMMARY.....	4-1
5. REFERENCES.....	5-1
 APPENDICES	
A	WETLAND DELINEATION REPORT – AUBURN MITIGATION SITE
B	FIELD DATA SHEETS (Bound Separately)
C	PRIOR CONVERTED CROPLANDS AT THE VACCA FARM SITE
D	MAP ATLAS
E	PREVIOUSLY DELINEATED WETLANDS

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Location of Seattle-Tacoma International Airport	1-3
2	Wetland Study Area for the Master Plan Update Improvements at STIA	1-4
3	Location of Existing Water Features, Stormwater Facilities, Watershed Boundaries, and Acquisition Area of STIA	3-2
4	Wetlands in the Miller Creek Basin Near STIA	3-4
5	Wetlands in the Des Moines Creek Basin Near STIA	3-5
6	Aerial Photograph of Borrow Area 1 (1980)	3-44
7	Aerial Photograph of Borrow Area 1 (1996)	3-45

LIST OF TABLES

<u>Table</u>		
1	Key to plant indicator status	2-3
2	Plant species observed in the STIA Master Plan Update study area	3-8
3	Summary of wetland and Other Waters of the U.S. areas in the STIA Master Plan Update improvements area	3-11
4	Significant wetlands near the STIA project area	3-16

EXECUTIVE SUMMARY

Parametrix, Inc. conducted a detailed wetland investigation of the Seattle-Tacoma International Airport (STIA) Master Plan Update improvement sites. The improvement sites are owned by the Port of Seattle (Port) and located in the cities of SeaTac and Des Moines in King County, Washington. This report describes the wetlands located within the study area and updates previous wetland studies conducted for the Master Plan Update improvements.

Wetland delineation followed methods outlined in the *Washington State Wetland Identification and Delineation Manual* (Washington Department of Ecology [Ecology] 1997) and the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987). Where applicable, farmed wetland and prior converted cropland were identified as defined by the Food Security Act of 1985 and other regulatory guidelines.

A total of 117 wetlands, ranging in size from 0.01 to over 35 acres, were identified in the study area. They include palustrine forested, scrub-shrub, emergent, and open-water wetland habitat. Ten of these wetlands are identified as farmed wetlands. Two ponds and eight drainage channels within the study area are classified as Other Waters of the U.S.

In addition to wetland studies completed at STIA wetlands were delineated at a 65-acre site located in the city of Auburn, Washington. This site is owned by the Port and is the location of an off-site mitigation project planned as mitigation for the wildlife habitat impacts of Master Plan Update improvements.¹

The U.S. Army Corps of Engineers (ACOE) made site visits to confirm these wetland determination and boundary delineations between July 1998 and November 2000. Modifications to delineated wetlands that were requested by ACOE during those site visits have been made and are reflected in the mapping and analysis presented in this report.

The findings of this report will be used to determine wetland impacts and mitigation requirements for the Master Plan Update improvements, as presented in a *Wetland Functional Assessment and Impact Analysis Report* (Parametrix 2000a) and *Natural Resource Mitigation Plan* (Parametrix 2000b).

¹ As described in the *Natural Resource Mitigation Plan* (Parametrix 2000b), non-habitat impacts are mitigated on-site at STIA.

1. INTRODUCTION

1.1 PURPOSE OF REPORT

The Port of Seattle (Port) has updated the Master Plan for Seattle-Tacoma International Airport (STIA); the Plan includes construction of a new third runway and expansion of airport support facilities. This report documents the findings of wetland delineation studies conducted to identify and map wetlands on approximately 4 square miles of Port-owned property near STIA that could be affected by airport expansion. This report describes wetlands located within the study area, and updates previous wetland studies undertaken to support the Master Plan Update improvements. This information is used to support a wetlands impact assessment, an evaluation of wetland functions, and a wetland mitigation plan. The information is also required to obtain Clean Water Act (CWA) Section 404 and Section 401 approval from the U.S. Army Corps of Engineers (ACOE) and the Washington Department of Ecology (Ecology), respectively.

The Port will construct a wetland mitigation project on 65 acres of Port-owned property in the City of Auburn, Washington. The wetland mitigation is planned as off-site mitigation to partially compensate for wetlands filled by Master Plan Update improvements constructed at the STIA. A report describing the delineation of jurisdictional wetlands on this 65-acre property is attached in Appendix A.

1.2 STUDY AREA

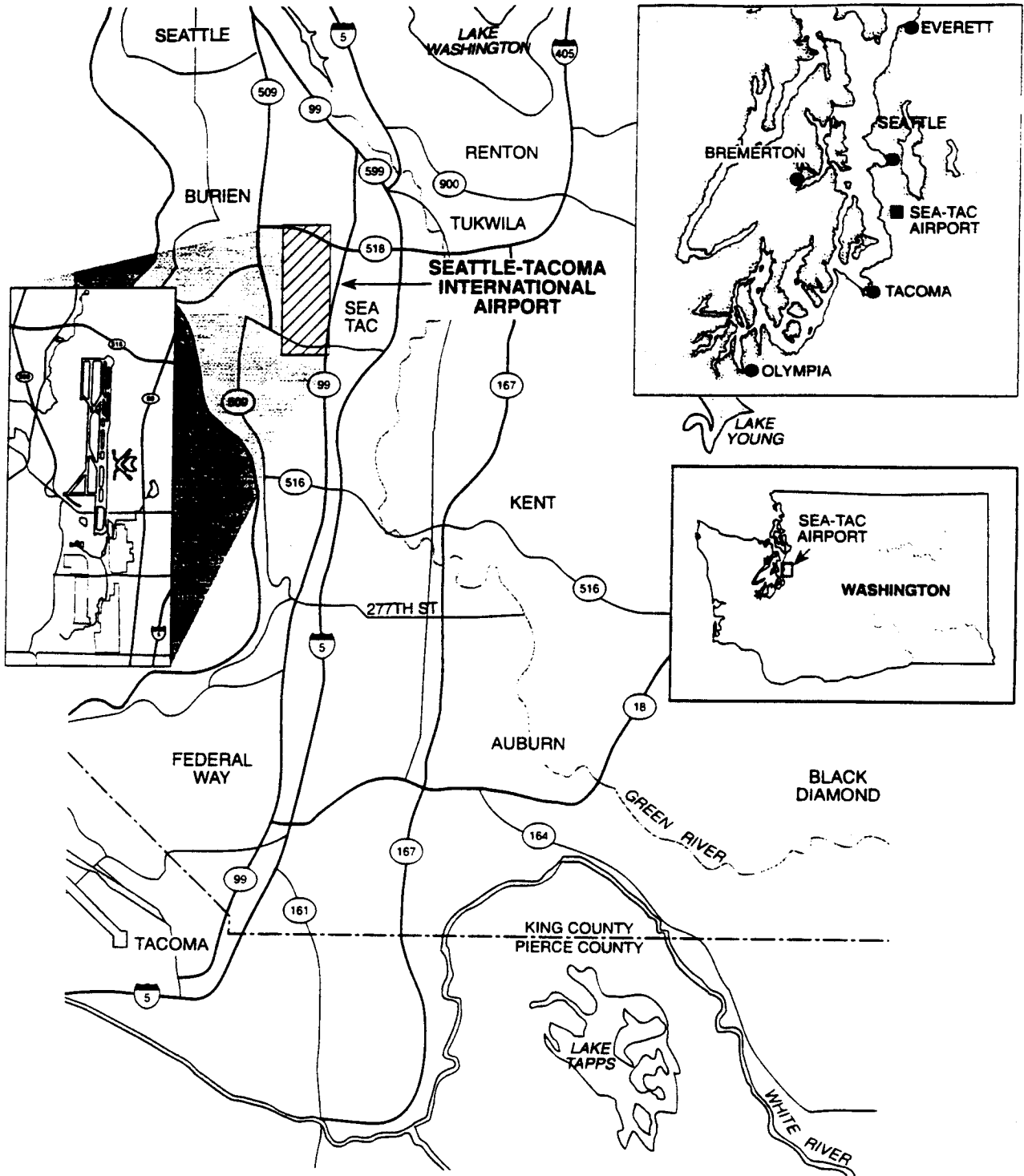
STIA is located in the Cities of SeaTac and Des Moines, in King County, Washington (Figure 1). The study area includes STIA, the surrounding Port-owned property, and privately owned property that is to be acquired to accommodate proposed Master Plan Update improvements. The study area is generally bounded by State Route (SR) 99 to the east, South 140th Street to the north, SR 509 and Des Moines Memorial Drive to the west, and South 216th Street to the south. The study area consists of the following general areas (Figure 2):

- **The North Employee Parking Lot Area** is located between SR 518 and South 146th Street and between 16th Avenue South and 22nd Avenue South. Wetlands in this area are not impacted by Master Plan Update improvements.
- **The Runway Safety Area Extension** is located north of the existing airport runways and south of SR 518. The Port will modify portions of this area to provide runway safety areas (RSAs) for the existing runways to meet current Federal Aviation Administration (FAA) standards.
- **The Third Runway Project Area** is located west of the existing airport runways, portions of which would be affected by third runway construction and other associated facilities, including stormwater management facilities, construction equipment staging, security, and emergency access roads. This area is further divided into four sub-areas:
 - The north airfield, located northwest of the existing runways and South 154th Street
 - The west airfield, located just west of the existing runways

- The west acquisition area, a residential area located between 12th Avenue South and Des Moines Memorial Drive or SR 509
 - Vacca Farm, located south of Lora Lake, between Des Moines Memorial Drive and 12th Avenue South
- **Borrow Areas 1, 3, and 4** are generally located south of the airport. Borrow Areas 1 and 3 are located between 24th Avenue South and 15th Avenue South, and between South 200th Street and South 216th Street (see Figure 2). Borrow Area 4 is located north of South 200th Street and west of 15th Avenue South. These areas may be excavated as a source of fill material to construct the runway embankment. Borrow Area 4 contains no wetlands, as verified by ACOE; therefore, it is not discussed further in this report.
 - **The Tye Valley Golf Course** is located south of the airport between South 188th Street and South 200th Street and between Des Moines Memorial Drive and 20th Avenue South. Existing wetlands on the Tye Valley Golf Course are being considered for on-site wetland mitigation to support Master Plan Update improvements.
 - **The South Aviation Support Area (SASA)** is located southeast of the airport, between 20th and 28th Avenue South, and north of South 200th Street. The SASA site includes the eastern portion of Tye Valley Golf Course. This area will be used to construct aircraft maintenance and air cargo facilities.
 - **The South Aviation Support Area Detention Pond** is located southeast of the airport, between the SASA and South 188th Street. Portions of this vacant land adjacent will be used for the stormwater management facilities required for the SASA. A new electrical substation for the airport is also proposed for this area.
 - **Industrial Waste System (IWS) Lagoon 3 Area** is located southeast of the airport, south of South 188th Street and east of 16th Avenue South. The IWS lagoon system is expanding to meet treatment requirements of the Port's NPDES permit.
 - **The Auburn Wetland Mitigation Site** is located in northeast Auburn, south of South 277th Street, east of Auburn Way, and west of the Green River. The evaluation of this site is described in Appendix A.

1.3 WETLAND JURISDICTION

Pursuant to the CWA and through the Section 404 permitting process, ACOE has responsibility and authority to regulate the discharge of dredged or fill material into waters of the United States, including wetlands (Federal Register 1986). Under these regulations, wetlands are defined as those "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil." The specific methods for determining wetland versus non-wetland areas are described in Section 3.



Port of Seattle/Wetland Delineation Report/556-2912-001/01(41) 9/00

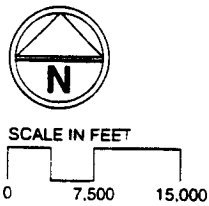
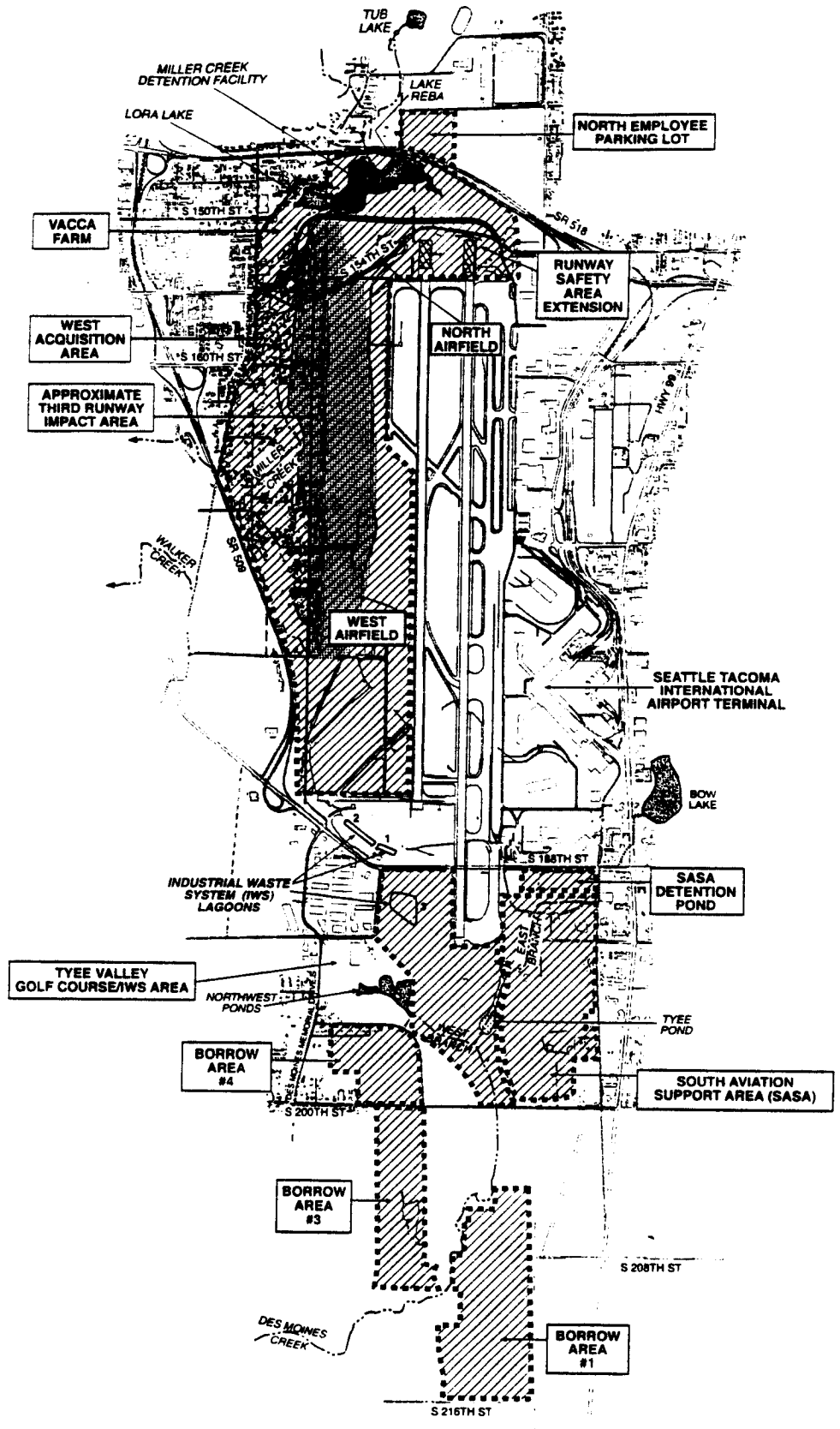


Figure 1
Location of Seattle-Tacoma
International Airport

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Part of Seattle/Westland Commission Report 966-2912-0010(1+1) 1200 (K)

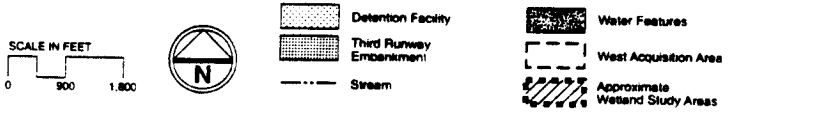


Figure 2
Wetland Study Area for the
Master Plan Update at STIA

2. METHODS

The wetland investigation included a review of existing reports, inventories, and historic aerial photographs and a complete field investigation following federal and state requirements for identifying wetlands.

2.1 LITERATURE REVIEW

Information on the project area was reviewed prior to fieldwork to identify vegetation, topography patterns, soils, streams, and other natural resources in the project area. Other wetland investigations that have been completed in the study area were also reviewed. Documents reviewed included the following:

- *Seattle-Tacoma International Airport Master Plan Update Improvement Final Environmental Impact Statement, Appendix H-A: Jurisdictional Wetland Delineation* (FAA 1995)
- *Port of Seattle Des Moines Creek Technology Campus Draft Environmental Impact Statement* (CH2M Hill and Associated Firms 1995)
- *South Aviation Support Area Final Environmental Impact Statement* (FAA 1994)
- *U.S. Geological Service (USGS) Survey, 7.5 Minute Topographic Series Des Moines, Washington, Quadrangle* (Photo-revised 1995)
- *National Wetland Inventory Map, Des Moines, Washington, Quadrangle* (U.S. Fish and Wildlife Service [USFWS] 1987)
- *King County Sensitive Areas Map Folio* (King County 1990a)
- *King County Wetland Inventory* (King County 1990b)
- *Port of Seattle Wetlands Inventory* (Butler and Associates and Sheldon and Associates 1992)

2.2 WETLAND DELINEATION

Field investigations for wetlands were completed between March 1998 and October 2000. During these site visits, the study area was inspected for wetland characteristics and surface water drainage features.

Wetlands were identified and delineated in the study area using the routine determination method outlined in the *Washington State Wetland Identification and Delineation Manual* (Ecology 1997) and the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987). The delineation incorporated the following regulatory guidance letters and memoranda: ACOE Regulatory Guidance Letters 82-2, 86-9, and 90-7; ACOE 3-92 Memorandum; ACOE, Seattle District, 5-94 Public Notice; and Ecology, 3/95 Public Notice.

To be considered a wetland, under normal circumstances an area must have hydrophytic (wetland) vegetation, hydric soils, and wetland hydrology (Ecology 1997; Environmental Laboratory 1987). Areas that do not support indicators of these parameters are generally not regulated as wetlands.

Wetland determinations were made by evaluating vegetation, soil, and hydrologic conditions throughout the study area. These data were collected at sampling locations (data plots) that were established in potential wetlands and adjacent areas (Appendix B). For comparison purposes, additional data plots were established in adjacent upland areas to document differences in vegetation, soil, and hydrology. Specific methods used to record vegetation, soil, and hydrology data are described below.

Once an area was determined to be wetland, the boundary between wetland and upland areas was established by determining where wetland parameters were present or absent. These areas were marked with survey flagging that was sequentially lettered and numbered. A professional surveyor then surveyed and flag-marked the wetland boundaries.

2.2.1 Hydrology

Wetlands occur where soil is saturated or soil inundation is present; therefore, water must be present for wetlands to exist. However, water need not be present in wetlands throughout the year. An area is considered to have wetland hydrology when soils are inundated or saturated for at least 12.5 percent of the growing season (typically about 14 consecutive days of inundation during the February to mid-November period).

To determine if wetland hydrology was present, project staff recorded and described these observations of wetland hydrology and wetland hydrology indicators. The most reliable indicators of wetland hydrology are surface inundation or saturation within 12 inches of the soil surface, and soil pots were dug at each data plot to determine the depth to saturated soils. Other wetland hydrology indicators include oxidized root channels, wetland drainage patterns, watermarks on vegetation or other fixed objects, and water-stained leaves; the presence or absence of these indicators was also noted.

Direct observations of hydrology, such as ponding and soil saturation, may not be possible during the dry summer season, or they may be misleading during or following periods of heavy rain. However, under most circumstances, wetland hydrology indicators are present and observable throughout the year. When Parametrix staff conducted delineations during the dry season, wetland hydrology was inferred from the presence of hydric soil, hydrophytic vegetation, and wetland indicators such as oxidized root zones, water marks, and wetland drainage patterns. During the non-growing season or other exceptionally wet periods, temporarily saturated soils were sometimes found that lacked hydrophytic vegetation or hydric soil indicators, and such areas were not considered wetland.

2.2.2 Soils

Hydric soils develop when soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (10 inches) of the soil profile. By definition, organic soils (peats and mucks) are hydric soils (Ecology 1997; Environmental

Laboratory 1987; USDA 1991). In mineral soils, soil colors become distinctive under anaerobic conditions: low-chroma colors are typical for the soil matrix, and mottles of bright color form within the matrix. These color patterns are the most commonly used indicators of hydric soil conditions. Other important indicators include high organic matter content in the surface horizon, reduced-sulfur odors, and staining by organic matter in the subsurface horizons.

Project staff examined soils at each data plot by digging sample pits to a depth of 18 inches or more to observe soil properties and determine hydrologic conditions. Using the Munsell color chart they determined soil colors in the field (Greytag MacBeth 1998). Soil texture, the presence of sulfidic odor, and the occurrence of oxidized rhizospheres were determined in the field.

2.2.3 Vegetation

Hydrophytic (wetland) vegetation is specially adapted for life in saturated or anaerobic conditions. To determine the presence of hydrophytic vegetation, plants species within each vegetation strata (tree, sapling/shrub, and herb), and their percent coverage at each data plot, were recorded on data sheets. Each species was then assigned an indicator status using the *National List of Plant Species that Occur in Wetlands: Northwest - Region IX* and its 1993 supplement (Reed 1988, 1993, hereafter cited as *The Region IX List*). The species indicator status defines the relative frequency with which the species occurs in jurisdictional wetlands (Table 1). All scientific and common plant names used in their delineation are consistent with *Flora of the Pacific Northwest* (Hitccock and Cronquist 1991).

Table 1. Key to plant indicator status.

Category	Abbreviation ^a	Definition
Obligate Wetland Plants	OBL	Plants that almost always (>99% of the time) occur in wetlands, but which may rarely (<1% of the time) occur in non-wetlands
Facultative Wetland Plants	FACW	Plants that often (67 to 99% of the time) occur in wetlands, but sometimes (1 to 33% of the time) occur in non-wetlands
Facultative Plants	FAC	Plants with a similar likelihood (33 to 67% of the time) of occurring in both wetlands and non-wetlands
Facultative Upland Plants	FACU	Plants that sometimes (1 to 33% of the time) occur in wetlands, but occur more often (67 to 99% of the time) in non-wetlands
Upland Plants	UPL	Plants that rarely (<1% of the time) occur in wetlands, and almost always (>99% of the time) occur in non-wetlands
Not Listed	NL	Plants not on the wetland indicator list (assumed to be non-wetland plants)

Source: Reed (1988, 1993).

^a Within the FACW, FAC, and FACU categories, a plus (+) or a minus (-) sign specifies a relatively higher or lower probability, respectively, of a plant occurring in wetlands. Plants with a FAC- indicator status are not wetland plants.

To meet the hydrophytic vegetation criteria, more than 50 percent of the dominant² plant species within each stratum must have an indicator status of obligate wetland, facultative wetland, and/or facultative.

For a variety of reasons, non-wetland plants may sometimes occur in areas that contain wetland soils and experience wetland hydrology. For this reason, the ACOE Seattle District may determine areas dominated by facultative upland plants to be wetland when the presence of wetland hydrology and hydric soils are clearly present (ACOE 1994).

2.2.4 Disturbed Areas

Disturbed wetlands are wetlands that have been modified by human activity (such as vegetation clearing, grading, or filling) or by natural events. In disturbed wetlands, one or more of the three wetland parameters may be absent because of recent alteration. To determine whether a disturbed area was wetland, both on-site observations and off-site research (i.e., evaluation of aerial photographs) were used.

Project staff reviewed historic aerial photographs to identify the timing and nature of any disturbance, and to establish pre-disturbance site conditions. In areas that were cleared of vegetation, or where the vegetation was maintained as lawn or with landscaping plants, the wetland determinations were based on the presence of hydric soils and wetland hydrologic indicators. Fill material and disturbed soil may contain unweathered materials that have characteristics of hydric soil, or may exhibit hydric soil characteristics that formed at the fill source location. In fill areas, soils were examined to determine whether hydric characteristics occurred in place, or at their original location. Where it appeared that hydric soil characteristics were remnant from the source location, wetland determinations were based on the presence of hydrophytic vegetation and wetland hydrologic indicators.

2.3 OTHER WATERS OF THE U.S.

ACOE has jurisdiction over wetlands and other Waters of the U.S. under the CWA. These other Waters of the U.S. include, but are not limited to, perennial and intermittent streams, drainages, swales, and, under certain circumstances, constructed drainage ditches. Within the study site, water conveyances that had defined bed and bank, conveyed naturally occurring surface water, and did not meet the federal definition of a wetland were identified, flagged, and surveyed by Parametrix, Inc. as Waters of the U.S. These areas were evaluated by ACOE as potential "Waters of the U.S."

2.4 FARMED WETLANDS AND PRIOR CONVERTED CROPLAND

Parametrix staff conducted a partial review of the farming history on several parcels of farmland in the Port of Seattle's acquisition area (referred to as Vacca Farm) to classify these areas as upland,

² Dominant species are those species in each vegetation layer (stratum) that, when ranked in descending order of abundance and cumulatively totaled, immediately exceed 50 percent cover of the total dominance measure for that stratum, plus any species that comprises at least 20 percent cover.

farmed wetland (FW), prior converted (PC) cropland, or wetland. This review included an evaluation of aerial photographs, field studies during 1998 and 1999, discussions with local landowners, and contacting the USDA. The Vacca Farm site was visited on several occasions throughout the rainy seasons of 1998 and 1999 to determine the extent of inundation and saturation. Areas within the Vacca Farm site that satisfy the criteria for farmed wetlands were staked and surveyed in the field.

The Food Security Act (FSA, Sections 514.22a.d; USDA 1994) defines PC croplands as wetlands that were drained (or otherwise manipulated) for agricultural production and where an agricultural commodity was planted or produced prior to December 23, 1985. These areas are not subject to federal regulation under the CWA jurisdiction provided that:

1. The land has been in active agriculture since December 23, 1985, and that agricultural use has not been abandoned³.
2. Vegetation and hydrology have been extensively and permanently altered such that there is no prolonged (greater than 14 consecutive days) inundation during the growing season.

Some areas that had been converted to agricultural production prior to December 23, 1985 are considered farmed wetlands. FWs are used for agricultural purposes but have prolonged inundation during the growing season and are therefore considered wetlands. Areas that qualify as FWs have:

1. Land that has been in active agriculture since December 23, 1985 and agricultural use has not been abandoned.
2. At least a 50 percent chance of being seasonally inundated for at least 15 consecutive days or 10 percent of the growing season, whichever is less.

The presence of PC and FW at the Vacca Farm site was determined from field studies, evaluation of past agricultural uses, and evaluation of inundation of farmland within the study area. Agricultural uses and inundation were evaluated using historic aerial photographs (taken between May 1965 and April 1995) available at the University of Washington library. Based on this review, PC and FW determinations were made (Appendix C).

³ Agricultural lands are considered abandoned when cropping, forage production, or management has ceased for 5 consecutive years.

3. RESULTS

The 117 wetlands identified in the study area are described below. They include palustrine forested, scrub-shrub, emergent, and open-water wetland habitat. Additionally, there are eight drainage channels (including Miller and Des Moines Creeks) and two small ponds within the study area that are classified as Other Waters of the U.S. Six of the drainage channels convey natural runoff to Miller and Des Moines Creeks.

3.1 GENERAL SITE DESCRIPTION

3.1.1 Streams and Surface Hydrology

The study area includes portions of the Miller Creek and Des Moines Creek watersheds (Figure 3)⁴. Hydrologic features within the study area include small lakes, streams, groundwater seeps, and many seasonally to permanently saturated to permanently flooded depressions.

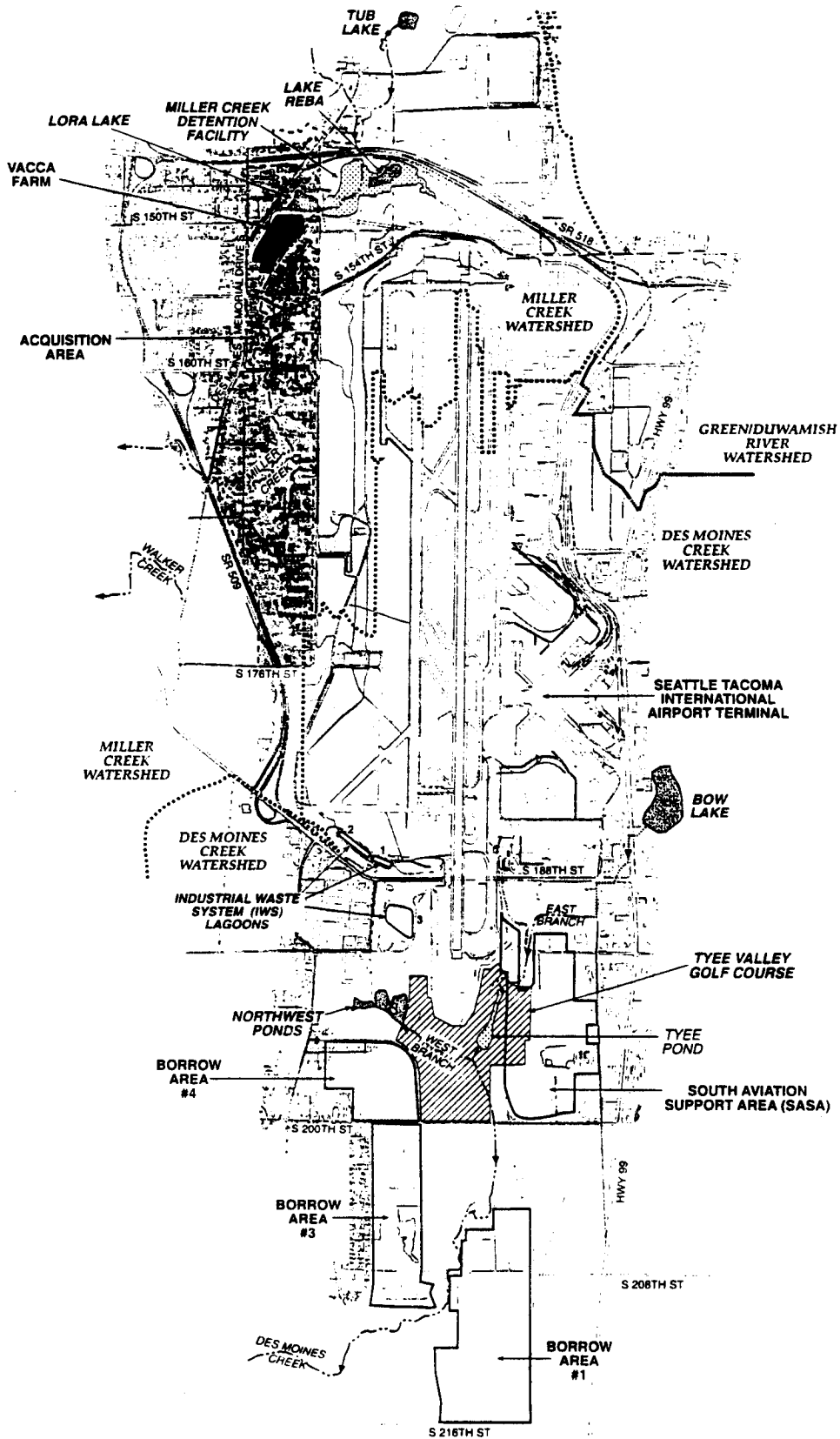
3.1.1.1 Miller Creek Watershed

The northern part of the study area lies in the Miller Creek watershed, which covers approximately 8.1 square miles of predominantly urban land. The upper reaches north of SR 518 drain a gently rolling plateau between the Duwamish/Green River Valley and Puget Sound. South of SR 518 the stream flows through the north airfield area, then through the residential neighborhood west of the airfield, passing through a series of roadway culverts throughout this reach. In its lower reaches, the stream flows in an incised ravine, which eroded through glacial material before draining to Puget Sound. A relatively small portion of STIA drains to Miller Creek, including the north end of the runways and air cargo areas north of the terminal.

Tub Lake, the Miller Creek Detention Facility, and Lora Lake drain to Miller Creek. Tub Lake, located north of the study area, is surrounded by an extensive wetland system. The Miller Creek Detention Facility, located just south of SR 518, is a constructed stormwater detention facility that includes extensive wetlands. The facility receives stormwater runoff via conveyance systems from SR 518, South 154th Street, and STIA. Lora Lake is located west and southwest of the Miller Creek Detention Facility. Lora Lake was excavated from a peat wetland and receives its water from groundwater seeps. During flood events, the Miller Creek floodplain extends across the lake.

Two small ephemeral streams originate in the forested area west of the airfield and flow westward to Miller Creek. They are located in shallow ravines and are associated with small wetlands. Waters from these streams combine along the east side of 12th Avenue South in a roadside ditch and then enter a relatively large wetland system between South 160th Street and South 166th Street.

⁴ While a water tower located in the Gilliam Creek watershed will be replaced, no wetlands occur on the paved site where this project will occur.



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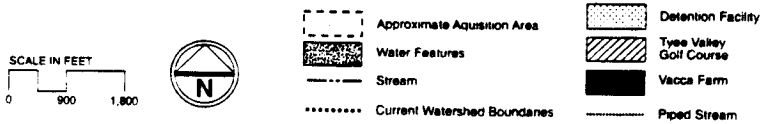


Figure 3
Locations of Existing Water Features,
Stormwater Facilities, Watershed
Boundaries, and Acquisition
Area of STIA

AR 047415

3.1.1.2 Des Moines Creek Watershed

The southern part of the study area lies in the Des Moines Creek watershed, which covers 5.9 square miles of predominantly urban area. Des Moines Creek drains most of the airport, the City of SeaTac commercial area along International Boulevard (SR 99), and residential areas in the remainder of the basin.

The east branch of Des Moines Creek originates at Bow Lake and is conveyed in culverts and an artificial stream channel excavated between parking lots for about 4,000 feet. The stream then flows to the northeast corner of Tyee Valley Golf Course where it is adjacent to a hillside seep wetland (Wetland 52). Finally, the stream flows into the Tyee Regional Detention Pond, which is connected to the west branch of Des Moines Creek by a 400-foot culvert.

The west branch of Des Moines Creek originates southwest of the airport and is fed by seeps and stormwater runoff. The intermittent stream flows into the Northwest Ponds, located just northwest of the Tyee Valley Golf Course, then through the golf course to its confluence with the east branch. The main stem of the stream flows south in a narrow, deeply-incised channel to Puget Sound. Borrow Areas 1 and 3 occur east and west (respectively) of this ravine.

3.1.2 Wetlands

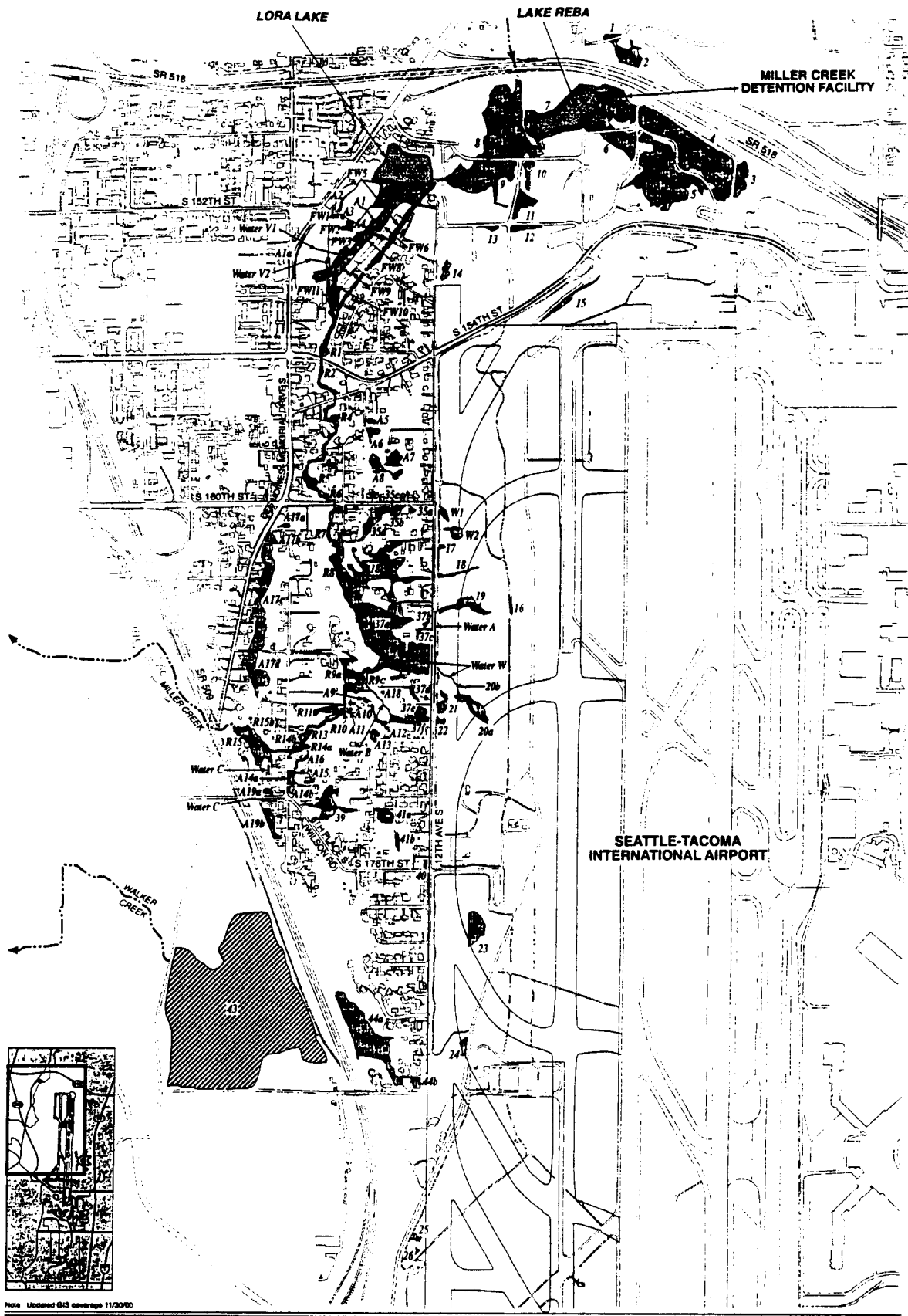
A total of 117 wetlands occur in the project area (Figures 4 and 5). Wetlands within the study area are associated with lakes, streams, groundwater seeps, and seasonally saturated to permanently flooded depressions.

The wetlands in the RSA expansion are part of the Lake Reba wetland complex. Most of the wetlands in this area are separated from each other by fill associated with abandoned streets and emergency access roads. Culverts convey water generally west between wetlands. The Miller Creek Detention Facility is located in this group of wetlands, as is Lora Lake. Miller Creek also flows through the wetland complex. Several of these wetlands are seasonally inundated.

Several small wetlands occur along the Miller Creek riparian corridor within the west acquisition area. They receive surface runoff and groundwater from surrounding hillslopes as well as occasional overbank flow from the stream. A larger wetland in the west acquisition area that collects water from several hillside drainages is also connected to Miller Creek. Portions of this wetland are seasonally or permanently saturated.

Several wetlands are associated with groundwater seeps. They occur in steep ravines that are fed by hillside seeps (on slopes in the west airfield area and surrounding Lake Reba) or at the toe of steep slopes (in the west acquisition and borrow source areas). Many of these wetlands are perennially saturated. Several wetlands at the north and west side of Runway 16R appear to be fed from seeps located near runway fill.

The remaining wetlands are isolated depressions or depressions along drainage swales that collect sufficient runoff to support hydrophytic vegetation. The north and west airfields have several depressions with compact soils that pool water during the wet season. Many of the depressional

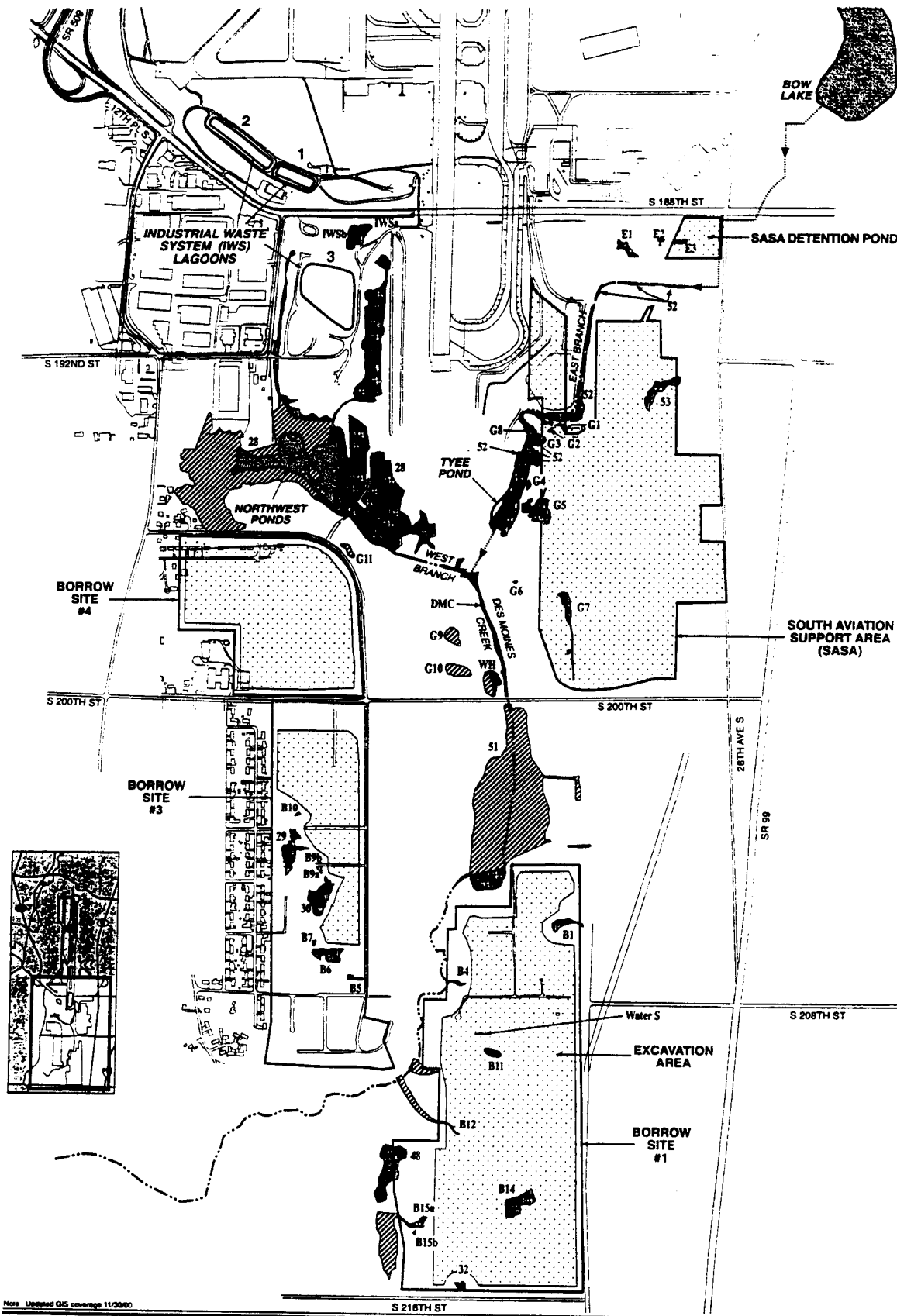


Note: Updated GIS coverage 11/20/00
 Port of Seattle/Westson Delineation Report/556-2912-001/01411 12/00



Figure 4
Wetlands and Other
Waters of the U.S. in the
Miller Creek Basin
Near STIA

AR 047417



Note: Updated GIS coverage 11/2000
 Port of Seattle/Westland Delineation Report#558-2012-00161(41) 1200

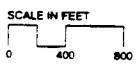
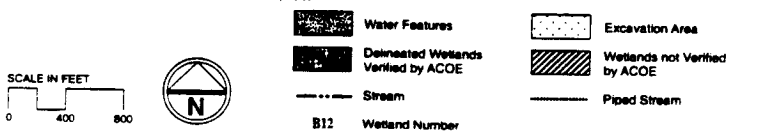


Figure 5
 Wetlands and Other
 Waters of the U.S. in the
 Des Moines Creek Basin
 Near STIA

wetlands in the west acquisition area were historically part of continuous wetland systems, but these systems have been segmented by fill for road and building construction.

In the SASA, IWS, and borrow areas, several seasonally saturated, closed depressions and permanently saturated riparian and slope wetlands were identified. Generally, these wetlands have been impacted by various developments, including the Tyee Valley Golf Course, parking lots, residential development, and/or urban refuse and fill.

During field investigations that took place between March 1998 and November 2000, hydrology in the wetlands varied substantially. Many areas that were inundated or saturated during the early part of the 1998 growing season were dry to 18 inches or more below the soil surface during the summer. When Parametrix staff conducted delineations during the dry season, wetland hydrology was inferred from the presence of hydric soil, hydrophytic vegetation, and wetland indicators such as oxidized root zones, water marks, and wetland drainage patterns.

3.1.3 Soils

The *Soil Survey of the King County Area, Washington* (Snyder et al. 1973) identifies only soil series in the southernmost study area; the Soil Conservation Service (SCS) typically does not map soils in urban areas. The SCS identified six different soil series in the Borrow Areas: Alderwood gravelly sandy loam; Arents Alderwood material; Bellingham silt loam; Everett gravelly sandy loam; Indianola loamy fine sand; and Norma sandy loam. Only the Bellingham and Norma series are identified as hydric soils (USDA 1991); however, inclusions of hydric soils within the other soil series often occur.

The most common upland soil in the project area is generally a brown (10YR 3/3) loam over light brown (10YR 4/3) sandy loam. They most closely match the SCS description of Arents composed of Alderwood parent material. Because of a lack of hydric indicators, these soils are considered to be non-hydric.

The most common hydric soil in the project area generally has a very dark brown (10YR 3/2) to black (10YR 2/1) loam to sandy loam surface horizon overlying grayish brown (2.5Y 5/2) and gray (2.5Y 5/1) gravelly sandy loam. In places the subsoils are dark grayish brown (2.5Y 4/2) or very dark grayish brown (2.5YR 3/2). Distinct and prominent mottles are typically present in the subsurface horizons.

Very dark grayish brown (10YR 3/2) to black (10YR 2/1) loam and silt loam soils are also a common hydric soil in the project area. Mottles are typically present in the subsoils. These soils are most common in the west acquisition area and the borrow areas.

Hydric soils with gleyed colors occur in places throughout the study area. Gleyed horizons typically occur in the subsoil, are sand or silt loam in texture, and range from dark greenish gray (5G 4/1) to greenish gray (5BG 5/1) in color.

Within the riparian wetlands, the soils are hydric with a high organic content. Surface and subsoil colors are black (10YR 2/1), very dark gray (10YR 3/1), gray (10YR 5/1), and very dark brown

(10YR 2/2). Textures range from sand to sandy clay loam, with lenses of muck occurring in places. Mottles are typically present in the subsurface horizons.

Organic soils occur within most of the larger wetlands. Two types of organic soils were found. The first is black (10YR 2/1) or very dark brown (10YR 2/2) muck. In some places, this soil is overlain by a layer of black loam. The second organic soil is a black or very dark brown muck or mucky peat overlying gleyed mineral subsoils.

3.1.4 Vegetation

A variety of upland and wetland plant communities occur in the study area. The more prevalent types are described below. Common and scientific names of plant species found in the study area are listed in Table 2.

3.1.4.1 Forested Wetland

Mixed deciduous forested wetland occurs throughout the study area. The overstory typically contains a mixture of red alder, black cottonwood, western redcedar, Pacific willow, and Sitka willow. The undergrowth varies considerably, depending on the wetland moisture regime and the density of the forest canopy. The most common shrubs include Himalayan blackberry, willow, salmonberry, and Douglas spirea. Common herb species include creeping buttercup, bentgrass, soft rush, lady fern, giant and field horsetail, and reed canarygrass.

Willow-dominated forested wetlands are also common. Sitka and Pacific willow dominate these communities. Red alder, black cottonwood, and Scouler willow are associated canopy species, with willow shrubs dominating the understory. Herb species that grow under the thick canopy include tall mannagrass, small-fruited bulrush, field and giant horsetail, lady fern, creeping buttercup, watercress, American brooklime, and soft rush.

3.1.4.2 Shrub Wetland

Small areas of shrub wetland communities occur primarily in the west acquisition area and the borrow areas. The dominant vegetation is salmonberry, Himalayan blackberry, and Pacific and Sitka willow. Common herbaceous plants include common velvet-grass, soft rush, bentgrass, and fireweed.

3.1.4.3 Emergent Wetland

Several emergent wetland plant communities occur in the project area. These communities include monotypic stands of reed canarygrass, mowed lawns and a golf course consisting of various grasses and forbs, and small stands of cattail. The grass-dominated wetlands generally occur in shallow depressions with compact soils, and in association with groundwater seeps located in disturbed areas. Common species include lady fern, giant horsetail, field horsetail, soft rush, fireweed, and a variety of grasses such as common velvet-grass, bentgrass, and reed canarygrass.

Table 2. Plant species observed in the STIA Master Plan Update study area.

Common Name	Scientific Name	Indicator Status	Non-Native (x)
TREES			
big-leaf maple	<i>Acer macrophyllum</i>	FACU	
birch	<i>Betula sp.</i>	NL	x
bitter cherry	<i>Prunus emarginata</i>	FACU	
black cottonwood	<i>Populus balsamifera ssp. trichocarpa</i>	FAC	
Douglas fir	<i>Pseudotsuga menziesii</i>	FACU	
European mountain-ash	<i>Sorbus aucuparia</i>	UPL	x
hazelnut	<i>Corylus cornuta</i>	FACU	
horse chestnut	<i>Aesculus hippocastanum</i>	NL	x
Norway spruce	<i>Picea abies</i>	NL	x
Oregon ash	<i>Fraxinus latifolia</i>	FACW	
Pacific crabapple	<i>Malus fusca</i>	FACW	
Pacific madrone	<i>Arbutus menziesii</i>	NL	
paper birch	<i>Betula papyrifera</i>	FAC	
red alder	<i>Alnus rubra</i>	FAC	
Scouler willow	<i>Salix scouleriana</i>	FAC	
Sitka willow	<i>Salix sitchensis</i>	FACW	
sugar maple	<i>Acer saccharinum</i>	NL	x
western hemlock	<i>Tsuga heterophylla</i>	FACU	
western redcedar	<i>Thuja plicata</i>	FAC	
willow	<i>Salix sp.</i>	FACW	
SHRUBS			
black hawthorn	<i>Crataegus douglasii</i>	FAC	
laurel cherry	<i>Prunus laurocerasus</i>	UPL	
current	<i>Ribes sp.</i>	FAC	
Douglas spirea	<i>Spiraea douglasii</i>	FACW	
English holly	<i>Ilex aquifolium</i>	FACU	x
evergreen blackberry	<i>Rubus laciniatus</i>	FACU+	x
hazelnut	<i>Corylus cornuta</i>	FACU	
Himalayan blackberry	<i>Rubus discolor</i>	FACU	x
Indian plum	<i>Oemleria cerasiformis</i>	FACU	x
Nootka rose	<i>Rosa nutkana</i>	FAC-	
ornamental cherry	<i>Prunus sp.</i>	NL	x
Pacific willow	<i>Salix lucida</i>	FACW+	
red alder	<i>Alnus rubra</i>	FAC	
red elderberry	<i>Sambucus racemosa</i>	FACU	
red-osier dogwood	<i>Cornus stolonifera</i>	FACW	
salal	<i>Gaultheria shallon</i>	FACU	
salmonberry	<i>Rubus spectabilis</i>	FAC+	

Table 2. Plant species observed in the STIA Master Plan Update study area (continued).

Common Name	Scientific Name	Indicator Status	Non-Native (x)
Scots broom	<i>Cytisus scoparius</i>	UPL	x
vine maple	<i>Acer circinatum</i>	FAC-	
white poplar	<i>Populus alba</i>	FAC	x
willow	<i>Salix</i> sp.	FACW	
HERBS			
American brooklime	<i>Veronica americana</i>	OBL	
American vetch	<i>Vicia americana</i>	FAC	x
barnyard grass	<i>Echinochloa crusgalli</i>	FACW	x
bedstraw	<i>Galium</i> sp.	FACU	
bentgrass	<i>Agrostis</i> sp.	FAC	x
birdsfoot trefoil	<i>Lotus corniculatus</i>	FAC	x
bittersweet nightshade	<i>Solanum dulcamara</i>	FAC+	x
bluegrass	<i>Poa</i> sp.	FAC	x
bracken fern	<i>Pteridium aquilinum</i>	FACU	
broadleaf plantain	<i>Plantago major</i>	FACU+	x
Canada thistle	<i>Cirsium arvense</i>	FACU+	x
cattail	<i>Typha latifolia</i>	OBL	
cleavers bedstraw	<i>Galium aparine</i>	FACU	
clover	<i>Trifolium</i> sp.	FAC	
colonial bentgrass	<i>Agrostis capillaris (tenuis)</i>	FAC	x
common chickweed	<i>Stellaria media</i>	NL	x
common St. Johnswort	<i>Hypericum perforatum</i>	FAC	x
common tansy	<i>Tanacetum vulgare</i>	NL	x
common velvet-grass	<i>Holcus lanatus</i>	FAC	x
Cooley hedgenettle	<i>Stachys cooleyae</i>	FACW	
creeping bentgrass	<i>Agrostis stolonifera</i>	FAC	x
creeping buttercup	<i>Ranunculus repens</i>	FACW	x
curly dock	<i>Rumex crispus</i>	FAC	x
dagger-leaf rush	<i>Juncus ensifolius</i>	FACW	
dandelion	<i>Taraxacum officinale</i>	FACU	x
English daisy	<i>Bellis perennis</i>	NL	x
English ivy	<i>Hedera helix</i>	NL	x
fescue	<i>Festuca</i> sp.	NL	
field bindweed	<i>Convolvulus arvensis</i>	NL	x
field horsetail	<i>Equisetum arvense</i>	FAC	
fireweed	<i>Epilobium ciliatum</i>	FACW-	
geranium	<i>Geranium robertianum</i>	NL	x
giant horsetail	<i>Equisetum telmateia</i>	FACW	
giant mannagrass	<i>Glyceria grandis</i>	OBL	
impatiens	<i>Impatiens</i> sp.	NL	

Table 2. Plant species observed in the STIA Master Plan Update study area (continued).

Common Name	Scientific Name	Indicator Status	Non-Native (x)
Kentucky bluegrass	<i>Poa pratensis</i>	FAC	x
lady fern	<i>Athyrium filix-femina</i>	FAC+	
lanceleaf plantain	<i>Plantago lanceolata</i>	FAC	x
marsh horsetail	<i>Equisetum palustre</i>	FACW	
meadow fescue	<i>Festuca pratensis</i>	FACU+	x
morning glory	<i>Convolvulus</i> sp.	NL	
northern mannagrass	<i>Glyceria borealis</i>	OBL	
orchardgrass	<i>Dactylis glomerata</i>	FACU	x
perennial ryegrass	<i>Lolium perenne</i>	FACU	x
pineapple weed	<i>Matricaria matricarioides</i>	FACW	x
purple loosestrife	<i>Lythrum salicaria</i>	FACW+	x
quackgrass	<i>Agropyron repens</i>	FACU	x
red clover	<i>Trifolium pratense</i>	FACU	x
red fescue	<i>Festuca rubra</i>	FAC-	
redtop	<i>Agrostis gigantea (alba)</i>	FAC	x
reed canarygrass	<i>Phalaris arundinacea</i>	FACW	x
sawbeak sedge	<i>Carex stipata</i>	OBL	
self-heal	<i>Prunella vulgaris</i>	FACU-	x
skunk cabbage	<i>Lysichiton americanum</i>	OBL	
small bedstraw	<i>Galium trifidum</i>	FACW	
small-fruited bulrush	<i>Scirpus microcarpus</i>	OBL	
soft rush	<i>Juncus effusus</i>	FACW	
spotted cat's-ear	<i>Hypochaeris radicata</i>	FACU	x
stinging nettle	<i>Urtica dioica</i>	FAC+	
sweet vernalgrass	<i>Anthoxanthum odoratum</i>	FACU	x
sword fern	<i>Polystichum munitum</i>	FACU	
tall fescue	<i>Festuca arundinacea</i>	FAC-	x
tall mannagrass	<i>Glyceria elata</i>	FACW+	
thistle	<i>Cirsium</i> sp.	FACU	x
water parsley	<i>Oenanthe sarmentosa</i>	OBL	
western bitter-cress	<i>Cardamine occidentalis</i>	FACW+	
wheat brome	<i>Bromus secalinus</i>	NL	x
white clover	<i>Trifolium repens</i>	FACU+	x
lily-of-the-valley	<i>Maianthemum dilatatum</i>	FAC	
yellow iris	<i>Iris pseudacorus</i>	OBL	x

3.1.4.4 Upland Forest

Mixed deciduous and coniferous forest occurs throughout the project area. Red alder, big-leaf maple, western redcedar, Douglas fir, and black cottonwood are the most common tree species seen. Common shrubs include Indian plum, Himalayan blackberry, hazelnut, and English ivy. Creeping buttercup, sword fern, and bracken fern grow on the forest floor.

Douglas fir-dominated forest is found in portions of the borrow areas. Associated canopy species include big-leaf maple and western hemlock. The shrub layer is dominated by salal. Associated species include salmonberry, Himalayan blackberry, bracken fern, and Indian plum.

3.1.4.5 Upland Shrub Communities

Himalayan blackberry thickets occur throughout the study area in both upland and wetland locations, and blackberry is one of the most prevalent species in the project area. Relatively large thickets of Scots broom occur along unmowed edges of the airfield, in areas where houses have been removed, and along service roads.

3.1.4.6 Grassland

Much of the area north, west, and south of the airfield contains mowed grassland. Several small grassland areas are also located in the borrow areas. The most common species are sweet vernalgrass, bentgrass, perennial ryegrass, quackgrass, and white clover. In pastures in the west acquisition area, quackgrass and bluegrass are the dominant species. Tall fescue, thistle, dandelion, and perennial ryegrass also commonly occur. Large areas of mowed turf grasses occur on the Tye Valley Golf Course and in residential lawns in the west acquisition area, and include ornamental trees, shrubs, and fruit trees.

3.2 WETLAND DESCRIPTIONS

One hundred and seventeen wetlands, two ponds, and ten channels (including Miller and Des Moines Creeks), were identified in the study area (Table 3; see Figures 4 and 5). Data collected at the wetlands are provided in Appendix B. Detailed maps and aerial photographs showing the location and extent of wetlands and the location of data plots are provided in Appendix D.

Table 3. Summary of wetland and Other Waters of the U.S. areas in the STIA Master Plan Update improvements area.

Wetland ^a	Classification ^b	Area (Acres)	Drainage Basin
North Employee Parking Lot Area			
1	Forest	0.07	Miller
2	Forest	0.73	Miller
	Subtotal	0.80	
Runway Safety Area Extension			
3	Forest	0.56	Miller
4	Forest	5.00	Miller

Table 3. Summary of wetland and Other Waters of the U.S. areas in the STIA Master Plan Update improvements area (continued).

Wetland ^a	Classification ^b	Area (Acres)	Drainage Basin
5	Forest/Scrub-Shrub	4.63	Miller
6	Scrub-Shrub	0.86	Miller
	Subtotal	11.05	
Third Runway Project Area			
North Airfield			
7	Forest/Open Water/Emergent	6.68	Miller
8	Scrub-Shrub/Emergent	4.95	Miller
9	Forest/ Emergent (40/60)	2.83	Miller
10	Scrub-Shrub	0.31	Miller
11	Forest/Emergent (80/20)	0.50	Miller
12	Forest/Emergent (20/80)	0.21	Miller
13	Emergent	0.05	Miller
14	Forest	0.19	Miller
West Airfield			
15	Emergent	0.28	Miller
16	Emergent	0.05	Miller
17	Emergent	0.02	Miller
18	Forest/Scrub-Shrub/Emergent (50/20/30)	3.56	Miller
19	Forest	0.56	Miller
20	Scrub-Shrub/Emergent (90/10)	0.57	Miller
21	Forest	0.22	Miller
22	Scrub-Shrub/Emergent (90/10)	0.06	Miller
23	Emergent	0.77	Miller
24	Emergent	0.14	Miller
25	Forest	0.06	Miller
26	Emergent	0.02	Miller
W1	Emergent	0.10	Miller
W2	Forest/Emergent (20/80)	0.22	Miller
	Other Waters of the U.S.	0.02	Miller
Vacca Farm Site			
FW1	Farmed Wetland	0.03	Miller
FW2	Farmed Wetland	0.09	Miller
FW3	Farmed Wetland	0.59	Miller
FW5	Farmed Wetland	0.08	Miller
FW6	Farmed Wetland	0.07	Miller
FW8	Farmed Wetland	0.03	Miller
FW9	Farmed Wetland	0.01	Miller
FW10	Farmed Wetland	0.02	Miller
FW11	Farmed Wetland	0.11	Miller
	Other Waters of the U.S.	0.02	Miller

Table 3. Summary of wetland and Other Waters of the U.S. areas in the STIA Master Plan Update improvements area (continued).

Wetland ^a	Classification ^b	Area (Acres)	Drainage Basin
West Acquisition Area			
35a-d	Forest/Emergent (40/60)	0.67	Miller
37a-f	Forest/Emergent (70/30)	5.73	Miller
39	Forest/Scrub-Shrub/Emergent (25/50/25)	0.90	Miller
40	Scrub-Shrub	0.03	Miller
41a and b	Emergent/Open Water	0.44	Miller
44a and b	Forest/Scrub-Shrub (70/30)	3.08	Miller
A1	Forest/Scrub-Shrub/Emergent (15/15/70)	4.66	Miller
A2	Scrub-Shrub	0.05	Miller
A3	Scrub-Shrub	0.01	Miller
A4	Scrub-Shrub	0.03	Miller
A5	Emergent	0.03	Miller
A6	Forest	0.16	Miller
A7	Forest	0.30	Miller
A8	Forest/Scrub-Shrub (30/70)	0.38	Miller
A9	Scrub-Shrub	0.04	Miller
A10	Scrub-Shrub	0.01	Miller
A11	Scrub-Shrub	0.02	Miller
A12	Scrub-Shrub	0.11	Miller
A13	Forest	0.12	Miller
A14a and b	Forest/Scrub-Shrub/Emergent (50/25/25)	0.19	Miller
A15	Emergent	0.04	Miller
A16	Scrub-Shrub/Emergent (20/80)	0.09	Miller
A17	Forest/Scrub-Shrub/Emergent (20/80)	2.66	Miller
A18	Scrub-Shrub	0.01	Miller
A19	Emergent	0.04	Miller
Lora Lake	Open Water	3.06	Miller
	Other Waters of the U.S.	0.33	Miller
Riparian Wetlands			
R1	Emergent	0.17	Miller
R2	Scrub-Shrub/Emergent (70/30)	0.12	Miller
R3	Scrub-Shrub	0.02	Miller
R4	Emergent	0.11	Miller
R4b	Forest/Emergent (25/75)	0.11	Miller
R5	Emergent	0.05	Miller
R5b	Forest/Emergent (25/75)	0.07	Miller
R6	Forest/Emergent (25/75)	0.21	Miller
R6b	Emergent	0.09	Miller
R7	Forest/Emergent (25/75)	0.04	Miller
R7a	Emergent	0.04	Miller

Table 3. Summary of wetland and Other Waters of the U.S. areas in the STIA Master Plan Update improvements area (continued).

Wetland ^a	Classification ^b	Area (Acres)	Drainage Basin
R8	Scrub-Shrub/Emergent (40/60)	0.40	Miller
R9	Forest	0.38	Miller
R9a	Forest/Scrub-Shrub/Emergent (25/50/25)	0.74	Miller
R10	Scrub-Shrub	0.04	Miller
R11	Emergent	0.42	Miller
R12	Forest	0.03	Miller
R13	Emergent	0.12	Miller
R14a	Scrub-Shrub/Emergent (25/27)	0.13	Miller
R14b	Emergent	0.08	Miller
R15a	Forest/Scrub-Shrub/Emergent (25/65/10)	0.79	Miller
R15b	Forest/Emergent (25/75)	0.25	Miller
R17	Forest	0.31	Miller
	Subtotal	51.33	
Borrow Area 1			
32	Emergent	0.09	Des Moines
48	Forest/Emergent (20/80)	1.58	Des Moines
B1	Forest/Scrub-Shrub (30/70)	0.27	Des Moines
B4	Scrub-Shrub	0.07	Des Moines
B11	Emergent	0.18	Des Moines
B12 ^d	Scrub-Shrub	0.63	Des Moines
B14	Scrub-Shrub/Emergent (70/30)	0.78	Des Moines
B15 a and b ^d	Scrub-Shrub	2.05	Des Moines
	Other Waters of U.S.	0.01	Des Moines
	Subtotal	5.66	
Borrow Area 3			
29	Forest	0.74	Des Moines
30	Forest/Scrub-Shrub (80/20)	0.88	Des Moines
B5	Forest/Scrub-Shrub (40/60)	0.08	Des Moines
B6	Forest/Scrub-Shrub (30/70)	0.55	Des Moines
B7	Forest/Scrub-Shrub (30/70)	0.03	Des Moines
B9	Forest	0.05	Des Moines
B10	Forest	0.02	Des Moines
	Subtotal	2.35	
South Aviation Support Area (SASA)/Tyee Valley Golf Course			
28 ^d	Scrub-Shrub/Emergent/Open Water (50/30/20)	35.45	Des Moines
52	Forest/Scrub-Shrub/Emergent (80/20/20)	4.70	Des Moines
53	Forest	0.60	Des Moines
G1	Emergent	0.05	Des Moines
G2	Emergent	0.02	Des Moines
G3	Emergent	0.06	Des Moines

Table 3. Summary of wetland and Other Waters of the U.S. areas in the STIA Master Plan Update improvements area (continued).

Wetland ^a	Classification ^b	Area (Acres)	Drainage Basin
G4	Emergent	0.04	Des Moines
G5	Emergent	0.87	Des Moines
G6	Emergent	0.01	Des Moines
G7	Forest/Scrub-Shrub (30/70)	0.50	Des Moines
G8	Emergent	0.04	Des Moines
WH	Open Water	0.25	Des Moines
DMC	Forest/Scrub-Shrub/Emergent	1.08	Des Moines
	Subtotal	43.67	
IWS Area			
IWS a and b	Forest	0.67	Des Moines
	Subtotal	0.67	
South Aviation Support Area Detention Pond			
E1	Forest	0.23	Des Moines
E2	Forest	0.04	Des Moines
E3	Forest	0.06	Des Moines
	Subtotal	0.33	Des Moines
TOTAL		115.86	

^a Due to the number of wetlands, their location within the project area, and the history of their documentation, a wetland labeling protocol was developed.

- Wetlands with numbered designations (e.g., Wetland 35 or Wetland 44) were described by Shapiro and Associates, Inc. (FAA 1995).
- Wetlands with an 'A' designation (e.g., Wetland A5 or A10) are new wetlands occurring within the west acquisition area.
- Wetlands with an 'R' designation (e.g., Wetland R5 or R6) are new riparian wetlands occurring within the west acquisition area.
- Wetlands with a 'W' designation (e.g., Wetland W1 or W2) are new wetlands occurring within the west airfield area.
- Wetlands with a 'G' designation (e.g., Wetland G5 or G6) are new wetlands occurring within the Tyee Valley Golf Course or the SASA areas.
- Wetlands with an 'E' designation (e.g., Wetland E1 or E2) are new wetlands occurring within the SASA detention pond area.
- Wetlands with an 'IWS' designation (e.g., IWSa and IWSb) are new wetlands occurring near the IWS lagoon.
- Wetlands with a 'B' designation (e.g., Wetland B5 or B10) are new wetlands occurring within the borrow sites.
- Wetland numbers followed by a small case letter designate subsections of a wetland (i.e., Wetland 35a, or 35b) where constructed features (i.e., driveways) fragment a larger wetland.

^b Numbers indicate approximate percentage of cover by respective wetland classes (Cowardin et al. 1979).

^c Includes Lake Reba.

^d Portions of the wetland area are estimated.

Several of the wetlands delineated by Shapiro and Associates and previously confirmed by ACOE (letter dated October 18, 1996, see Appendix E) were reexamined. No changes have been made to Wetlands 1 through 4, 6 through 17, 19, 21 through 26, 29, 32, 53, and portions of Wetland 18. The Draft Environmental Impact Statement (DEIS) descriptions (FAA 1995) and the Final Environmental Impact Statement (FEIS) areas (FAA 1996) of these wetlands are presented in Appendix E of this document.

Parametrix, Inc. modified boundaries of Wetlands 5, 20, 28, 30, 48, and 52 and the new wetland boundaries were verified by ACOE. Wetlands 20, 28, 30, 48, and 52 are described in this chapter, and Wetland 5 is described in Appendix E.

Due to property access restrictions, Shapiro and Associates, Inc. could not delineate and survey several wetlands that were identified in the DEIS and FEIS. These include Wetlands 35, 37, 40, 41, 44, and portions of Wetland 18. Parametrix, Inc. delineated and surveyed these wetlands and their boundaries were confirmed by ACOE. These wetlands are described in this chapter.

Additional wetlands, Wetlands 43, 51, and A20, are located near Master Plan Update improvements, but will not be impacted by the improvements (Table 4). Delineated portions of these wetlands that are close to construction activities were confirmed by ACOE. Wetland A20 will not be affected by Master Plan Update improvements and was not confirmed by ACOE.

Parametrix staff conducted the field investigations for wetlands from March 1998 to October 2000. ACOE made site visits to confirm wetland identifications and boundary delineations on July 6, 8, 14, and 16, 1998; August 6, 1998; September 23, 1998; October 19, 22, 27, and 29, 1998; November 17, 18, and 19, 1998; January 8 and 12, 1999; March 8, 1999; June 7 and 21, 1999; August 2, 1999; January 18, 2000; February 3, 2000; October 26, 2000; and November 3, 8, 20, and 30, 2000.

Table 4. Significant wetlands near the STIA project area (areas are estimated).

Wetland	Classification ^a	Approximate Area (Acres)	Drainage Basin
43	Forest/Scrub-Shrub/Emergent (25/50/25)	33.4	Miller
51	Forest/Scrub-Shrub (30/70)	16.0	Des Moines
A20	Emergent	0.3	Miller
	TOTAL	49.7	

^a Numbers indicate approximate percentage of cover by respective wetland classes (Cowardin et al. 1979).

3.2.1 North Employee Parking Lot Area

The North Employee Parking Lot Area is located between SR 518 and South 146th Street and between 16th Avenue South and 22nd Avenue South. The wetlands in this area will not be impacted by Master Plan Update improvements.

Shapiro and Associates (FAA 1995) delineated two predominantly forested wetlands, identified as Wetlands 1 and 2, in this area during previous investigations; ACOE confirmed their boundaries (see Appendix E). The locations of these wetlands are shown in Figure 4 and on Maps No. 2 and 3 in Appendix D, and are described in Appendix E.

3.2.2 Runway Safety Area Extension

The RSA extension area lies north of the existing runways in the area bounded on the south by South 154th Street and on the north by SR 518. Northward expansion of the RSA will require relocation of South 154th Street. Houses that were once located in this area were removed during the 1960s and 1970s. The old residential streets provide access to most of the area.

The area is predominantly forested and contains the Miller Creek Detention Facility (Wetland 9). The surrounding system of wetlands is referred to as the Lake Reba wetland complex. Lake Reba (approximately 3 acres of open water) is contained within Wetland 7. Miller Creek enters the north end of the area and flows past the north end of Lake Reba.

Shapiro and Associates (FAA 1995) delineated four wetlands, identified as Wetlands 3 through 6, in this area during previous investigations; ACOE confirmed their boundaries (see Appendix E). The locations of these wetlands are shown in Figure 4 and on Maps No. 2 and 3 in Appendix D, and descriptions are provided in Appendix E. Parametrix staff evaluated the wetlands for changed conditions during site investigations in 1999, and minor changes were made to Wetland 5. An additional 0.05 acre was added to Wetland 5 to increase its size to a total of 4.63 acres.

3.2.3 Third Runway Project Area

As previously noted, portions of this area will be affected by construction of the new third runway, stormwater management facilities, other support facilities, and wetland or stream mitigation. For discussion purposes, the area is divided into four sub-areas: the north airfield, the west airfield, the west acquisition area, and the Vacca Farm site.

3.2.3.1 North Airfield

In this area the terrain slopes to the north and northeast and is generally forested. Eight wetlands, identified as Wetlands 7 through 14, were delineated in this area during previous wetland investigations (FAA 1996 and Appendix E), and their boundaries were confirmed by ACOE (see Appendix E). Wetland locations are shown in Figure 4 and in Maps 2, 3, and 5 in Appendix D. During site investigations in 1998 and 1999, the wetlands were examined for changed conditions; no changes to previously delineated boundaries were made.

3.2.3.2 West Airfield

The west airfield lies west of the existing airfield, south of South 154th Street, and east of 12th Avenue South. The terrain slopes to the west and is generally forested. Wetlands in this area will be filled for construction of the new runway.

Twelve wetlands (Wetlands 15 through 26) located in this area were delineated during previous wetland investigations (FAA 1996); their boundaries were confirmed by ACOE (see Appendix E). Appendix E contains descriptions of these wetlands. During site investigations in 1998 and 1999, Wetland 20 was redelineated to include additional wetland areas (20a and 20b), and Wetlands W1 and W2 were identified and delineated. These wetlands are described below. Wetland locations are shown in Figure 4, and on Maps 5, 6, 10, 12, 14, and 15 in Appendix D.

Wetland 20**USFWS Classification: PSS/EM****Size: 0.57 acre****Wetland data plots: 20a-A1, 20a-A2, 20b-A****Upland data plots: None****Maps No. 10, 12**

Wetlands 20a and 20b lie west of the airfield and east of 12th Avenue South in a shallow drainageway on a west-facing slope. Wetland 20 was originally described in the FEIS (FAA 1996) as a 0.16-acre scrub-shrub/emergent wetland. During a January 1999 site visit, three additional wetland areas surrounding and hydrologically connected to Wetland 20 were delineated. Emergent wetlands located northwest and a forested/scrub-shrub area to the southeast of the original Wetland 20 were delineated and mapped as Wetland 20a. A small forested/scrub-shrub wetland area to the north is mapped as Wetland 20b. The area to the north is connected to the other wetland areas via a non-wetland swale (identified in this report as Water W).

Hydrology: The wetland may receive surface runoff from the airfield to the east and groundwater from hillside seeps. Water leaving the wetlands drains to a swale (Water W) that flows toward the northwest to a drainage ditch along 12th Avenue (Water A). A culvert beneath 12th Avenue conveys this surface water into Wetland 37. During the January 1999 site visit, portions of the wetland were inundated with several inches of water, and surface water was flowing downslope through the wetland.

Soils: Soil characteristics vary throughout the wetland. Near the west end, the wetland soils are black (10YR 2/1) muck. Farther downslope, wetland subsoils are a light brownish gray (2.5Y 6/2) loamy sand with mottles. Within the small lobe at the north end of the wetland, the soils are disturbed and are very dark grayish brown (10YR 3/2) loam without mottles. Although this soil does not meet color criteria of a hydric soil, the soil was determined to be hydric because the area was inundated for at least two weeks during the growing season in February and March 1999.

Vegetation: The shrub community is dominated by Himalayan blackberry and salmonberry. Red alder and black cottonwood trees occur in places. The emergent community is comprised of fireweed, field horsetail, creeping buttercup, small-fruited bulrush, and American brooklime. Grasses present in the area include creeping bentgrass and common velvet-grass.

Upland: The upland area is dominated by big-leaf maple and Himalayan blackberry. The soils are well drained and no evidence of wetland hydrology is apparent.

Delineation: The wetland boundary was delineated based on changes in hydrology, soil characteristics, and vegetation.

Wetland W1
USFWS Classification: PEM
Size: 0.10 acre
Wetland data plot: W1-A
Upland data plot: W2-B
Map No. 10

Wetland W1 is located in a shallow depression and immediately south of temporary water treatment ponds that are located between the airfield and 12th Avenue South. A paved security road borders the west side of the wetland.

Hydrology: Hydrology is supported by precipitation and runoff. During portions of 1999, treated stormwater from the treatment ponds was pumped upslope of this wetland, which may have supplied additional water to this area. Portions of the wetland were inundated to a depth of 4 inches during the January 1999 site visit. Inundation was also observed during the March 8, 1999 ACOE visit. There is no surface water outlet from the wetland.

Soils: The soil beneath the A horizon is black (10YR 2/1) loam with mottles. A sulfidic odor was detected during soil sampling.

Vegetation: The emergent community is comprised of bentgrass, soft rush, and reed canarygrass. Himalayan blackberry and black cottonwood saplings are scattered throughout the wetland.

Upland: The forested upland area surrounding the wetland contains black cottonwood and red alder with an understory of dense Himalayan blackberry and reed canarygrass. Greater than 50 percent of the dominant plant species is hydrophytic. However, the soils are non-hydric. The subsoil is dark grayish brown (10YR 4/2) silt loam without mottles.

Boundary: The wetland boundary was delineated based on changes in soil characteristics and vegetation associated with the presence of wetland hydrology. The western margin of the wetland was delineated along the edge of access road fill.

Wetland W2
USFWS Classification: PFO/EM
Size: 0.22 acre
Wetland data plot: W2-A
Upland data plot: W2-B
Map No. 10

Wetland W2, which is located on a hillslope west of the airfield and south of Wetland W1, sits in a closed depression.

Hydrology: Wetland hydrology is supported by precipitation, runoff, and shallow groundwater. There is no surface water outlet from the wetland. During the January 1999 site visit, soils were saturated at a depth of 1 inch from the surface, and a water table was observed at a depth of 10 inches.

Soils: The soil beneath the A horizon is very dark gray (10YR 2/1) gravelly loam without mottles.

Vegetation: The emergent community is dominated by reed canarygrass. Himalayan blackberry shrubs, red alder trees, and black cottonwood trees are scattered throughout the wetland.

Upland: A deciduous forest community surrounds the wetland and is composed of black cottonwood and red alder with an understory of dense Himalayan blackberry and reed canarygrass. More than 50 percent of the dominant plant species is hydrophytic, although the soils are non-hydric. The subsoil is dark grayish brown (10YR 4/2) silt loam without mottles.

Delineation: The wetland boundary was delineated based on the presence of wetland hydrology and hydric soils.

3.2.3.3 Other Waters of the U.S.

One area (Water W) within the west airfield area is classified as Waters of the U.S. This area conveys natural surface runoff within a natural drainage channel that lacks wetland soil or vegetation. East of 12th Avenue South, Water W is 337 ft long by 3 ft wide (0.02 acre) and conveys water from Wetland 20 to a culvert on the east side of the perimeter fence along 12th Avenue South. The culvert drains to Water A located along the west side of the 12th Avenue South perimeter fence. Portions of these areas are mapped as streams by King County (1990a).

3.2.3.4 Vacca Farm Site

Past agricultural use and historical documentation of inundation within the Vacca Farm site area were determined by examining aerial photographs taken between the May 1965 and April 1995 (available at the University of Washington Library). Except for areas fringing Miller Creek or drainage ditches and land southeast of Lora Lake, the area has been in agricultural uses since at least 1965. Aerial photographs were taken during the dry part of the year and, therefore, failed to demonstrate that ponding occurs on the site. Additionally, no records for the site were available from the USDA offices.

Based on field observations, nine low-lying areas within the Vacca Farm site satisfied the criteria for farmed wetlands. These areas (FW1, FW2, FW3, FW5, FW6, FW8, FW9, FW10, and FW11) had hydric soil and were inundated for more than 15 days in the growing season (see Figure 4, and Maps No. 1 and 4 of Appendix D). The areas range in size from 0.01 to 0.59 acre and reach a total combined size of 1.03 acres. The boundaries of these farmed wetlands were observed over two winters with above normal precipitation (1998 and 1999). Except for FW11, the analysis was conducted in late February 1999, following 4 months of above normal to near record rainfall. These wet periods allowed accurate determination of farmed wetland boundaries over a 2-year period and served as the basis of ACOE's confirmation of the delineation. Due to property access limitations, FW11 was delineated from aerial photos taken in March of 1974 following ACOE guidance. March of 1974 was a month of above normal precipitation.

Other actively farmed areas within the Vacca Farm site parcels were found to meet the criteria for PC cropland. These areas total 7.88 acres and have hydric soils and saturation within 12 inches of the soil surface for more than 15 consecutive days. However, these areas lacked inundation for at least 15 consecutive days and, therefore, do not meet the criteria for FWs according to the FSA (Section 514.22). It is likely that these areas were wetlands before being converted to active

farmland. Federal jurisdiction is not taken over PC cropland according to the CWA requirements. The analysis for PC cropland at the Vacca Farm site parcels is summarized in Appendix C.

3.2.3.5 Other Waters of the U.S.

Two drainage ditches within the Vacca Farm site are classified as Waters of the U.S. These maintained ditches, Waters V1 and V2, total about 0.02 acre (V1 is approximately 215 ft long by 2 ft wide and V2 is approximately 155 ft long by 2 ft wide). The channels convey flowing water from tile drains to Wetland A1 and do not contain wetland vegetation.

3.2.3.6 West Acquisition Area

The portion of the west acquisition area addressed in this document was a former residential area located west of 12th Avenue South and generally east of Miller Creek. It was acquired by the Port for the construction of the third runway, the associated stormwater management and other support facilities, and noise mitigation. Property located west of Miller Creek is in the process of being acquired by the Port.

Wetlands identified and delineated within the west acquisition area during the 1998-2000 field investigations are described below. Wetlands 18, 35, 37, 39, 40, 41, and 44 were identified during a previous wetland investigation (FAA 1996); however, they were not delineated because permission to access the properties had not been obtained. In previous studies, the wetlands were identified using aerial photographs and from observations made from public streets. These wetlands were delineated during the 1998-2000 field investigations. Additional wetlands were identified in the west acquisition area during the 1998-2000 field investigations. These isolated wetlands in the acquisition area are identified as Wetlands A1 through A19. Riparian wetlands along Miller Creek are labeled Wetlands R1 through R15 and R17.

Wetland 18

USFWS Classification: PFO/SS/EM

Size: 3.56 acres

Wetland data plots: 18-A1, 18-A2, 18-A3

Upland data plots: 18-B1, 18-B2, 18-B3, 18-B4

Maps No. 7, 9, 10

The eastern portion of Wetland 18 is in a shallow ravine that begins east of 12th Avenue South west of the airfield. The wetland drains through a culvert beneath 12th Avenue South, into a narrow drainage ditch, then widens into a broad emergent and forested area that slopes westward to Miller Creek. Riparian portions of Wetland 18 connect to riparian portions of Wetland 37.

Wetland 18 has been filled in several locations to develop residential properties and these fill pads form the wetland boundary in many locations. A large portion of the wetland west of 12th Avenue South has been grazed, and a tilled garden is located at the north end of the wetland. A young red alder forest grows at the western end of the wetland along Miller Creek.

The portion of Wetland 18 east of 12th Avenue South was delineated for the FEIS (FAA 1996). The portion of the wetland located west of 12th Avenue South was delineated during site visits conducted in July, October, and November 1998.

Hydrology: Wetland hydrology is supported by groundwater discharge and precipitation. The wetland is located on a slope, and water entering the wetland flows west to Miller Creek. Periodic flooding of Miller Creek augments hydrology in limited riparian areas. On several site visits, Parametrix staff observed standing water in the northern portion of Wetland 18 and soil saturation within 12 inches of the surface was present throughout the remainder of the wetland. Oxidized rhizospheres, an indicator of prolonged saturation during the growing season, were also observed in several locations.

Soils: Within the wetland, surface soils are black (10YR 2/1) or very dark gray (10YR 3/1). Soils immediately below the A horizon typically ranged from black (10YR 2/1) to dark grayish brown (10YR 4/2) with mottles. Soil textures ranged from clay loam to gravelly sandy loam.

Vegetation: East of 12th Avenue South, the forested wetland overstory is a mixture of red alder, big-leaf maple, and western redcedar trees. The shrub layer is dominated by salmonberry. Associated forbs include giant horsetail and lady fern. West of 12th Avenue South, the forested wetland community is dominated by red alder. In some areas, Himalayan blackberry dominates the understory. Forested areas along Miller Creek have an understory dominated by creeping buttercup and lady fern. Shrub communities are typically dominated by Himalayan blackberry. Grazed and mowed emergent communities are dominated by redtop and common velvet-grass with perennial ryegrass, sawbeak sedge, giant horsetail, and small-fruited bulrush as associated species. Other emergent plants consist of reed canarygrass and soft rush with a few skunk cabbages.

Upland: Surrounding upland areas include yards, gardens, and other disturbed vegetation on fill. Herbaceous vegetation is predominantly bluegrass, creeping bentgrass, fescue, and reed canarygrass. Communities dominated by giant horsetail occur in some areas. Where present, forested areas are dominated by red alder and big-leaf maple, with Himalayan blackberry as the dominant shrub. Many upland areas are dominated by greater than 50 percent wetland plants. However, these areas do not have hydric soils or wetland hydrology and, therefore, are not wetlands.

Subsurface horizons of adjacent upland soils generally range from very dark yellowish brown (10YR 3/2) to yellowish brown (10YR 5/4) without mottles. An exception to this occurs at Plot 18-B2, where soils are dark yellowish brown (10YR 3/2) with mottles throughout. These soils were determined by ACOE to be fill material with relict hydric soil colors, and, therefore, not wetland soils.

Delineation: The western wetland boundary was delineated along the ordinary high water mark (OHWM) of Miller Creek. On some residential lots where lawns were present, the wetland boundary was delineated at the limits of wetland hydrology along the edges of fill pads. On Parcel 281, where facultative plants dominate vegetation, the wetland edge was based on changes of soil color and hydrology. In remaining areas, the wetland boundary was determined by the presence of wetland vegetation growing on hydric soil with the presence or indicators of wetland hydrology.

Wetland 35**USFWS Classification: PFO/EM****Size: 0.67 acre****Wetland data plots: 35a/b-A, 35c-A, 35d-A****Upland data plots: 35c-B, 35d-B****Map No. 7**

Wetland 35, located on a gentle slope along the south side of South 160th Street, lies in a shallow drainage swale that terminates in a French drain at its westernmost end. Driveways segment the wetland into four sections (Wetlands 35a through 35d). Culverts beneath the driveways hydrologically connect these wetland areas.

Hydrology: Wetland hydrology is supported by seasonal shallow groundwater and surface water runoff. A French drain and culvert at the west end of the wetland collects surface water and directs it to roadside ditches and storm sewers that eventually convey the water to Miller Creek. At the time of the July 1998 site visit, soils were generally saturated to the soil surface throughout most of the wetland. In Wetland 35a, the soils were not saturated; however, wetland drainage patterns were present.

Soils: Within the wetland, the soil immediately below the A horizon typically ranged from black (10YR 2/1) silt loam to dark grayish brown (2.5Y 4/2) sand with mottles.

Vegetation: Black cottonwood and red alder dominate the small area of forested wetland with bittersweet nightshade, giant horsetail, and skunk cabbage in the understory. The emergent community is dominated by lawn grasses. However bentgrass, common velvet-grass, tall mannagrass, giant horsetail, and lady fern occur in localized unmowed areas.

Upland: Surrounding uplands are dominated by mowed lawn and ornamental woody plants. Subsurface soil color ranges from brown (10YR 4/3) with mottles to dark yellowish brown (10YR 4/4) without mottles. Soil textures range from silt loam to sandy loam.

Delineation: The eastern portion of the wetland was delineated based on the presence of hydric soils and wetland hydrology indicators. The western portion of the wetland was delineated based on the presence of hydric soils and wetland hydrology.

Wetland 37**USFWS Classification: PFO/EM****Size: 5.73 acres****Wetland data plots: 37a-A1, 37a-A2, 37a-A3, 37e-A, 37f-A****Upland data plots: 37a-B1, 37a-B2, 37e/f-B****Map No. 9**

Wetland 37 is located west of 12th Avenue South, between South 160th Street and South 166th Place. A previous wetland investigation (FAA 1996) identified only a portion of this wetland. During the 1998/1999 investigation, project personnel determined the wetland to be much larger than previously identified, and it was found to be hydrologically connected to Wetland 18.

The wetland has been fragmented by residential development into six sections (labeled 37a through 37f). Wetland 37a, the largest wetland section (5.09 acres), is located on the east bank of Miller Creek. Wetlands 37b and 37c drain to Wetland 37a from the north, and Wetlands 37d, 37e, and 37f drain to the same section from the south.

Hydrology: Wetland hydrology throughout most of the wetland is supported by groundwater seepage from upslope areas. Portions of the western side of the wetland are occasionally flooded by Miller Creek. The wetland conveys groundwater seepage, surface water runoff, and discharge from Wetland 20 to Miller Creek. During the October 1998 site visit, soils were saturated within 12 inches of the surface throughout most of the wetland, and inundation and flowing were present in the center of Wetland 37a. Because the site visit was conducted during the dry season, wetland hydrology was not evident in some places near the wetland margin. These areas were assumed to have wetland hydrology because they have hydric soils and support wetland vegetation.

Wetland 37a receives water from several sources, including seepage water entering through a culvert beneath 12th Avenue South and overbank flow from Miller Creek.

Water entering the north side of Wetland 37 originates as groundwater that surfaces in Wetland 19 and flows via a culvert beneath 12th Avenue South to Wetlands 37b, Wetland 37c, and finally via a French drain to Wetland 37a. During the October 1998 site visit, saturation within 12 inches of the soil surface and areas of shallow inundation and flowing water were observed in these wetlands.

Water entering the south side of the wetland flows through three discontinuous wetlands (Wetlands 37f through Wetland 37e, then through Wetland 37d) that are maintained by groundwater seeps. Wetland 37f is located on a small bench at the highest elevation of the drainage. A portion of Wetland 37f drains northward to Wetland 37e via surface and subsurface flow, and an additional portion drains westward to Wetland A9 via a drainage channel (Water B). Wetland 37e drains through a culvert to a small ravine (Wetland 37d) where the flowing water is impounded by driveway fill at the northern end of the wetland section. The impounded water drains through two 4-inch pipes for approximately 200 feet to Wetland 37a. During the July 1998 site visit, soils were saturated to the surface in Wetland 37e, and Wetlands 37f and 37d were inundated.

Water entering the east side of the wetland originates in Wetland 20, Wetland 21, and Water A. These flows combine in Water W and are carried to the wetland through a culvert beneath 12th Avenue South.

Soils: Within Wetland 37, soil colors immediately below the A horizon typically ranged from black (10YR 2/1) to dark brown (10YR 2/2) with mottles. Soil textures ranged from sandy clay loam to silt loam, with some areas of organic muck in Wetland 37a.

Vegetation: The largest portion of Wetland 37 is predominantly a red alder-dominated forest with an understory of Himalayan blackberry, field horsetail, and lady fern. A shrub community in Wetland 37a is dominated by salmonberry with water parsley and skunk cabbage in the understory. Red alder with an understory of Sitka willow, field horsetail, and Himalayan blackberry dominates forested communities in Wetland 37e and 37f; skunk cabbage occurs in low spots. Himalayan blackberry and salmonberry dominate shrub communities of these wetlands. The northern portion

of Wetland 37 is emergent pasture dominated by colonial bentgrass, common velvet-grass, and creeping buttercup.

Upland: Upland areas surrounding Wetland 37 include disturbed lawns, pasture, undeveloped hillslopes, and roads. Dominant plants include colonial bentgrass, reed canarygrass, and common velvet-grass with patches of Himalayan blackberry. Although some upland areas are dominated by greater than 50 percent wetland plants, these areas do not have hydric soils or wetland hydrology and, therefore, are not wetland. The soil color immediately below the A horizon generally ranged from dark yellowish brown (10YR 3/2) without mottles to olive (5Y 5/3) with mottles.

Delineation: The wetland boundaries of the smaller sections of Wetland 37 were based on distinct changes in hydrology, vegetation composition, and soil color. The western boundary of Wetland 37a was delineated at the ordinary high water mark (OHWM) along Miller Creek, and portions of the eastern and southern boundaries were delineated at the edge of fill associated with 12th Avenue South and several driveways.

Wetland 39

USFWS Classification: PFO/SS/EM

Size: 0.90 acre

Wetland data plots: 39-A1, 39-A2, 39-A3, and 39-A4

Upland data plots: 39-B1, 39-B2, and 39-B3

Map No. 11

Wetland 39 is a 0.90-acre shrub and forested slope wetland located east of 8th Avenue South and north of Wilson Road. The wetland consists of two parts separated by an upland slope. The area was identified in the FEIS (FAA 1996). The site has been disturbed by logging and farming.

Hydrology: Direct indicators of hydrology were observed in Wetland 39 during several site visits in both the dry (August 1999) and wet season (February 2000). Shallow groundwater expresses at the soil surface throughout the wetlands. Groundwater seeps and discharge from a 12-inch plastic stormwater pipe coalesce in a ravine at the eastern lobe of Wetland 39. This flowing water descends downslope in sheet and channelized flow. The surface water is collected in a cement ditch at the terminus of Wetland 39's western lobe and is directed into the storm sewer on Wilson Road. Other areas in Wetland 39 range from seasonally to permanently saturated.

Soils: Within Wetland 39, the soil immediately below the A horizon typically ranged from grayish brown (2.5Y 5/2) gravelly loam to black (10YR 2/1) loam with mottles throughout.

Vegetation: Within Wetland 39, black cottonwood and red alder dominate the small area of forested wetland, with Himalayan blackberry and giant horsetail in the understory. Himalayan blackberry dominates the shrub portion of the wetland, with giant horsetail and creeping buttercup present in the understory.

Upland: Surrounding uplands are dominated by mowed lawn, Himalayan blackberry, or upland forest. Subsurface soil color ranges from dark brown (10YR 3/3) with mottles to reddish brown (10YR 4/4) without mottles. Soil textures range from silt loam to clay loam.

Delineation: Wetland 39 was delineated based on the presence of hydric soils, wetland hydrologic indicators, wetland hydrology, and hydrophytic plants.

Wetland 40

USFWS Classification: PSS

Size: 0.03 acre

Wetland data plot: 40-A

Upland data plot: 41b-B

Map No. 12

Wetland 40 is an isolated wetland in a steep-sided depression located at the northwest corner of 12th Avenue South and South 170th Street.

Hydrology: Surface water runoff and shallow groundwater maintain wetland hydrology. No surface water drains from this wetland. Wetland hydrology was not present during dry season sampling (October 1998), but is assumed to occur in the wetland based on the presence of watermarks, sediment deposits, and wetland drainage patterns. Standing water was observed in the wetland on December 1, 1998. Stormwater runoff from 12th Avenue South enters the wetland through a culvert located at the southern edge of the wetland.

Soils: Soils within the wetland are very dark grayish brown (10YR 3/2) sandy loam with abundant mottles.

Vegetation: The shrub community of Wetland 40 is dominated by Pacific willow and Himalayan blackberry. Yellow iris grows in the center of the wetland.

Upland: The surrounding upland is similar to the upland surrounding Wetland 41b.

Delineation: The boundary of Wetland 40 was delineated based on the presence of wetland vegetation, hydric soil characteristics, and wetland hydrologic indicators. These wetland conditions correspond to sharp changes in topography.

Wetland 41a

USFWS Classification: PEM/POW

Size: 0.35 acre

Wetland data plot: 41a-A

Upland data plot: 41b-B

Map No. 12

Wetland 41a is located south of South 168th Street and west of 12th Avenue South within a grazed pasture. The wetland is a small farm pond surround by wet pasture. Ducks and cattle graze the wetland and surrounding buffer. Soils within the wetland have been disturbed by grading and tilling.

Hydrology: Wetland 41a occurs in a shallow closed depression where precipitation and localized runoff collect. At the time of the October 1998 site visit, the pond was inundated with about 10 inches of water, but wetland hydrology was not present in the surrounding emergent (pasture) areas.

Seasonal wetland hydrology was assumed to be present in portions of the pasture based on the presence of hydrophytic vegetation and hydric soils.

Soils: The soil in the wetland is compacted due to cattle grazing and is a very dark grayish brown (10YR3/2) loam with mottles.

Vegetation: The heavily grazed emergent community is dominated by bluegrass. White clover, broadleaf plantain, and pineapple weed are associated species. The open-water area is unvegetated. Red alder and black cottonwood saplings and a few Pacific willow shrubs grow along the edge of the water.

Upland: Upland vegetation and soils are the same as described for uplands around Wetland 41b.

Delineation: Along the north and east wetland boundary, the delineation was based on the OHWM of the pond, which corresponds to the presence of hydric soils. Along the west and south wetland boundary, the delineation was based on the presence of hydric soil colors and wetland vegetation.

Wetland 41b

USFWS Classification: PEM

Size: 0.09 acre

Wetland data plot: 41b-A

Upland data plot: 41b-B

Map No. 12

Wetland 41b is located approximately 100 ft south of Wetland 41a. Ongoing grazing has disturbed vegetation within the wetland, and grading and tilling have disturbed the soils.

Hydrology: Wetland 41b occurs in a shallow closed depression that is seasonally saturated by precipitation and local runoff. Because the wetland was examined during the dry season (October 1998), wetland hydrology was not observed. The presence of wetland drainage patterns combined with topographic conditions and the observation of flooding during the winter months (December 1998) indicate seasonal wetland hydrology.

Soils: The upper 10 inches of the wetland soil were dry and compacted, and are very dark grayish brown (10YR3/2) loam with mottles. Below a depth of 10 inches, the soil is a dusky red (2.5YR3/2).

Vegetation: The emergent community is dominated by bluegrass and is grazed to such an extent that identification to species was not possible. Associated species include creeping bentgrass, pineapple weed, and broadleaf plantain. Based on the presence of hydric soils and wetland hydrology, ACOE assumes hydrophytic species would dominate the area if grazing were discontinued.

Upland: In the surrounding upland, white clover, creeping bentgrass, and spotted cat's-ear dominate vegetation. The upper 12 inches of upland soil are dark brown (10YR3/3) sandy loam with mottles. Below a depth of 12 inches, the soil is dark yellowish brown (10YR3/4) with no mottles.

Delineation: Because the delineation was conducted during the dry season, wetland boundaries were identified based on the presence of hydric soil.

Wetland 44

USFWS Classification: PFO/SS

Size: 3.08 acres

Wetland data plots: 44-A1, 44A-2, 44-A3, 44-A4

Upland data plot: 44-B1, 44-B2, 44-B3, 44-B4

Maps No. 13, 14

Wetland 44 is located in a steep-sided ravine between South 174th Street and SR 509. The base of the ravine is crossed by SR 509 road fill, which creates an artificial depression. Water entering the ravine is conveyed in a culvert beneath SR 509 to a ditch on the west side of the highway, and then to Wetland 43 (see FAA 1996), which is the source of Walker Creek, a tributary of Miller Creek. The wetland was examined during several site visits between July 1998 and October 2000. In June 2000, approximately 0.01 acre of wetland occurring on the SR 509 road fill was added to Wetland 44b. In October 2000, the eastern edge of the wetland was modified when about 0.25 acre was determined to be upland.

Hydrology: Wetland 44 is maintained by groundwater that seeps from upslope areas. Groundwater seeps concentrate into a small creek near the downslope end of the ravine. During the site visits, flowing water, discontinuous surface water, or soil saturation within 12 inches of the surface were evident within the wetland.

Soils: Colors of mineral soils immediately below the A horizon typically range from dark brown (10YR 2/2) with mottles to gleyed colors (N4/7 and 5BG5/1). Textures range from loam to sand. Organic soils within the wetland include black (10YR2/1) peat and very dark brown (7.5YR 2.5/2) muck.

Vegetation: Wetland 44 is a forested wetland that is fringed by shrub communities. The forested component is dominated by an open canopy of red alder, with lesser amounts of big-leaf maple, willow, and bitter cherry. Himalayan blackberry, Sitka willow, Pacific willow, salmonberry, and vine maple occur in the shrub layer. The herbaceous understory, when present, is dominated by giant horsetail, lady fern, tall mannagrass, and reed canarygrass. A shrub community that occurs near the edge of the wetland is dominated by Himalayan blackberry in many areas, with salmonberry, Sitka willow, and Pacific willow in others.

Upland: Upland forest communities surrounding the wetland are dominated by big-leaf maple, red alder trees with Indian plum, and large amounts of Himalayan blackberry. Also present in the shrub layer are red alder saplings, vine maple, salmonberry, and English holly. Large amounts of English ivy are found in portions of the understory. Limited upland areas (data plot 44-B1) have hydric soils, but were determined to be non-wetland because they lack hydrophytic vegetation.

Delineation: The western margin of the wetland was delineated near the toe of the SR 509 fill slopes. The remaining wetland boundary was delineated based on the presence of wetland hydrology, hydric soils, and wetland vegetation.

Wetland A1

USFWS Classification: PFO/SS/EM

Size: 4.66 acres

Wetland data plots: A1-A1, A1-A2, A1-A3, A1-A4, A1-A5

Upland data plots: A1-B1, A1-B2, A1-B3, A1-B4

Maps No. 1, 4

Wetland A1 is located in the Vacca Farm site area. The wetland is a scrub-shrub/forested system that includes Lora Lake to the north, and is bound by Miller Creek to the east and the Vacca Farm site to the south and west. The wetland extends to the south, forming emergent and forested riparian wetland along the banks of Miller Creek. Another elongated band of emergent and scrub-shrub wetland parallels a ditch that drains to Miller Creek. Site visits took place in April, July, and September 1998, June 1999, and September 2000.

Wetland A1a is an emergent wetland located on the western edge of Parcel 062R. The wetland has a ditch that drains through a culvert to Wetland A1 at the eastern edge of Parcel 062R.

Hydrology: In the northern portion of the wetland and the Miller Creek riparian area (data plots A1-A1 and A1-A2) soils were saturated to the surface and free water was observed within 10 inches of the surface in April 1998. Wetland hydrology was not observed in the western arm of the wetland during the dry season (July and September). The area was assumed to have wetland hydrology based on the presence of wetland vegetation and hydric soils. During later field visits (November 1998 through February 1999), wetland hydrology was observed throughout Wetland A1. Adjacent to Lora Lake, the soils were saturated at 6 inches and oxidized root channels were present during a September 2000 site visit.

Soils: Within the wetland, mineral soils occur along the creek and the drainage ditch. Immediately below the A horizon, soil colors typically range from black (10YR 2/1) with mottles to very dark gray (7.5YR 3/1) with mottles. Most of the wetland has organic soils consisting of black (10YR2/1) muck over dark yellowish brown (10YR 4/4) peat. Adjacent to Lora Lake, the soils are a gray (10Y 5/1), very sandy loam with mottles.

Vegetation: Emergent communities in the northern part of the wetland are predominantly reed canarygrass. Emergent areas in the southern lobes are dominated by bentgrass, common velvetgrass, small-fruited bulrush, birdsfoot trefoil, and creeping buttercup. The forested community has a red alder and black cottonwood canopy with an understory dominated by Himalayan blackberry. The shrub community is dominated by Himalayan blackberry. Bittersweet nightshade and nettles are often associated with the blackberry. Adjacent to Lora Lake, the vegetation consisted of lawn grass.

Upland: Agricultural activities or housing development have disturbed all upland areas surrounding Wetland A1. Upland data plots A1-B1 and A1-B2 are located in PC cropland. These are actively farmed areas with no vegetation and black organic soils (10YR 2/1). Upland data plot A1-B3 was located in a disturbed area between a house and Miller Creek. The woody vegetation contains predominantly ornamental species with lawns of bentgrass and velvetgrass. The soil color immediately below the A horizon is dark brown (10YR 2/2) without mottles.

The upland area adjacent to Lora Lake consists mainly of maintained lawns that lack indicators of wetland hydrology or hydric soils.

Delineation: The northern edge of the Wetland A1 was delineated along the southern margin of Lora Lake. Portions of the wetland adjacent to farmed wetlands were delineated along the boundary between the vegetation and the tilled soils. The southern extreme of the wetland was delineated along fill margins. The remaining segments of the wetland boundary were delineated based on the presence of wetland hydrology, vegetation, and soil characteristics.

Wetlands A2, A3, and A4

USFWS Classification: PSS

Size: A2 = 0.05 acre, A3 = 0.01 acre, A4 = 0.03 acre

Wetland data plots: A2-A, A3-A, A4-A

Upland data plot: A2-B, A3/4-B

Maps No. 1, 4

Wetlands A2, A3, and A4 are Himalayan blackberry-dominated wetlands located on the Vacca Farm site. The wetlands are surrounded by farmland. Fill for a parking area forms the western margin of Wetland A2.

Hydrology: At the time of April 1998 site visit, Wetland A2 was saturated to within 4 inches of the soil surface, Wetland A3 was saturated to within 6 inches of the surface, and Wetland A4 was inundated with up to 6 inches of water.

Soils: Soils in Wetland A2 are black (10YR 2/1) sandy loam over gleyed subsoils of bluish black (10B 5/1) sandy loam. Below a depth of 4 inches, soils in Wetlands A3 and A4 are black (10YR 2/1) and very dark brown (10YR 2/2) peat.

Vegetation: Dense thickets of Himalayan blackberry vegetate the wetlands. Creeping buttercup is present in places, particularly near the wetland edge. Although Himalayan blackberry is not rated as a wetland plant, the presence of wetland hydrology and hydric soil conditions indicate the area is wetland, in accordance with guidelines in ACOE Public Notice (1994).

Upland: The area surrounding these wetlands is tilled as part of ongoing farming operations. The farmland is classified as PC cropland and is not subject to Section 404 jurisdiction.

Delineation: Wetland boundaries were generally delineated along the edge of tilled farmland, except for the western boundary of Wetland A2, where the edge of the wetland corresponds to the edge of parking lot fill.

Wetland A5

USFWS Classification: PEM

Size: 0.03 acre

Wetland data plot: A5-A

Upland data plot: None

Map No. 7

Wetland A5 is a mowed lawn in a residential yard, located approximately 40 ft north of Wetland A6. A driveway is located along the western edge the wetland, and a house is located along the southern edge.

Hydrology: Wetland A5 is a shallow depression that is maintained by seasonally high groundwater. It is approximately 1 to 3 ft lower than the surrounding area and has no inflow or outflow channel. On the October 1998 site visit, the homeowner told Parametrix staff that the wetland portion of the yard has prolonged saturation during the winter and spring months. The southwest corner of the wetland was inundated at that time. Inundation and soil saturation were not observed at the sample plot location, but the area was assumed to have wetland hydrology based on the presence of hydric soils and oxidized root channels.

Soils: The wetland surface soil is very dark grayish brown (10YR 3/2) sandy loam with mottles. The soil immediately below the A horizon is black (10YR 2/1) loam with mottles.

Vegetation: The wetland vegetation is predominantly non-native lawn grasses dominated by bentgrass, fescue, common velvet-grass, and bluegrass.

Upland: Surrounding uplands consist of yard and deciduous forest and are similar to uplands surrounding Wetland A6 described below.

Delineation: Driveway fill marks the western wetland boundary, and the house marks the southern boundary. The remaining wetland boundary was delineated based on wetland hydrology indicators and hydric soil conditions.

Wetland A6

USFWS Classification: PFO

Size: 0.16 acre

Wetland data plot: A6-A

Upland data plot: A6-B

Map No. 7

Wetland A6 is approximately 40 ft south of Wetland A5.

Hydrology: The wetland is in a closed depression with no apparent surface water channels. During the July 1998 site visit, neither saturation nor inundation was evident. The area was assumed to have wetland hydrology based on the presence of water marks, sediment deposits, and drainage patterns in the wetland, as well as hydric soils and hydrophytic vegetation.

Soils: Below a depth of 10 inches, the wetland soil is black (10YR 2/1) silt loam without mottles with a high organic content.

Vegetation: The wetland is generally forested with red alder and black cottonwood trees, and has a dense understory of Himalayan blackberry. Among the blackberry are patches of other wetland plants, including yellow iris, cooley hedgenettle, giant horsetail, and creeping buttercup. The northern margin of the wetland is residential lawn.

Upland: The surrounding upland is typically red alder forest with a Himalayan blackberry understory and no other wetland vegetation. Soils immediately below the surface horizon are dark yellowish brown (10YR 4/6) loam without mottles.

Delineation: The wetland boundary was delineated based primarily on hydric soil characteristics and minor topographic changes. The northern wetland boundary follows the edge of fill associated with adjacent lots. The western boundary occurs along fill placed for a sewer line that runs north/south through the area. Along the eastern and southern boundaries of the wetland, delineation was based on the presence of hydric soil color, wetland vegetation, and gradual changes in topography.

Wetland A7

USFWS Classification: PFO

Size: 0.30 acre

Wetland data plot: A7-A

Upland data plot: A7-B

Map No. 7

This wetland area has been subject to grazing and farming, but these land uses were discontinued about 20 years ago. The site is currently covered with a 15- to 20-year-old red alder forest.

Hydrology: Wetland A7 is in a closed depression and has seasonal wetland hydrology. No significant surface flow to or from the wetland occurs. At the time of the June 1998 site visit, saturation or inundation was not evident. The area was assumed to have wetland hydrology based on the presence of oxidized root channels, hydrophytic vegetation, and hydric soil. A low earthen berm along the southern and western edges of the wetland may block seasonal drainage.

Soils: The wetland soil consists of black (10YR 2/1) sandy loam with a high organic content over dark gray (10YR 4/1) loamy sand with mottles.

Vegetation: Wetland A7 is a forested wetland with a red alder overstory and a dense Himalayan blackberry and salmonberry understory. The herb layer includes wetland plants such as sawbeak sedge, soft rush, creeping bentgrass, and creeping buttercup.

Upland: The surrounding upland is also red alder forest with a Himalayan blackberry and English holly understory without associated wetland plants. The soils are black (10YR 2/1) silt loam over dark yellowish brown (10YR 4/4) loamy sand with mottles.

Delineation: The eastern and northern wetland boundaries were delineated based on the presence of hydric soil characteristics, which corresponded to a gradual rise in topography. The western and southern boundaries were delineated based on the presence of wetland vegetation, hydric soils, and changes in topography.

Wetland A8**USFWS Classification: PFO/SS****Size: 0.38 acre****Wetland data plots: A8-A1, A8-A2, A8-A3, A8-A4****Upland data plots: A8-B1, A8-B2, A8-B3****Map No. 7**

The wetland is composed of two broad lobes connected by a narrow swale. The wetland has been disturbed by fill, debris, and land clearing.

Hydrology: The wetland occurs in a shallow depression that has seasonal hydrology. No significant surface waters flow into or out of the wetland. At the time of the June 1998 site visit, neither saturation nor inundation was present. The area was assumed to have wetland hydrology based on the presence of oxidized root channels, hydrophytic vegetation, and hydric soils.

Soils: Wetland surface soils are black (10YR 2/1), very dark gray, or very dark brown. Soils beneath the A horizon are mottled with matrix colors ranging from black (10YR 2/1) to grayish brown (10YR 5/2). Textures are typically loam or sandy loam.

Vegetation: The eastern lobe of the wetland is forested. The canopy is dominated by black cottonwood, red alder, and western redcedar, with salmonberry and skunk cabbage in the understory. The western lobe is a shrub community dominated by Himalayan blackberry, soft rush, and giant horsetail.

Upland: Dominant plant species in surrounding upland areas include red alder, English holly, Himalayan blackberry, and English ivy. Subsurface soils generally range in color from dark yellowish brown (10YR 3/2) without mottles to yellowish brown (10YR 5/4) with mottles, and are sandy loam in texture. Some upland areas contain piles of fill and other debris and the vegetation is predominantly Himalayan blackberry.

Delineation: The northwest portion of the wetland was delineated based on the presence of wetland plants in the understory and hydric soil colors. Distinct changes between the hydric and non-hydric soil were used to delineate the southern wetland boundary. The eastern portion of the wetland was delineated based on the presence of obligate wetland plant species.

Wetland A9**USFWS Classification: PSS****Size: 0.04 acre****Wetland data plot: A9-A****Upland data plot: A11-B****Map No. 9**

Wetland A9 is located on a west-facing hillslope in the Miller Creek Nursery (Parcel 313). The wetland is defined by a service road to the east and west, a sidewalk and garden to the south, and a ditch to the north. This ditch connects to Wetland A12. The wetland is partially filled with rubble and yard waste.

Hydrology: Wetland A9 is located in a closed depression. At the time of the September 1998 site visit, soils were saturated at a depth of 12 inches and free water was observed at 14 inches. Oxidized root channels were also observed in the wetland soils.

Soils: The wetland soils are dark gray (10YR 3/1) loam and silt loam, to a depth of 15 inches, over gray (10 YR 5/1) loamy sand. Mottles occur below a depth of 9 inches.

Vegetation: Himalayan blackberry dominates the shrub community. Giant mannagrass, giant horsetail, birdsfoot trefoil, creeping buttercup, and lady fern occur in the herb layer. One western redcedar is also present. Upland vegetation within the wetland is composed of non-native nursery stock.

Upland: The wetland is surrounded by the nursery facilities and non-native nursery stock. The soil immediately below the surface horizon is yellowish brown (10YR 5/4) without mottles.

Delineation: The wetland boundary was delineated based on the presence of wetland hydrology and hydric soil conditions, and the edges of various constructed features, such as roads, sidewalks, and ditches.

Wetland A10

USFWS Classification: PSS

Size: 0.01 acre

Wetland data plot: A10-A

Upland data plot: A11-B

Map No. 9

Wetland A10 is located at the base of a steep slope in the Miller Creek Nursery. Service roads, planted nursery stock, or lawn surround the wetland. A house is located between Wetlands A10 and A11.

Hydrology: The wetland is located in a shallow depression that has seasonal wetland hydrology. Neither inundation nor saturation was observed during the September 1998 site visit. The area is assumed to have wetland hydrology based on the presence of oxidized root channels, hydric soils, and hydrophytic vegetation.

Soils: The soil immediately below the A horizon is greenish gray (10G 6/1) sandy clay loam with mottles.

Vegetation: The shrub community is dominated by Himalayan blackberry. The herb layer consists of yellow iris, giant horsetail, and lady fern with small amounts of small-fruited bulrush and American brooklime.

Upland: The wetland is surrounded by nursery stock of non-native plants. The soil immediately below the surface horizon is yellowish brown (10YR 5/4) sandy loam without mottles. The soil material may be fill.

Delineation: Driveways, parking lots, residential lawn, and planted nursery stock surround the wetland. The wetland boundary was delineated based on distinct changes in soil color, vegetation, and hydrology.

Wetland A11

USFWS Classification: PSS

Size: 0.02 acre

Wetland data plot: A11-A

Upland data plot: A11-B

Map No. 9

Wetland A11 is located at the base of a steep slope in the Miller Creek Nursery. Service roads, planted nursery stock, or yard surround the wetland. A house is located between Wetlands A10 and A11.

Hydrology: The wetland is located in a depression that has seasonal wetland hydrology. Neither inundation nor saturation was observed during the September 1998 site visit. The area is assumed to have wetland hydrology based on the presence of oxidized root channels, hydric soils, and hydrophytic vegetation.

Soils: The soil immediately below the A horizon is very dark grayish brown (10YR 4/2) gravelly loam with mottles.

Vegetation: Himalayan blackberry dominates the shrub community. The herb layer is dominated by yellow iris, giant horsetail, and small-fruited bulrush.

Upland: The wetland is largely surrounded by nursery stock of non-native plants. The soil immediately below the surface horizon is yellowish brown (10YR 5/4) sandy loam without mottles. The soil horizon is disturbed.

Delineation: Driveways, parking lots, residential lawn, and planted nursery stock surround each wetland. The wetland boundary was delineated based on distinct changes in soil color, vegetation, and hydrology.

Wetland A12

USFWS Classification: PSS

Size: 0.11 acre

Wetland data plot: A12-A

Upland data plot: A12/13-B

Map No. 9

Wetland A12 occurs in a shallow drainageway on a steep west-facing slope. The upslope end of the wetland is located behind a residence. The downslope end narrows into a swale that terminates in a drainage ditch that drains to Miller Creek through Wetland A9.

Hydrology: During the September 1998 site visit, Parametrix staff found that soils were saturated to the surface and the water table was within 3 inches of the soil surface. In other locations, surface water and wetland drainage patterns were also present.

Soils: The surface horizon has high organic matter content. The subsoil is dark gray (2.5YR 4/1) sandy loam with mottles immediately between 10 and 16 inches of the soil surface.

Vegetation: The shrub community is dominated by Himalayan blackberry and salmonberry. Skunk cabbage and lady fern occur in the herb layer, but are not dominant.

Upland: Adjacent uplands are dominated by big-leaf maple and Indian plum. The soils below the surface horizon are brown (10YR 5/3) and yellowish brown sand without mottles.

Delineation: The wetland was delineated based on the presence of wetland hydrology and hydric soil conditions; these generally related to changes in topography.

Wetland A13

USFWS Classification: PFO

Size: 0.12 acre

Wetland data plot: A13-A

Upland data plot: A12/13-B

Maps No. 9, 12

The wetland is located on a slope behind a residential area where the vegetation has been disturbed by nearby homeowners.

Hydrology: Wetland A13 is an isolated wetland that is fed by groundwater seeps. During the September 1998 site visit, saturation to the soil surface and a water table at 9 inches from the soil surface were observed.

Soils: The wetland surface soils have a high organic matter content. The subsoils are gray (5N 4/1) cobbly sand with mottles immediately below 10 inches.

Vegetation: Red alder dominates the forested community. Himalayan blackberry, giant horsetail, lady fern, and field bindweed occur in the understory.

Upland: Upland conditions surrounding the wetland are similar to those described for Wetland A12.

Delineation: The wetland boundary was delineated based on the presence of hydric soil colors, wetland vegetation, and wetland hydrology.

Wetland A14

USFWS Classification: PFO/SS/EM

Size: 0.19 acre

Wetland data plots: A14a-A, A14b-A

Upland data plots: A14-B

Map No. 11

Wetland A14 is located on Parcels 326 and 327 and is a 0.19-acre wetland that is divided into two sections by driveway fill. The two sections, A14a (0.12 acre) and A14b (0.07 acre), are forested

slope wetlands. A steep slope bounds the wetlands to the east and roads or driveway fill along the remaining sections.

Hydrology: Saturation to within 10 inches of the soil surface was observed in Wetland A14a and saturation to the soil surface was observed in A14b during the dry season (September 1999). The wetland is maintained by shallow groundwater that discharges along the toe of the eastern slope. A jurisdictional ditch occurs within the wetland and drains to Miller Creek.

Soils: The soil in Wetland A14 range from eleven inches of a black (10YR2/1) muck over a mottled dark gray (10YR 4/1) silt loam to a dark gray (10YR 3/1) silt loam over a very dark gray (10YR 3/1) fine sandy silt.

Vegetation: Wetland A14 is a red alder-dominated forested wetland with Himalayan blackberry and salmonberry in the shrub layer and lady fern, giant horsetail, and traces of mangrass and skunk cabbage in the understory.

Upland: The upland area to the east of Wetland A14 is composed of a red alder and big-leaf maple forest. The upland soils to the east of Wetland A14 are a grayish brown (2.5Y 5/2) loam.

Delineation: Wetland A14 was delineated on the clear break in wetland hydrology, soils, and vegetation at the toe of the slope to the east and driveway and road fill in the remaining sections.

Wetland A15

USFWS Classification: PEM

Size: 0.04 acre

Wetland data plots: A15-A

Upland data plots: A14-B

Map No. 11

Wetland A15 is located on Parcel 325 and results from grading on the site for residential development. Leveling of the eastern portion of the site exposed compacted till. The extent of the wetland is limited to the shallow compacted material exposed by this grading. ACOE determined that the wetland is jurisdictional.

Hydrology: Wetland hydrology was not observed during the September 1999 field visit when the wetland data was collected. However, saturation to the soil surface was observed on previous site visits during spring 1999.

Soils: The soil in Wetland A13 is 3 inches of a dark yellowish brown (10YR 4/4) silty clay over a mottled gray (10YR 6/1) silty clay.

Vegetation: Wetland A15 is an emergent wetland limited to the residential yard on Parcel 325. The grasses are dominated by common velvet-grass and bluegrass with a co-dominance of creeping buttercup.

Upland: The upland area to the east of Wetland A15 is composed of a red alder and big-leaf maple forest. The upland soils to the east of Wetland A15 are a grayish brown (2.5Y 5/2) loam.

Delineation: Wetland A15 was delineated on the presence of hydric soils and wetland vegetation that corresponded to the compacted, silty clay.

Wetland A16

USFWS Classification: PSS/EM

Size: 0.06 acre

Wetland data plots: A16-A

Upland data plots: A16-B

Map No. 11

Wetland A16 is a narrow wetland (ranging from approximately 2 to 10 feet wide) that occurs on a hillslope subject to groundwater seepage. The southern portion of the wetland (on Parcels 323 and 322) has been altered by fill.

Hydrology: During the September 1999 site visit, Wetland A16 was saturated to the soil surface. The hydrology of the wetland is supported by groundwater seepage that perches on shallow clay soils.

Soils: The soil in Wetland A16 consists of a 6-inch mottled dark gray (10YR 4/1) gravelly loam surface layer. The subsoil is a dark greenish gray (5BG 4/1) clay.

Vegetation: Portions of Wetland A16 are dominated by red alder saplings and soft rush. Other portions of the wetland are mowed lawn. Greater than 50 percent of the dominant plants within Wetland A16 are hydrophytic and therefore satisfy the wetland plant criteria.

Upland: The upland area surrounding Wetland A16 is composed of landscaped yards and gardens that lack wetland hydrology, soils, and wetland vegetation.

Delineation: Wetland A16 was delineated on the clear break in wetland hydrology, soils, and vegetation along the narrow band where groundwater surfaces.

Wetland A17

USFWS Classification: PFO/PSS/PEM

Size: 2.66 acre

Wetland data plots: A17a-A, A17b-A, A17c-A1, A17c-A2, A17c-A3, A17d-A1, A17d-A2, and A17c-A3

Upland data plots: A17-B1, A17-B2, and A17-B3

Maps No. 8, 11

Wetland A17 is a discontinuous slope wetland that is segmented by several roads and driveways. The wetland is located on several parcels east of Des Moines Memorial Drive, west of 8th Avenue South, and south of South 160th Street. Water D, an intermittent channel, flows through wetland sections A17c through A17d and eventually drains to Miller Creek.

Hydrology: Wetland hydrology consisting of inundation and soil saturation was observed in several locations throughout the wetland in both the wet (April 2000) and dry (October 2000) seasons. An intermittent channel (Water D) flows through A17b, A17c, and A17d. The wetland hydrology is maintained by shallow groundwater and periodic overbank flow from Water D.

Soils: Within the Wetland A17, the soil immediately below the A horizon typically is a very dark gray (10YR 3/1) sandy loam with mottles. In areas adjacent to Water D within the center of

Wetland A17, the soil immediately below the A horizon typically ranged from very dark gray (10YR 3/1) loam with a high organic content to black (10YR 2/1) sapric muck.

Vegetation: Wetland A17 contains areas of emergent, shrub, and forested vegetation. In several locations there are saturated lawns dominated by red fescue, bluegrass, common velvet-grass, and creeping buttercup. The shrub-dominated areas consist of Himalayan blackberry and salmonberry with giant horsetail in the understory. The forested sections are typically dominated by red alder.

Upland: The upland area surrounding Wetland A17 is composed of landscaped yards and gardens that lack wetland hydrology, soils, and wetland vegetation.

Delineation: Wetland A17 was delineated by the presence of wetland hydrology, hydric soils, and hydrophytic vegetation. In several locations, the wetland boundaries are defined by areas of road and driveway fill.

Wetland A18

USFWS Classification: PSS

Size: 0.01

Wetland data plots: A18-A

Upland data plot: A18-B

Map No. 9

Wetland A18 is a small depressional wetland located in the northwest corner of Parcel 305.

Hydrology: During the January 2000 site visit, soils in Wetland A18 were saturated to within 4 inches of the soil surface. The hydrology of Wetland A18 is supported by precipitation and shallow interflow that enters the wetland from upslope areas.

Soils: Surface soils in Wetland A18 are very dark gray (10YR 3/1) sandy loam with high organic content. Below 11 inches, the soils are a coarse sand. The soil color and high organic content in the upper 11 inches satisfy the hydric soil criteria. The subsoils in upland area adjacent to the wetland are generally a very dark grayish brown (10YR 3/3) silt loam with no mottles.

Vegetation: The vegetation within Wetland A18 is dominated by salmonberry, Himalayan blackberry, sword fern, lady fern, and creeping buttercup. Greater than 50 percent of the dominant plants within Wetland A18 are hydrophytic and therefore satisfy the wetland plant criteria.

The upland areas surrounding the wetlands are well drained and dominated by upland plant species, including big-leaf maple, Indian plum, and Himalayan blackberry.

Delineation: The wetland boundary was delineated by the presence of distinct changes in hydrology and soil conditions.

Wetland A19

USFWS Classification: PEM

Size: 0.04 acre

Wetland data plots: A19-A

Upland data plots: A19-B

Map No. 11

Wetland A19 is a 0.04-acre depression located along the toe of a rockery retaining the South 168th Street road fill. Wetland A19 contains a garden, mowed lawn, and landscaping.

Hydrology: Water C, a ditch that contains perennial flow, enters Wetland A19 via a 4-inch pipe and into a cement-lined basin. The basin drains into a buried culvert that daylight farther down the slope. Wetland A19 may also drain into the cement basin. The remaining area of Wetland A19 is seasonally saturated. During the September 2000 site visit, Wetland A16 was saturated to the soil surface.

Soils: The subsoil in Wetland A19 is a mottled very dark gray (10YR 3/1) loam that has been gardened for several years.

Vegetation: Wetland A19 is dominated by creeping buttercup and field horsetail that occurs under and around garden and landscape plants. Less than 50 percent of the dominant plants within Wetland A19 are hydrophytic and therefore do not satisfy the wetland plant criteria. Because of recent and ongoing disturbance, vegetation at this site cannot be used to indicate the presence or absence of wetlands.

Upland: The upland area surrounding Wetland A19 is composed of landscaped yards and gardens that lack wetland hydrology, soils, and vegetation community.

Delineation: Wetland A19 was delineated on the presence of wetland hydrology and soils. Vegetation was not used to establish the wetland boundary because of ongoing disturbance.

3.2.3.7 Miller Creek Riparian Wetlands

Wetlands R1 through R13, R4b, R5b, R6b, R7a, R9a, R14a, R14b, R15a, R15b, and R17

USFWS Classification: PFO/SS/EM

Size: 4.72 acre

Wetland data plots: R1-A through R13-A, R4b-A, R5b-A, R6b-A, R7a-A, R9a-A1/A2, R14a-A, R14b-A, R15a-A1/A2, R15b-A1/A2, and R17-A

Upland data plots: R-3/4B, R5b-B, R6-B, R7-B, R8-B1/B2, R9-B, R11-B, R15a-B, R15b-B

Maps No. 4, 7, 9, 11

Site visits between September 1998 and November 2000 identified several riparian wetlands that occur along Miller Creek between South 154th Street and Des Moines Memorial Drive. The larger of these, Wetlands A1, 18, and 37 are described above. Sixteen smaller riparian wetlands (labeled R1 through R7, R9 through R15, and R17) were identified. The riparian wetlands along Miller Creek range in size from 0.02 to 0.79 acre (see Table 3), and collectively total 4.72 acres. These

small riparian wetlands have similar hydrology, soils, and vegetation, and because of these similarities, they are described together.

Hydrology: The riparian wetland is typically a slope wetland that is adjacent to and contiguous with Miller Creek. Shallow groundwater surfaces on the slopes and supports the hydrology of the wetlands. However, adjacent to the stream, the hydrology of the wetlands is also supported by periodic overbank flow from Miller Creek.

Soils in all of the wetlands (with the exception of Wetlands R6 and R7a) were saturated to the soil surface or within 12 inches of the surface during the September and October 1998 site visits. Although neither inundation nor saturation was present in Wetlands R6 and R7a, the areas were assumed to have wetland hydrology based on the presence of oxidized root channels, hydric soils, and hydrophytic vegetation.

Soils: Typical surface soil colors in the riparian wetlands are black (10YR 2/1), very dark gray (10 YR 3/1), gray (10YR 5/1), and very dark brown (10YR 2/2). Soils immediately below the A horizon are black (10YR 2/1), very dark gray (10 YR 3/1), gray (10YR 5/1), very dark brown (10YR 2/2) with mottles, and dark brown (7.5YR 3/2) with mottles. Soil textures range from sand to sandy clay loam to muck.

Vegetation: Wetlands R1, R4, R5, R6b, R7a, R11, R13, and R14b are emergent wetlands. Dominant species within emergent communities include creeping buttercup and common velvet-grass, with lesser amounts of lady fern, stinging nettle, horsetail, and bentgrass species. Portions of several wetlands are maintained lawns.

Wetlands R3 and R10 are scrub-shrub wetlands dominated by salmonberry and Himalayan blackberry. Wetlands R2, R8, and R14a contain both emergent and shrub wetland habitat. Dominant species include Himalayan blackberry in the shrub stratum with lady fern, reed canarygrass, redtop, and stinging nettle below.

Wetlands R4b, R5b, R6, R7, R9, R15a, and R15b are forested wetlands with an emergent component. Dominant species are red alder and black cottonwood in the canopy and salmonberry, red-osier dogwood, and Himalayan blackberry in the shrub stratum. Bentgrass species, giant horsetail, English holly, creeping buttercup, and bittersweet nightshade are dominant in the herbaceous and vine stratum. Wetland R7 contains a uniform canopy of red alder with Himalayan blackberry in the shrub stratum.

Upland: Uplands surrounding the riparian wetlands are predominantly coniferous forest or areas of residential yards with mowed lawn grasses. The upland forest is comprised of western redcedar in the overstory with smaller amounts of red alder. Shrubs present include Indian plum, salmonberry, Himalayan blackberry, cherry laurel, and English holly. Grasses include reed canarygrass, colonial bentgrass, and orchardgrass. Hydrophytic vegetation dominates some upland areas, but the areas were determined not to be wetland because they lacked hydric soils and wetland hydrology. Soil color immediately below the surface horizon in the upland areas was generally dark yellowish brown (10YR 3/2 to 10YR 3/4) without mottles.

Delineation: Each riparian wetland was delineated based on changes in hydrology, soil characteristics, and plant community composition in relation to changes in topography.

3.2.3.8 Other Waters of the U.S.

Within the West Acquisition Area, there are six channels (Waters A, B, C, D, W, and Miller Creek) and one pond (Lora Lake) that are classified as Waters of the U.S. These areas either convey or store natural surface runoff water but lack wetland soil or vegetation. Miller Creek is described in Section 3.1.1.

Water A is an approximately 814-ft-long by 5-ft-wide (0.09-acre) drainage ditch. This ditch collects surface water runoff from 12th Avenue South, the airport security road, and several upslope wetlands (Wetlands 19, 21, and 22). A portion of Water W, which originates in Wetland 20, also drains westward into Water A. These waters drain into Wetland 37 through a culvert under 12th Avenue South and convey channelized flow through a continuation of Water W for approximately 494 feet (0.03 acre) to Miller Creek. Water A and portions of Water W are mapped in the King County sensitive area map folio (King County 1990) as an unclassified stream.

Water B is an approximately 314-ft-long by 4-ft-wide (0.03-acre) incised channel that conveys water from the east end of Wetland 37f northeast to riparian Wetland R9, which, in turn, drains to Miller Creek. Water C is a discontinuous ditch that flows through culverts or cement-lined landscaped channels on Parcel 251. The exposed ditch totals approximately 170 linear feet (0.01 acre) from South 168th Street to Miller Creek. Lastly, Water D is an intermittent stream that begins east of Des Moines Memorial Drive and north of South 160th Street. The channel flows approximately 1,830 linear feet (0.16 acre) through several sections of Wetland A17 and enters Miller Creek on Parcel 243, approximately 200 feet upslope of Des Moines Memorial Drive.

3.2.4 Borrow Areas 1 and 3

Borrow Areas 1 and 3 are located south of the airfield between 24th Avenue South and 15th Avenue South, and between South 200th Street and South 216th Street (see Figure 2). Historically these areas were made up of forest, small farms, and residences.

3.2.4.1 Borrow Area 1

In 1980, Borrow Area 1 consisted of a residential neighborhood (Figure 6). Between 5 and 20 years ago, the Port acquired Borrow Area 1 as part of a noise abatement program. By 1990, a demolition program cleared the area north of 210th Street South of structures. By 1996, the area south of 210th Street South was cleared (Figure 7). The demolition process included removing structures, filling excavated areas, and grading the site. In some areas, clay or clay loam fill was used, and grading frequently created shallow, closed depressions.

Once demolition was complete, drainage facilities such as ditches, culverts, storm sewer lines, and French drains were no longer maintained and began to deteriorate. As these facilities became nonfunctional, local hydrology was altered, and localized areas became seasonally wet. Over time, mowed and landscaped areas began to naturalize, converting yards and fields into forest and shrub communities of mixed native and ornamental species.

Eight wetlands and one Water of the U.S. are located in Borrow Area 1; they have a total area of 2.16 acres. Wetland 32 was identified during a previous investigation (FAA 1995) and its boundary

was confirmed by ACOE (see Appendix E). This wetland is described in Appendix E, and its location is shown on Map No. 24 in Appendix C. Wetland 48 was also identified during a previous investigation (FAA 1996), but was redelineated in 1999 and is described below. Wetlands B1, B4, B11, B12, B14, and B15 were delineated in 1998 and 1999 and are also described below.

Wetland B1

USFWS Classification: PFO/SS

Size: 0.27 acre

Wetland data plot: B1-A

Upland data plot: B1-B

Maps No. 22, 24

Wetland B1 is located along the eastern edge of the Port-owned property and is connected via a ditch to the residential neighborhoods east of 24th Avenue South. To the north, west, and south the wetland is surrounded by upland forest.

Hydrology: Wetland B1 is a shallow depression that receives residential stormwater runoff from the ditch to the east. At the time of the May 1998 site visit, the soil was saturated to the surface and free water filled the soil pit. Additional hydrological indicators such as water-stained leaves, watermarks, and wetland drainage patterns were also observed.

Soils: The wetland surface soil has high organic matter content. The soil immediately below 10 inches is very dark gray (10YR 3/1) clay loam without mottles.

Vegetation: The forested community has a canopy of red alder and black cottonwood. The shrub community is predominantly Douglas spirea, salmonberry, and Himalayan blackberry, with sedges and horsetail in the herbaceous layer.

Upland: Big-leaf maple with a Himalayan blackberry and Indian plum understory dominate the adjacent upland plant community. Upland subsoils are dark yellowish brown (10YR 4/4) and yellowish brown (10 YR5/8) sandy loams without mottles.

Delineation: The wetland was delineated based on the presence of hydric soil colors, wetland hydrology, and wetland vegetation.

Wetland B4**USFWS Classification: PSS****Size: 0.07 acre****Wetland data plot: B4-A****Upland data plot: B4-B****Map No. 24**

Wetland B4 is located at the base of a steep ravine where groundwater seeps into a seasonal drainage. The area is part of a failed stormwater discharge channel, and the ravine is littered with disconnected sections of 12-inch-diameter clay culvert. The culvert was designed to convey storm water from 208th Street South to Des Moines Creek. Within the last 30 years, however, the pipe sections separated and stormwater has eroded the ravine.

Hydrology: Groundwater seeps into the ravine slopes and stormwater runoff enters the area from developed areas east of South 208th Street. A channel in the base of the ravine conveys water to Des Moines Creek. Flowing water was observed in the channel in July 1998, when the wetland soils were saturated to the surface. Other indicators of wetland hydrology, including water-stained leaves, watermarks, and wetland drainage patterns, were also observed.

Soils: The wetland soils are black (10YR 2/1) loam over gray (10 YR 5/1) loam with mottles.

Vegetation: The shrub community is dominated by salmonberry and Himalayan blackberry, with creeping buttercup in the herb layer. Small areas along the wetland fringe are dominated by less than 50 percent wetland vegetation, but were determined to be included in the wetland by ACOE during a July 1998 site visit because of the presence of wetland hydrology.

Upland: Big-leaf maple forest with an Indian plum and vine maple understory dominate the surrounding upland plant community. Upland subsoils are dark yellowish brown (10YR 3/3) loam without mottles.

Delineation: The wetland was delineated predominantly because of wetland hydrology along the north and south slopes of the ravine. To the east, the wetland edge is at the stormwater outfall. To the west, the wetland edge is at the OHWM of Des Moines Creek.

Wetland B11**USFWS Classification: PEM****Size: 0.18 acre****Wetland data plot: B11-A****Upland data plot: B11-B****Map No. 24**

This wetland occurs in a previously farmed area. The farm has been abandoned for about 20 years. The southern and eastern edges of the wetland have been filled with clay, gravel, and rubble.

Hydrology: Wetland B11 is located in an isolated depression. During the January 1999 site visit, 1.5 inches of inundation, saturation to the soil surface, watermarks, and wetland drainage patterns were observed in the wetland.

Soils: Below a depth of 9 inches, the wetland soil is a reddish gray (2.5YR 5/1) gravelly sandy loam with mottles.

Vegetation: Reed canarygrass dominates the emergent vegetation.

Upland: The surrounding upland vegetation is bentgrass and reed canarygrass. Greater than 50 percent of the vegetation is hydrophytic. The filled areas outside the wetland were inundated during the January 1999 site visit; however, this area was determined to be non-wetland because the subsoils are reddish brown (2.5YR 4/3) without mottles, which does not satisfy the hydric soil criteria.

Delineation: Wetland B11 was delineated along the southern and eastern edges based on the presence of native hydric soils and changes in soil composition associated with the edge of fill. The remaining boundary was delineated based on the presence of hydric soil colors, reed canarygrass, and the presence of wetland hydrology.

Wetland B12

USFWS Classification: PSS

Size: 0.63 acre

Wetland data plot: B12-A

Upland data plot: B12-B

Map No. 25

Wetland B12 is located north of 208th Street at the head of a ravine. The ravine and wetland continue to slope to the west, off the Port of Seattle property, eventually draining toward Des Moines Creek. The surveyed portion of Wetland B12 on Port property totals 0.07 acre; however, the total area is estimated to be 0.63 acre.

Hydrology: Groundwater discharge from the ravine sideslopes supports hydrology within the wetland. During the January 1999 site visit, surface water was observed flowing in the ravine. Saturation to the soil surface, water marks, and drainage patterns were also observed in the wetland. Water surfacing in the wetland flows downslope to Des Moines Creek.

Soils: The wetland soil immediately below the A horizon is very dark gray (10YR 3/1) silt loam with mottles.

Vegetation: The shrub community is dominated by vine maple with a lady fern and sword fern understory.

Upland: The surrounding upland forest is dominated by big-leaf maple, Douglas fir, and hemlock forest, with salmonberry and sword fern in the understory. The soil below the surface horizon is dark brown (10YR 3/3) sandy loam without mottles.

Delineation: The wetland boundary was delineated based on the presence of wetland hydrology, hydric soil colors, and wetland vegetation.

Wetland B14

USFWS Classification: PSS/EM

Size: 0.78 acre

Wetland data plot: B14-A

Upland data plot: B14-B

Map No. 26

The edges of this wetland have been disturbed by the removal of the residential area and filled with clay loam soil.

Hydrology: The wetland is a closed, shallow depression. Drainage ditches were observed within the wetland. During the January 1998 site visit, 1 inch of inundation was observable in the wetland.

Soils: The wetland soil is black (10YR 2/1) mucky loam over black sandy loam.

Vegetation: The shrub community is dominated by Himalayan blackberry, the emergent community by soft rush, reed canarygrass, and creeping buttercup.

Upland: Houses that once surrounded the wetland were removed within the last 5 years, and the soil and vegetation are disturbed. The dominant vegetation is red alder with an understory of Himalayan blackberry, bentgrass, and common velvet-grass. Outside the wetland, the soil is disturbed dark brown (10YR 3/3) loam with mottles.

Delineation: The western and northern edges of the wetland were delineated based on the presence of hydric soil colors and the boundary between native and fill soils. The remaining boundary was delineated based on the presence of wetland hydrology, hydric soil colors, and wetland vegetation.

Wetland B15

USFWS Classification: PSS

Size: 2.05 acres

Wetland data plot: B15a-A

Upland data plot: B15a-B

Map No. 25

Wetland B15 occurs on a gentle slope and is the eastern end of a larger wetland extending to the west beyond the borrow area boundary. The portion of Wetland B15 on Port property totals 0.23 acre; however, the total area is estimated to be 2.05 acres. Only the portion of the wetland on Port-owned property was delineated. The wetland's two lobes are divided by a narrow upland strip. Figure 6 shows that most of the wetland existed prior to the demolition of the neighborhood, but the wetland edges have been disturbed.

Hydrology: During the December 1998 site visit, 2 inches of inundation, water marks, and wetland drainage patterns were observed in the wetland.

Soils: The wetland soils are black (10YR 2/1) mucky loam to a depth of 13 inches or greater.

Vegetation: Salmonberry is the only dominant plant in the wetland.

Upland: The adjacent upland community is a big-leaf maple forest with Himalayan blackberry, English holly, and sword fern in the understory. The subsoil is dark brown (7.5YR 3/3) loam.

Delineation: The wetland boundary was delineated along the northern edge based on the presence of hydric soil colors and the boundary between native and fill soils. The remaining boundary was delineated based on hydric soil colors, wetland vegetation, and wetland hydrology.

Wetland 48

USFWS Classification: PFO/EM

Size: 1.58 acres

Wetland data plot: 48-A

Upland data plot: 48-B

Map No. 25

Wetland 48, located at the west end of South 212th Street, is the east end of a large wetland that extends to the west beyond the borrow area boundary. All of Wetland 48 has been delineated and surveyed. The portion of Wetland 48 on Port property is 0.46 acre; however, the entire area is 1.58 acres. The wetland occurs on a slope that extends between the borrow area and Des Moines Creek. Only that portion of the wetland on Port-owned property was delineated.

Hydrology: Groundwater seeps from the toe of the surrounding upland slopes drain into the wetland and then downslope to Des Moines Creek. During the January 1998 site visit, 1 inch of inundation, oxidized root channels, and wetland drainage patterns were observed in the wetland.

Soils: The wetland soil is grayish brown (10YR 5/2) gravelly sand with mottles to a depth of 18 inches.

Vegetation: The forested community is dominated by red alder, Himalayan blackberry, soft rush, bentgrass, and creeping buttercup. The emergent community is dominated by soft rush and creeping buttercup.

Upland: The adjacent upland community is a red alder and Douglas fir forest with Himalayan blackberry in the understory. The soils are brown (10YR 4/3) sand with mottles in the subsoil.

Delineation: The western edge of the wetland was delineated along the fence marking the edge of Port property. The remainder of the wetland was delineated based on hydric soil colors, wetland hydrology, and wetland vegetation. These indicators correlated to distinct changes in topography that define most of the wetland edge.

3.2.4.2 Other Waters of the U.S.

A small conveyance within the borrow area is classified as a Water of the U.S. This area, Water S, is a naturally intermittent drainage area, but does not contain wetland soil or vegetation. Water S is a 90-ft-long by 3-ft-wide (0.01-acre) channel that conveys water from a small spring into a 4-inch drainage pipe.

3.2.4.3 Borrow Area 3

Seven wetlands located in Borrow Area 3 have a total area of 2.35 acres. Wetlands 29 and 30 were identified during a previous investigation (FAA 1995) and their boundaries were confirmed by ACOE (see Appendix D). Wetland 29 is described in Appendix E and shown on Map No. 23 in Appendix D. Wetland 30 was delineated in March 1998 and is described below. Wetlands B5, B6, B7, B9, and B10 were delineated in May and June 1998 and are also described below.

Wetland B5

USFWS Classification: PFO/SS

Size: 0.08 acre

Wetland data plot: B5-A

Upland data plot: B5-B

Map No. 23

The wetland is located near the corner of South 18th Street and 208th Avenue South. In 1980 the wetland was surrounded by structures to the north; to the south it was cleared and leveled. Remnants of this former development, such as fill, ditches, and an old well, were seen during the site visit.

Hydrology: Wetland B5 occurs in a shallow swale that drains to the southeast. During the June 1998 site visit, the soil was saturated at 18 inches below the surface, and water-stained leaves were observed; these indicate areas of ponding. The wetland was inundated during additional site visits in the spring of 1998 and winter of 1998/1999.

Soils: The wetland soil immediately below the surface horizon is weak red (2.5Y 4/2) with mottles. A layer of black (10YR 2/1) muck occurs below a depth of 17 inches.

Vegetation: The forested community is composed of red alder and Oregon ash. The shrub community is predominantly willow and Douglas spirea, with creeping buttercup and bedstraw in the herb layer.

Upland: The adjacent upland community is a red alder forest interspersed with fruit trees and English holly. The upland soil immediately below the surface horizon is dark brown (10YR 3/3) sandy loam without mottles. A layer of black (10YR 2/1) sandy loam occurs between a depth of 8 and 17 inches. This non-hydric layer was determined to be a buried A horizon.

Delineation: The wetland was delineated based on hydric soil colors, wetland hydrology, and wetland vegetation. These indicators correspond to topographic changes that define the wetland edge.

Wetlands B6 and B7

USFWS Classification: PFO/SS

Size: B6 = 0.55 acre, B7 = 0.03 acre

Wetland data plot: B6-A

Upland data plot: B5-B

Map No. 23

Wetlands B6 and B7 have similar hydrologic indicators, soil conditions, and plant communities. Approximately 20 ft of upland separates the two wetlands. Because of the similarity and proximity of these wetlands, they are described collectively.

Hydrology: Wetlands B6 and B7 occur in isolated depressions. Wetland hydrology is supported by a seasonally high groundwater table. During the June 1998 site visit, neither inundation nor soil saturation was present. The area was assumed to have wetland hydrology based on the presence of oxidized root channels, hydric soils, and hydrophytic vegetation. The wetland was inundated during site visits conducted in the winter of 1998/1999.

Soils: Wetland soil immediately below the A horizon is highly organic with a black (10YR 2/1) color and no mottles.

Vegetation: The forested component of the wetland is dominated by red alder, and the shrub component is dominated by salmonberry with false lily-of-the-valley in the herb layer.

Upland: The adjacent upland is similar to that described for Wetland B5.

Delineation: The wetland boundary was delineated based on the presence of hydric soil colors, wetland hydrology, and wetland vegetation.

Wetland B9

USFWS Classification: PFO

Size: 0.05 acre

Wetland data plot: B9-A

Upland data plot: B8/9-B

Map No. 23

This wetland, located on a south-facing slope, is bisected by South 205th Street. Its two sections are connected by a culvert.

Hydrology: The wetland is maintained by a groundwater seep at the edge of a slope at the north wetland edge. During the June 1998 site visit, the area north of the road was inundated and small amounts of surface water were flowing over the abandoned street and into the south section of the wetland. Up to 2 inches of standing water could be seen in the wetland area south of the road. There is no outlet from the wetland.

Soils: Soils within the wetland have a surface horizon of 11 inches of black (10YR 2/1) muck overlying a light brownish gray (10YR 6/2) sandy substrate with mottles.

Vegetation: In the forested community, red alder, willow, and big-leaf maple trees form the overstory, and red alder saplings, bedstraw, and creeping buttercup form the understory.

Upland: The wetland is surrounded by a red alder forest and shrub community composed of English holly, bitter cherry, Himalayan blackberry, and Douglas spirea. The soil immediately below the surface horizon is brown (10YR 4/3) silt loam.

Delineation: The northern portion of the wetland was delineated based on the presence of wetland hydrology, which was associated with changes in slope and the presence of road fill. The remainder of the wetland was delineated based on the presence of hydric soil colors, wetland hydrology, and wetland vegetation.

Wetland B10

USFWS Classification: PFO

Size: 0.02 acre

Wetland data plot: B10-A

Upland data plot: B10-B

Map No. 23

The wetland is located at the edge of a rock wall at the bottom of a steep, southeast-facing slope.

Hydrology: Groundwater discharge from the toe of the slope maintains the area as wetland. Surface water flows from the seep for approximately 75 ft to the southeast before recharging into sandy soil. During the June 1998 site visit, up to 2 inches of inundation, watermarks, and wetland drainage patterns could be seen in the wetland.

Soils: The hydric soils consist of 4 inches of black (10YR 2/1) sapric organic matter overlying a 1-inch-thick gray (10YR 5/1) clay loam layer. Below 5 inches, the soil is yellowish brown (10YR 5/4) with mottles.

Vegetation: The forested overstory of the wetland is composed of red alder. The dominant understory species are salmonberry and giant horsetail.

Upland: Upland areas surrounding the wetland are red alder and madrone forest with an understory of English holly and salmonberry. The soils immediately below 10 inches are brown (10YR 5/3) clay loam with mottles.

Delineation: The western edge of the wetland was delineated based on the presence of wetland hydrology and hydric soil colors. The remaining boundary was delineated based on hydric soil colors, wetland vegetation, and wetland hydrology.

Wetland 30**USFWS Classification: PFO/SS****Size: 0.88 acre****Wetland data plots: 30a-A, 30b-A****Upland data plot: B9-B****Map No. 23**

Wetland 30 was originally delineated as a 0.08-acre wetland in 1994 and its boundary was confirmed by ACOE. During a June 1998 site visit, the wetland boundary was expanded by 10 ft to encompass wetland indicators found outside the original flagged boundary. Additionally, a larger wetland lobe extending northeast of the original wetland was included in the wetland boundary. The area of expansion totaled 0.80 acre and was confirmed by ACOE on a July 8, 1998 site visit. Wetland 30 now totals 0.88 acre. The area of expansion of Wetland 30 is described below.

Hydrology: Wetland 30 is an isolated depression supported by shallow groundwater. No surface water inlets or outlets are visible. During the June 1998 site visit, soils in the northeast lobe of wetland were saturated to a depth of 12 inches. Along the remainder of the wetland, soils were saturated to the surface and standing water was present 12 inches below the surface.

Soils: In the northeast lobe of the wetland, the soil beneath the A horizon is very dark gray (10YR 3/1) sandy loam with mottles. Elsewhere, near the wetland boundary, the soil consists of 10 inches of black (10YR 2/1) muck overlying a highly organic black (10YR 2/1) silt loam. In the remaining portions of the wetland, the soils consist of black (10YR 2/1) mucky peat overlying gray (5Y 5/1 and 6/1) silt loam.

Vegetation: The shrub community in the northeast lobe of the wetland is composed of Himalayan blackberry and salmonberry with an understory of giant horsetail and lady fern. Between the original and adjusted wetland edge, the vegetation is composed of western redcedar, red alder, and big-leaf maple trees with Sitka willow. The understory is dominated by salmonberry, Himalayan blackberry, and nettles. The remainder of the wetland is dominated by Pacific and Sitka willow trees. Associated species include Douglas spirea, creeping buttercup, water parsley, and tall mangrass.

Upland: The adjacent upland is dominated by a red alder forest and upland shrub community composed of English holly, bitter cherry, Himalayan blackberry, and Douglas spirea. The soils below 10 inches are brown (10YR 5/3) with mottles.

Delineation: The northeast lobe of the wetland was delineated using wetland hydrology, hydric soil colors, and wetland vegetation. These parameters correspond with the edge of the depression.

3.2.5 South Aviation Support Area (SASA)/Tyee Valley Golf Course

The SASA/Tyee Valley Golf Course area is located southwest of the airport between South 188th Street and South 200th Street and between 18th and 28th Avenue South (see Figure 2). The SASA site is located on the western slope of a broad hill and extends down to the east branch of Des Moines Creek. The SASA footprint covers a portion of the Tyee Valley Golf Course and areas that have experienced residential, commercial, industrial, and airport-related development. Wetlands on

the Tyee Valley Golf Course outside the SASA footprint are being considered for on-site wetland mitigation as part of the Master Plan Update improvements.

In the SASA/Tyee Valley Golf Course area, Wetlands 28, 52, and 53 were delineated during previous wetland investigations (Parametrix 1992; FAA 1996). Wetlands 28 and 52 are described below because their boundaries were modified during the 1998 to 2000 site investigations. The boundaries of Wetland 53, a 0.60-acre forested wetland, were found to correspond to previous delineations, and are described in Appendix E. An additional area, Wetland DMC, was originally delineated by Shapiro and Associates, Inc. and is presented in the *SR 509/South Access Road Discipline Report* (509 Discipline Report: CH2M Hill, April 2000) and is summarized below. Nine wetlands, G1 through G8 and WH (water hazard), were identified through the 1998 to 2000 field seasons. These wetlands are also described below.

Wetland 28

USFWS Classification: PSS/EM/OW

Size: 35.45 acres

Wetland data plots: 28-A1, 28-A2, 28-A3

Upland data plot: 28-B

Maps No. 16, 18, 19

Wetland 28 is located south of the existing airfield, on and west of the Tyee Valley Golf Course. A portion of the wetland extends north along the west side of the runway almost to South 188th Street. The portion of the wetland west of the Tyee Valley Golf Course, just south of the runways, was delineated during previous investigations (FAA 1996). The portion of the wetland on the golf course was delineated in January 1999.

Collectively, the portions of the wetland on the golf course are 9.75 acres in size and consist of fairways and rough for the golf course. The wetlands are separated by fill used for service or golf cart roads. Historically, the area was a peat wetland. Prior to use as a golf course (about 1970), the area was farmed. When the golf course operations began, the area was landscaped for topographic variability (i.e., tees and greens) and planted with mixed lawn grasses.

Hydrology: The wetland is maintained by a high groundwater table and groundwater seeps that are found along the northern and southwestern portions of the wetland. Stormwater enters the north end of the wetland via a large culvert.

The west branch of Des Moines Creek originates at the Northwest Ponds, located in the western portion of Wetland 28. The ponds are located southwest of the existing runways, between South 192nd Street and South 196th Street. They were excavated in the early 1970s as part of the airport stormwater management system. The creek flows south to the northern edge of Tyee Valley Golf Course, where it enters a narrow drainageway. The stream runs along the southern margin of the golf course portions of the wetland.

The golf course portions of the wetland are maintained by a seasonally high water table, occasional flooding from the creek, and the Northwest Ponds. On the January 1999 site visit, saturation occurred at the soil surface and the water table was found within 6 inches of the surface at each wetland data plot location in the golf course area.

Soils: In the golf course area, the wetland soil is primarily black (10YR 2/1) histic peat to a depth greater than 18 inches. Mineral soils consist of 4 to 10 inches of very dark gray (10YR 3/1) surface soils without mottles overlying gray (10YR 5/1) subsoils with mottles. Soils in other portions of the wetland are black (10YR 2/1) muck and loam.

Vegetation: Golf course area vegetation consists of planted turf grass. Dominant grass species are bluegrass and bentgrass. Because of specific planting and maintenance for golfing, vegetation is not a reliable indicator of wetland and non-wetland conditions.

The shrub community west of the golf course is dominated by Sitka and Pacific willow. Red elderberry and red alder are also found in the shrub layer. The understory is dominated by a mixture of cattail, bittersweet nightshade, creeping buttercup, and bentgrass. Associated species include soft rush, reed canarygrass, small-fruited bulrush, and fireweed. Several small patches of emergent vegetation in the northern arm of the wetland are dominated by cattail. Associated species include soft rush, spike rush, and bittersweet nightshade.

Upland: Upland golf course areas adjacent to the wetland are dominated by planted turf grass. The upland areas lack wetland hydrology and, in most areas, lack hydric soils. The upland soils are disturbed with a very dark grayish brown (10YR 3/2) buried A horizon with no mottles at a depth of 7 to 15 inches. A dark yellowish brown (10YR 4/4) B horizon occurs below 15 inches.

Delineation: The wetland boundary was delineated based on the distinct boundary between native organic soil and fill material associated with roads, golf greens, and tees.

Wetland 52

USFWS Classification: PFO/SS/EM

Size: 4.70 acres

Wetland data plot: 52-A

Upland data plot: None

Maps No. 17, 20

Wetland 52, located along the west branch of Des Moines Creek on the Tyee Valley Golf Course, drains to the creek upstream of the Tyee detention pond. Most of Wetland 52 was delineated during a previous investigation (Parametrix 1992). During site visits in 1999, additional wetland areas just south of the original wetland were delineated. Because these areas are hydrologically connected via the detention pond, they are discussed as part of Wetland 52.

Hydrology: The wetland is located along the south bank of Des Moines Creek at the base of a steep hillside; it is fed by hillside seeps, many of which flow throughout the summer months. The newly identified areas at the south end of the wetland had shallow inundation (up to 2 inches) at the time of the March 1999 site visit.

Soils: Soils near the stream are dark grayish brown (10YR 4/2) loam. Very dark brown (10YR 2/2) muck can be seen in the western part of the wetland. At the southern end of the wetland, subsoil colors are gray (Gley N/4 and N/5).

Vegetation: Red alder dominates the forested community, with Himalayan blackberry, madrone saplings, and Indian plum found in the understory. The shrub community is dominated by willow,

with creeping buttercup, soft rush, and grasses in the herb layer. The riparian zone is dominated by Himalayan blackberry and field horsetail. The emergent area at the southern end of the wetland, on the golf course, contains a mixture of seeded turf grasses and other herbaceous vegetation. Colonial bentgrass, creeping buttercup, soft rush, and tall fescue are dominant species in the emergent area.

Upland: The surrounding upland areas are maintained golf course, parking lots, and forested hillside. On the golf course, dominant vegetation adjacent to the wetland includes colonial bentgrass, English daisy, spotted cat's-ear, and white clover. Soil in this upland area ranged from very dark brown (10YR 2/2) sandy loam without mottles to dark yellowish brown (10YR 3/4) gravelly sandy loam with mottles.

Delineation: For areas on the golf course, the wetland boundary was delineated based the presence of wetland hydrology and hydric soil colors. In other areas, the wetland was delineated based on the presence of wetland vegetation, as well as hydric soil and wetland hydrology.

Wetland G7

USFW Classification: PFO/SS

Size: 0.50 acre

Wetland data plot: G7-A

Upland data plot: G7-B

Map No. 21

Wetland G7 is located in the city of SeaTac in a fenced area that was mined for fill material to construct other airport facilities. It is located north of South 200th Street, south of the Tye Valley Golf Course, east of a gravel parking lot, and west of a forested hill slope. Most of the wetland is located in a flat area at the base of a hill slope. The wetland extends south to South 200th Street within a constructed ditch. Water from the wetland eventually enters Des Moines Creek via the South 200th Street drainage system.

Hydrology: Wetland hydrology is supported by groundwater and precipitation. An artificially created ditch, ranging from 1 to 3 ft wide, borders the east side of the wetland. This ditch intercepts groundwater from the base of the hill slope. During the March 1999 site visit, 1 to 2 inches of standing water was present in the northern portion of the wetland. From 1 to 3 inches of water was flowing south in the constructed ditch. Soils were saturated from the surface to a depth of 6 inches, where groundwater was encountered.

Soils: Soil in the upper horizon is greenish gray (5GY 6/1) gravelly sandy loam with mottles, and the subsoil is reddish brown (2.5Y 5/3) gravelly sandy loam with mottles.

Vegetation: Vegetation in the forested and shrub communities consists of variable aged and sized black cottonwood and red alder trees, with colonial bentgrass, Himalayan blackberry, and soft rush in the understory.

Upland: The upland hill slope east of the wetland consists of a closed canopy forest dominated by red alder and black cottonwood to the north; western redcedar is also dominant to the south. The upland area west of the wetland contains red alder, Scots broom, Himalayan blackberry, and colonial bentgrass, with Pacific madrone scattered throughout. Soils were brown and dark yellowish brown (10YR 4/3 and 4/4) gravelly sandy loam and gravelly loamy sand without mottles.

No wetland hydrology was observed in either of these areas during the March 1999 field investigation.

Delineation: The wetland boundary was delineated based on the presence of wetland hydrology, hydric soil colors, and wetland vegetation.

Wetlands G1, G2, G3, G4, G5, G6, G8, WH

USFW Classification: PEM

Size: 1.34 acres

Wetland data plot: G1-A, G2-A, G4-A, G5-A, G6-A, and G8-A

Upland data plot: G1-B, G2-B, G3-B, G4-B, G5-B, G6-B, and G8-B

Maps No. 17, 20, 21

Seven new wetlands were identified on the Tye Valley Golf Course during site visits conducted in January and March 1999: Wetlands G1, G2, G3, G4, G5, G6, G8, and WH. All are emergent wetlands, ranging in size from 0.01 to 0.87 acre (see Table 3); collectively they are 1.34 acres. The wetland locations are shown on Figure 5 and Maps 16, 19, and 20 of Appendix D. Wetland data plots were established in each wetland, and are identified as Data Plots G1-A, G2-A, G4-A, G5-A, G6-A, G8-A, and WH-A. Upland comparison plots were established outside the wetlands, and are identified as Data Plots G1-B, G2-B, G3-B, G4-B, G5-B, G6-B, and G8-B.

Hydrology: Wetlands on the Tye Valley Golf Course are maintained by groundwater and precipitation. Some of these wetlands are located on a hill slope where groundwater surfaces and wetland conditions have developed. Inundation during the March 1999 site visit ranged up to 1.5 inches in Wetlands G5. Soils were saturated to the surface in all other wetlands. Wetland WH contains a perennial pond that is partially used for irrigation return.

Soils: All soils sampled within the wetlands contained a combination of low-chroma colors, mottles, and an aquatic moisture regime. Soil colors ranged from very dark brown (10YR 2/2) with mottles to gray (N4/1) with mottles. Soil textures within the wetlands are primarily gravelly sandy loam and gravelly loam. Sulfidic odor was detected in Wetlands G1, G4, and G5 during the March 1999 field investigation.

Vegetation: Vegetation in these wetlands is a mixture of seeded turf grass and other herbaceous vegetation. Dominant species include colonial bentgrass, creeping buttercup, English daisy, soft rush, and tall fescue. Because the area is planted with turf grass and is maintained as golf greens, vegetation is not a reliable indicator of wetland and non-wetland conditions.

Upland: Upland areas surrounding the wetlands are golf course dominated by turf grass. Species include colonial bentgrass, English daisy, spotted cat's-ear, and white clover. Soil in the upland areas ranged from very dark brown (10YR 2/2) sandy loam without mottles to dark yellowish brown (10YR 3/4) gravelly sandy loam with mottles.

Delineation: The wetland boundary was delineated based on the presence of wetland hydrology and hydric soil colors.

Wetland DMC
USFWS Classification: PFO/SS/EM
Size: 1.08 acres
Wetland data plots: Shapiro Data Plot
Maps No. 19, 20, 21

Wetland DMC is a 1.08-acre riparian slope wetland, which includes a portion of Des Moines Creek. The wetland is located downstream from Wetland 28 on the Tyee Valley Golf Course, east of the Runway 16L/34R light towers and north of South 200th Street. Shapiro and Associates, Inc. delineated the boundary of this wetland and their results are presented in *the SR 509 Wetland Discipline Report* (see Wetland G, CH2M Hill 2000).⁵ Parametrix, Inc. verified the wetland delineation and presented the boundary to ACOE on October 26, 2000.

Shapiro and Associates, Inc. describes this area as an emergent and shrub wetland with wetland hydrology and hydric soils. The emergent component contains mowed grasses of the Tyee Valley Golf Course and the shrub component contains Pacific willow and red alder. Parametrix, Inc. confirmed these observations over several sight visits. However, an additional forested area of red alder and Pacific willow should be noted.

3.2.6 Industrial Waste System (IWS)

The IWS area is located southwest of the airport between South 188th Street and South 200th Street and east of 16th Avenue South (see Figure 2). The wetlands on this site are located north of the IWS Lagoon 3.

Wetlands IWSa and IWSb
USFWS Classification: PFO
Size: 0.67 acre
Wetland data plot: IWSa-A, IWSb-A
Map No. 16

Wetlands IWSa and IWSb are located north of the IWS lagoon and are separated from each other by a gravel access road. They are bordered by compacted fill to the south, a road to the east, and a steep slope to the north and west. Because of their small size and physical similarities, they are described together.

Hydrology: These wetlands are maintained by shallow groundwater. During the June 1999 site visit, areas within the wetland were inundated to approximately 4 inches. Soil was saturated to the surface at both data plot locations. No outlet from the wetland was observed.

Soils: Soil identified within both wetlands have a surface horizon of very dark gray (10YR 3/1) loamy sand overlying a dark gray (10YR 4/1) gravelly coarse sand with mottles. Other areas of the

⁵ Wetland G is described as 7.88 acres in size and includes 6.80 acres of wetland included in Wetland 28 in this report.

wetland have a very dark grayish brown (10YR 3/2) loamy sand with high organic content over a gray (2.5Y 5/1) sandy loam with mottles.

Vegetation: In the forested community, red alder, willow, and black cottonwood form the overstory. Giant horsetail and Himalayan blackberry are the dominant plant species in the understory.

Delineation: The wetlands were delineated on sharp changes in hydrology and hydric soil conditions related to topography. The wetland boundary along the road was delineated along the fill edge. The southern portions of the wetlands were delineated along the edge of compacted fill.

3.2.7 SASA Detention Pond Area

The SASA detention pond area, located east of the airport and south of South 188th Street (see Figure 2), is the proposed site for a new airport electrical substation. Vacant land east of the south substation is earmarked for the stormwater management facilities required for SASA. Three small wetlands occur in this area, as described below.

Wetland E1

USFW Classification: PFO

Size: 0.23 acre

Wetland data plot: E1-A

Upland data plot: E1-B

Map No. 17

Wetland E1, located in the western portion of the site, is separated from a roadside ditch by an elongated berm.

Hydrology: Wetland E1 is located on a hill slope and has no surface water outlet. Hydrology is derived from groundwater seeps and surface water runoff. Small portions of the wetland were inundated at the time of the January 1999 site visit.

Soils: The wetland soil consists of black (10YR 2/1) gravelly sandy loam over gray (10YR 5/1) gravelly sandy loam without mottles.

Vegetation: The forested wetland community is dominated by black cottonwood, Scouler willow, and red alder saplings. The understory consists of soft rush and creeping buttercup, with patches of Himalayan blackberry.

Upland: The surrounding upland community is dominated by Himalayan blackberry with scattered black cottonwood saplings. Colonial bentgrass dominates the herb layer. The upland soil is reddish brown (2.5YR 4/3) gravelly sandy loam with mottles below a depth of 10 inches.

Delineation: The wetland boundary was delineated based on the presence of wetland vegetation, wetland hydrology, and hydric soil characteristics.

Wetland E2**USFW Classification: PFO****Size: 0.04 acre****Wetland data plot: E2-A****Upland data plot: E2-B****Map No. 17**

Wetland E2 is a highly disturbed wetland north of a gravel parking area and east of a gravel driveway. The wetland appears to have been created from excavation activities associated with previous land uses.

Hydrology: Wetland hydrology is maintained by groundwater discharge and precipitation. Pockets of standing water, ranging in depth from 4 to 14 inches, were observed during the February 1999 field investigations. In other areas, soils were saturated to the surface.

Soils: Soil in the upper 2 inches of the wetland consists of black (10YR 2/1) gravelly sandy loam. Gray (10YR 5/1) gravelly sandy loam was observed between a depth of 2 to 12 inches.

Vegetation: Wetland E2 contains both shrub and forested communities. Dominant tree species in the canopy are red alder and black cottonwood, with Himalayan blackberry dominant in the shrub layer.

Upland: Dominant vegetation in upland areas north, east, and west of the wetland consists of Himalayan blackberry, colonial bentgrass, and black cottonwood saplings. Scots broom, Pacific madrone, and Douglas fir are also present to the north. A gravel parking lot borders the south side of the wetland.

Delineation: The wetland boundary was delineated based on the presence of wetland vegetation, wetland hydrology, and hydric soil characteristics.

Wetland E3**USFW Classification: PFO****Size: 0.06 acre****Wetland data plot: E3-A****Upland data plot: E2-B****Map No. 17**

Vegetation and soils in Wetland E3 are highly altered. The wetland is located north of a gravel parking area and east of a gravel driveway. Similar to Wetland E2, Wetland E3 appears to have been created from excavation activities associated with previous land uses.

Hydrology: Wetland hydrology is supported by groundwater and precipitation. Pockets of standing water up to 12 inches deep were observed during the February 1999 field investigation.

Soils: The wetland soils consist of gray (10YR 5/1) fine sand down to a depth of 8 inches, with white (2.5Y 5/1) fine sand to a depth of 18 inches.

AR 047471

Vegetation: The forested wetland community is dominated by black cottonwood, with soft rush present in the understory.

Upland: Dominant vegetation in upland areas north, east, and west of the wetland consists of Himalayan blackberry, colonial bentgrass, and black cottonwood saplings. Scots broom, Pacific madrone, and Douglas fir are also present to the north. A gravel parking lot borders the south side of the wetland.

Delineation: The wetland boundary was delineated based on the presence of wetland vegetation, wetland hydrology, and hydric soil characteristics.

4. SUMMARY

Parametrix, Inc. conducted a detailed wetland investigation of the Seattle-Tacoma International Airport (STIA) Master Plan Update improvement sites. The improvement sites are owned by the Port of Seattle (Port) and located in the cities of SeaTac and Des Moines in King County, Washington. This report describes the wetlands located within the study area and updates previous wetland studies conducted for the Master Plan Update improvements.

This study found total of 117 wetlands, ranging in size from 0.01 to 35.45 acres, were delineated in the study area, totaling 115.89 acres of wetland. They include palustrine forested, scrub-shrub, emergent, and open-water wetland habitat. Ten of the identified wetlands are farmed wetlands. Other Waters of the U.S. within the study area include Miller Creek and Des Moines Creek as well as ponds and several drainage channels that convey natural runoff to these streams. These areas, ranging in size from 0.01 to 3.09 acres, total 3.43 acres. Several other large wetlands that extend outside the study area will not be impacted and were not delineated. These areas total approximately 50.00 acres.

The results of this study have been reviewed and confirmed by ACOE. Site visits by ACOE to confirm wetland boundary delineations took place on July 6, 8, 14, and 16, 1998; August 6, 1998; September 23, 1998; October 19, 22, 27, and 29, 1998; November 17, 18, and 19, 1998; January 8 and 12, 1999; March 8, 1999; June 7 and 21, 1999; August 2, 1999; January 18, 2000; February 3, 2000; October 26, 2000; and November 3, 8, 20, and 30, 2000.

Modifications that were requested by ACOE during these site visits have been made and are reflected in the mapping and analysis presented in this report.

The findings of this report will be used to determine wetland impacts and mitigation requirements for the Master Plan Update improvements, as presented in a *Wetland Functional Assessment and Impact Analysis Report* (Parametrix 2000a) and *Natural Resource Mitigation Plan* (Parametrix 2000b).

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APPENDIX A
WETLAND DELINEATION REPORT -
AUBURN MITIGATION SITE

AR 047477

**WETLAND DELINEATION REPORT
FOR THE AUBURN WETLAND MITIGATION SITE**

**MASTER PLAN UPDATE IMPROVEMENTS
SEATTLE-TACOMA INTERNATIONAL AIRPORT**

Prepared for

PORT OF SEATTLE
Seattle-Tacoma International Airport
P.O. Box 68727
Seattle, WA 98168

Prepared by

Parametrix, Inc.
5808 Lake Washington Blvd. NE, Suite 200
Kirkland, WA 98033-7350

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TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	IV
1. INTRODUCTION	1-1
2. SITE LOCATION AND DESCRIPTION	2-1
2.1 SITE LOCATION	2-1
2.2 SITE DESCRIPTION	2-1
2.2.1 Soils	2-1
2.2.2 Hydrology	2-5
2.3 VEGETATION	2-12
3. WETLAND DELINEATION METHODS	3-1
3.1 SOILS	3-1
3.2 HYDROLOGY	3-1
3.3 VEGETATION	3-2
4. RESULTS	4-1
4.1 WETLAND IDENTIFICATION AND DELINEATION RATIONALE	4-1
4.2 SOILS	4-1
4.3 HYDROLOGY	4-3
4.4 VEGETATION	4-3
5. DISCLAIMER	5-1
6. REFERENCES	6-1

APPENDICES

- A SOIL PROFILE DESCRIPTIONS - KING COUNTY SOIL SURVEY
- B GROUNDWATER WELL DATA
- C MILL CREEK AND NORTHWEST WETLAND INVENTORY MAP
- D WETLAND DETERMINATION DATA SHEETS
- E WASHINGTON DEPARTMENT OF ECOLOGY WETLAND RATING

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Location of Port of Seattle Auburn Wetland Mitigation Site	1-2
2	Aerial Photograph of the Wetland Mitigation Site.....	2-2
3	100-Year Floodplains On and Near the Wetland Mitigation Site.....	2-3
4	Soil Types on the Wetland Mitigation Site	2-4
5	Streams and Surface Water Near the Mitigation Site – King County Sensitive Areas Map, 1990	2-6
6	Groundwater Elevations on the Auburn Wetland Mitigation Site 12-02-99.....	2-7
7	Groundwater Elevations on the Auburn Wetland Mitigation Site 03-08-00.....	2-8
8	Groundwater Elevations on the Auburn Wetland Mitigation Site 06-02-00.....	2-9
9	Variations in Groundwater Elevation and Weekly Precipitation (Wetland)	2-10
10	Variations in Groundwater Elevation and Weekly Precipitation (Upland)	2-11
11	Jurisdictional Wetlands on the Wetland Mitigation Site	4-2

LIST OF TABLES

<u>Table</u>		
1	Hydrologic characteristics of soils present on the mitigation site.....	2-5
2	Mitigation site dominant vegetation.	2-12
3	Wetland plant indicator categories.	3-2

EXECUTIVE SUMMARY

In October 2000, Parametrix conducted a jurisdictional wetland delineation on a 67-acre land parcel located in the City of Auburn, Washington. The site (hereafter referred to as the "mitigation site") is owned by the Port of Seattle and planned as an off-site wetland mitigation project. The project will mitigate, in part, wildlife habitat functions impacted by filling wetlands near the Seattle-Tacoma International Airport for Master Plan Update improvement projects.

The wetland delineation followed required methods of the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997). This report describes the results of the delineation.

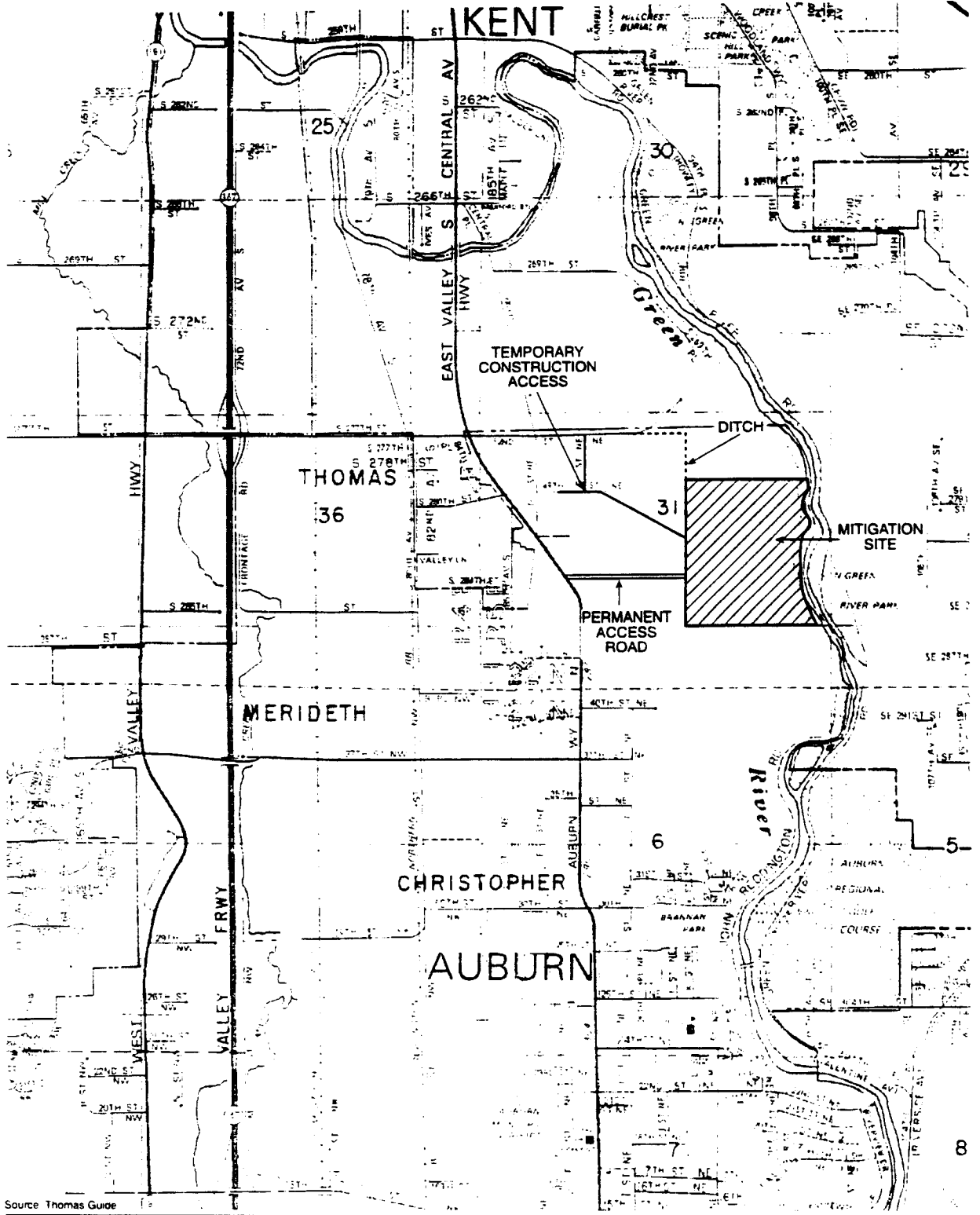
Two palustrine emergent wetlands, dominated by non-native pasture grasses, were delineated on the mitigation site: Wetland 1 occurs in the northwest and central portions of the site. About 20.45 acres of Wetland 1 occur on the mitigation site, and the wetland extends off-site to the west and north. Wetland 2 is 0.60 acre in size and is located in the south-central part of the site. Wetland 3 is 0.01 acre in size and is located in the north-central part of the site. Wetlands 1 and 2 meet the Washington Department of Ecology criteria of a Category III wetland and Wetland 3 meets the criteria for a Category IV wetland. The remainder of the mitigation site (about 44 acres) was determined to be non-wetland. The Seattle District of the U.S. Army Corps of Engineers, Washington State, and the City of Auburn have jurisdiction over activities that may impact these wetlands.

1. INTRODUCTION

The Port of Seattle (hereafter cited as the Port) will construct a wetland mitigation project on 65 acres of property it owns in the City of Auburn, Washington (Figure 1). The wetland mitigation is planned as off-site mitigation to partially compensate for wetlands filled by Master Plan Update (MPU) projects constructed at the Seattle-Tacoma International Airport (STIA). The wetland mitigation is part of a Section 404 individual permit, as described in the Port's JARPA # 96-4-02325 (Port of Seattle 1996, 2000). The wetland mitigation design is explained in detail in the *Revised Draft Natural Resource Mitigation Plan* (Parametrix 1999).

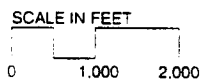
The purpose of this report is to describe and map jurisdictional wetlands that occur on the mitigation site. A jurisdictional determination of wetlands on the mitigation site was made by the U.S. Army Corps of Engineers (ACOE) based on a March 1997 field evaluation and delineations conducted by David Evans and Associates, Inc. (1995) and Parametrix (1999). Recent data collected from groundwater monitoring wells installed on site to document shallow groundwater hydrology and observations of recently formed hydric soil characteristics on the wetland mitigation have prompted ACOE to require a revision of the previous wetland delineation. A revised delineation of the mitigation site was completed during October 2000; this report documents the methods and results of that delineation.

The report is organized into four sections. The location and general site conditions are described in Chapter 2. Chapter 3 summarizes the wetland delineation methodology and Chapter 4 describes the results of the wetland delineation. Appendices A through E provide data and other documentation that support the wetland delineation and regulatory discussion.



Source: Thomas Guide

POS Mitigation Site/556-2912-001/01(41) 10/00 (K)



- Drainage Ditch
- Temporary Construction Access Road
- ==== Permanent Access Road
- ▨ Mitigation Site

Figure 1
Location of Port of Seattle
Auburn Wetland Mitigation Site

2. SITE LOCATION AND DESCRIPTION

2.1 SITE LOCATION

The mitigation site is located in the City of Auburn, King County, Washington (Section 31, Township 22N, Range 5E W.M.) (Figure 1). The site is located west of the Green River, south of 277th Street Southeast, and west of Auburn Way North. Figure 2 shows an aerial photograph of the Site and surrounding properties.

2.2 SITE DESCRIPTION

The site is nearly level, with typical slopes ranging from 0 to 1 percent. Elevations on the site range from approximately 45 to 50 feet above mean sea level. Historically, the site has been in the floodplain of the Green River; however, the mapped floodplain of the river is currently in only a small portion of the northwest corner of the site (Figure 3).

The mitigation site was farmed until the late 1980s. No significant land disturbance has occurred on the site since that time. Agricultural operations continue on properties north and south of the site.

2.2.1 Soils

The soils on the mitigation site are alluvial in origin, developed from material deposited on the site by the Green River. The surficial layers of these soils are a complex of silty mineral soils, frequently intermixed with lenses of fine sand. Plowing has mixed the surficial layers of soil, typically to a depth of 9 to 10 inches.

The King County Soil Survey (Snyder et al. 1973) maps soils on the site as the poorly drained Briscot, Oridia, and Woodinville silt loams and the somewhat poorly drained Renton silt loam (Figure 4; Table 1; Appendix A). Briscot, Oridia, Renton, and Woodinville silt loams are designated as hydric soils on the King County, Washington Hydric Soil List (NRCS 1992).

Since abandonment of agricultural activities approximately 10 years ago, redoximorphic¹ features have developed in areas with wetland hydrology in the upper 10 inches of the soil profile, indicating that these areas contain hydric soil. The hydric soil indicators typically found on the site are oxidized rhizospheres and the presence of mottles in soils with a low chroma matrix color.

In areas where high water tables are absent, the redoximorphic features or other hydric soil indicators are absent. The non-wetland soils are characterized by soil matrix color of 10YR 3/3 or 10YR 4/3 without prominent mottles.

¹ Redoximorphic features are patterns of soil color that develop from the repeated chemical oxidation and reduction process found in many hydric (wetland) soils.



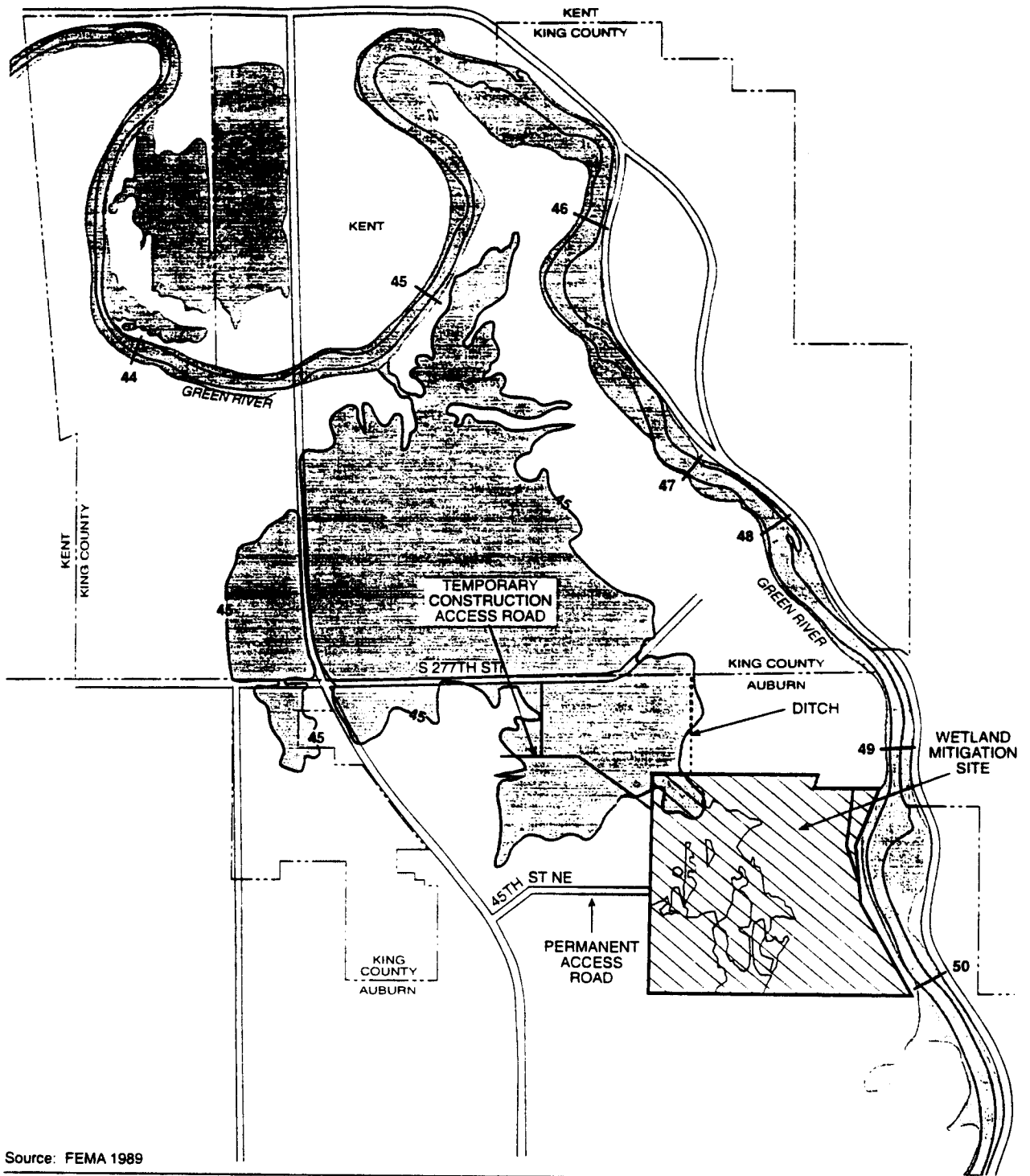
POS Mitigation Site/556-2912-001/01(41) 12/00 (K)

SCALE IN FEET
0 1,000 2,000



Figure 2
Aerial Photograph of the
Wetland Mitigation Site

AR 047485



Source: FEMA 1989

POS Mitigation Site/556-2912-001/01(41) 12/00 (K)



NOT TO SCALE



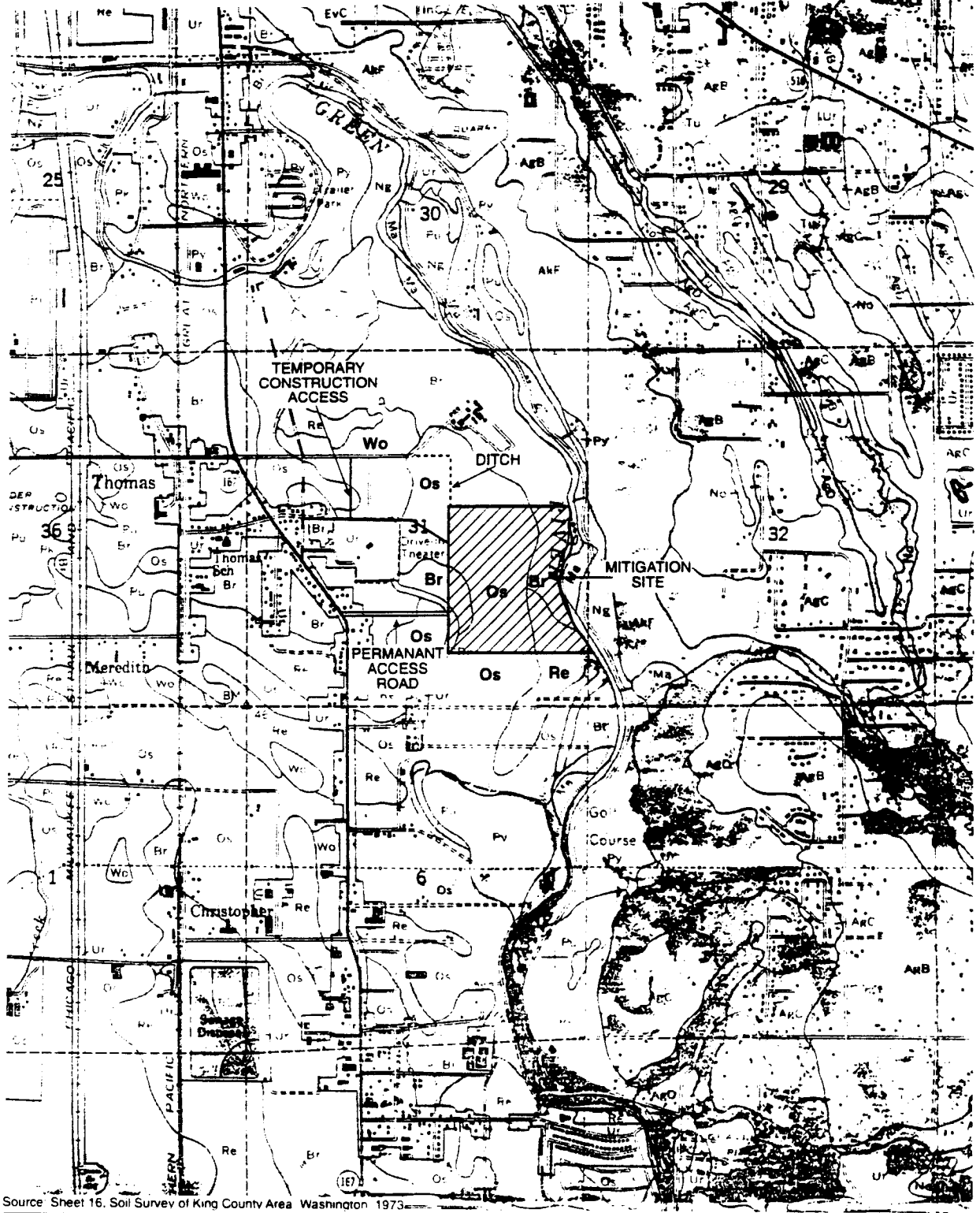
100-Year Floodplain



Flood Elevations

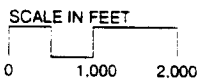
Figure 3
100-Year Floodplain
On and Near the
Wetland Mitigation Site

AR 047486



Source: Sheet 16, Soil Survey of King County Area, Washington, 1973.

POS Mitigation Site/556-2912-001/01(41) 12/00 (K)



- Os Oridia Silt Loam
- Br Briscot Silt Loam
- Wo Woodinville Silt Loam
- Re Renton Silt Loam

Figure 4
Soil Types on the
Wetland Mitigation Site

AR 047487

Table 1. Hydrologic characteristics of soils present on the mitigation site.

Soil Series	Drainage Class	High Water Table			Flooding		
		Permeability (in/hr)	Depth (ft)	Months	Frequency	Duration	Months
Briscot	Poorly	0.63-2.0	1 to -1	Nov-Apr	Occasional	Brief	Dec-Feb
Oridia	Poorly	0.20-2.0	1 to 3	Nov-Apr	Occasional	Brief	Nov-Apr
Renton	Somewhat poorly	2.0-6.3	1 to 1.5	Nov-Apr	Common	Brief	Nov-Apr
Woodinville	Poorly	2.0-6.3	1 to -1	Nov-May	Common	Brief	Oct-Apr

Source: Snyder et al. (1973).

^a All soils mapped are classified as hydric; however, evaluation of on-site conditions indicate non-hydric soil inclusions occur throughout the site.

^b Within the top 20 inches of soil.

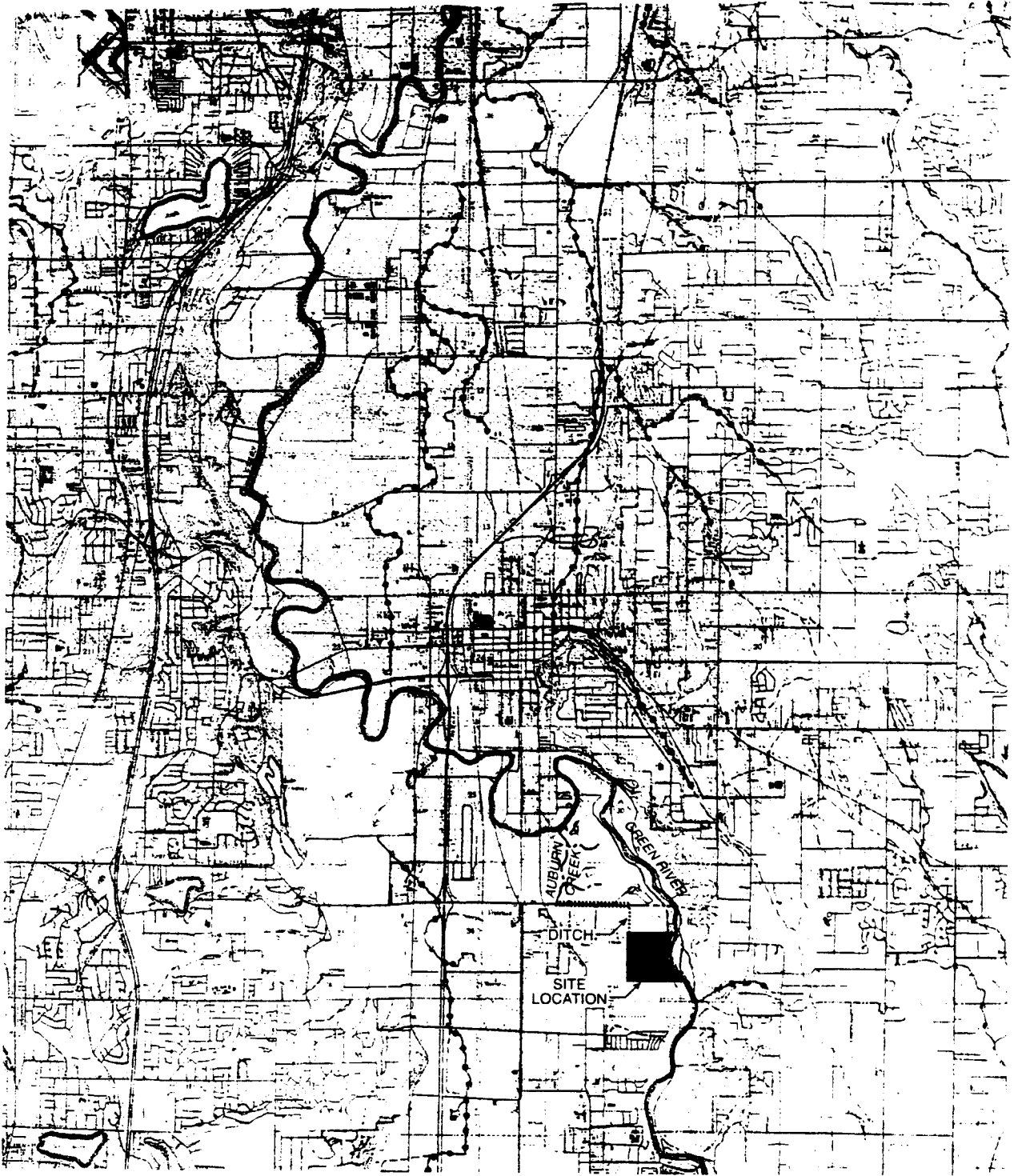
2.2.2 Hydrology

There are no natural surface water features on the mitigation site. Two streams, the Green River and Auburn Creek, are located near the mitigation site. The Green River flows from south to north about 100 feet east of the mitigation site. At this location, the river base elevation is about 12 to 15 feet below the site elevation. The river channel consists of a steep bank, largely vegetated with alder and black cottonwood saplings. North of the mitigation site and South 277th Street, King County et al. (1990) maps an intermittent stream (Auburn Creek). This creek drains pasture and farmland and flows into the Green River about 1 mile north of the site (Figure 5). At its confluence with the Green River, a small dike, culvert, and flap gate provide flood control.

A drainage ditch on the mitigation site conveys stormwater and groundwater runoff from the northwest portion of the site to other ditches along South 277th Street. This water eventually enters Auburn Creek.

Since September 1995, the groundwater hydrology of the site has been monitored using shallow groundwater monitoring wells (Figures 6 through 10; Appendix B). The well data indicate groundwater levels that are within 18 inches of the surface at a number of locations, and generally within 36 to 24 inches of the soil surface for extended periods of time during the late fall, winter, and early spring months.

Wetlands on the mitigation site appear to be largely supported by on-site precipitation that perches in the low permeability soils. During periods of excessive rain, backwater flow from the 100-year floodplain enters the northwest corner of the site. Overland flow also enters the site through a wetland drainageway crossing the site from south to north. This drainageway contains surface flow for short time periods (up to several days) following periods of heavy rain.



Source: Sensitive Areas Map Folio.
King County, Washington. December 1990

POS Mitigation Site: 556-2912-001/011411 11/00 (K)

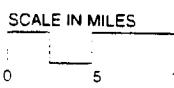
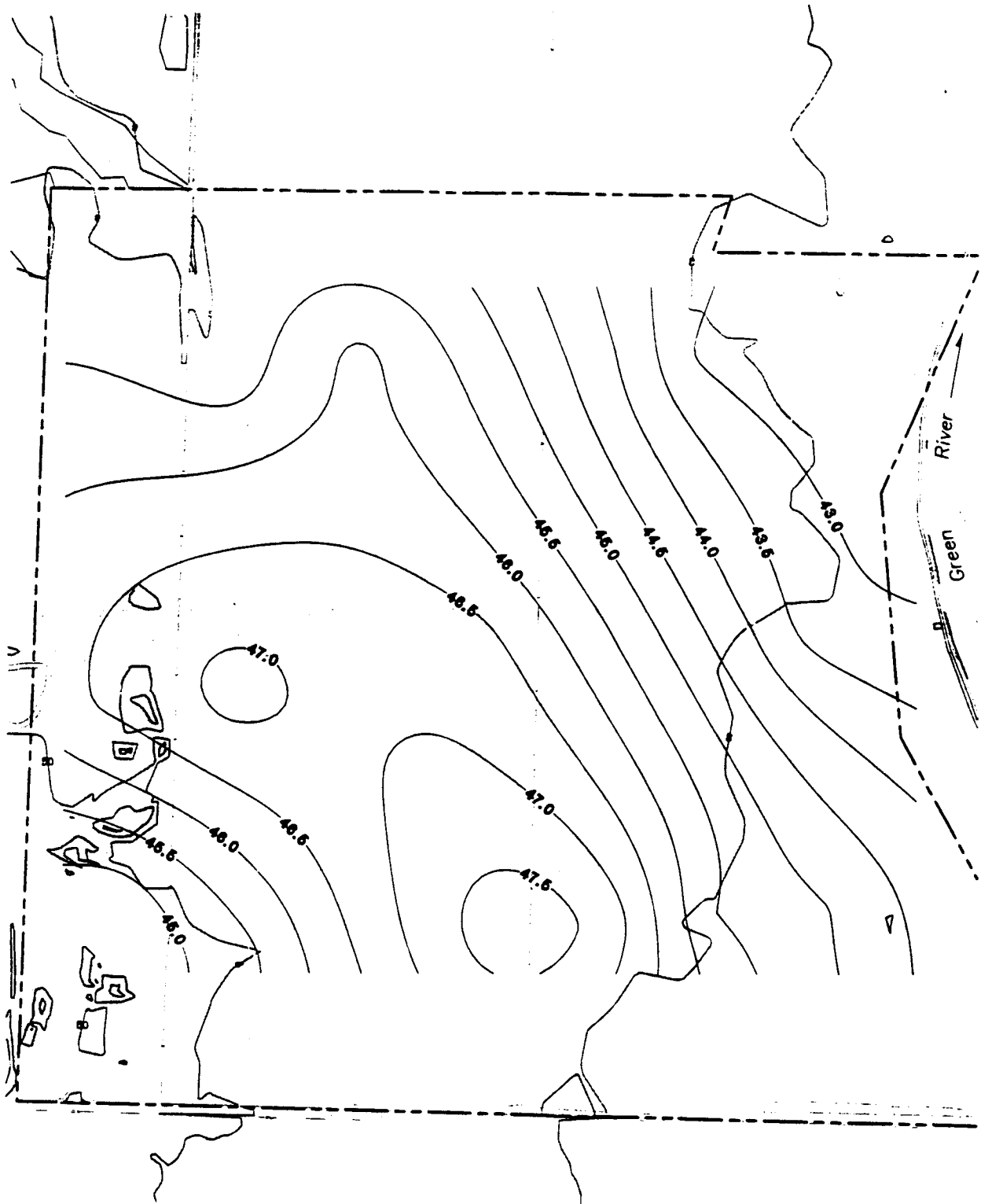


Figure 5
Streams and Surface Water
Near the Mitigation Site



FILE: 28121416
 DATE: 11/08/00

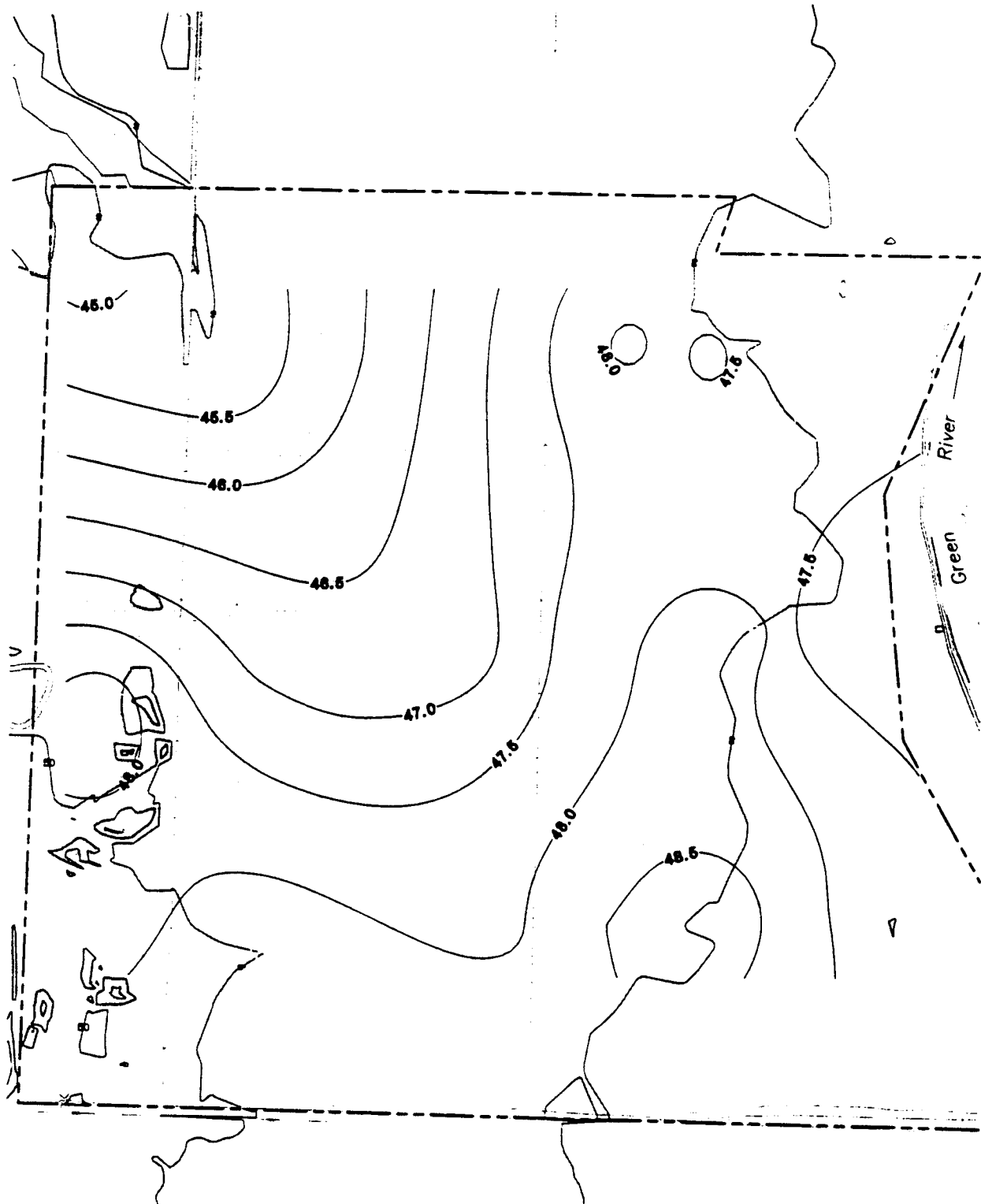
LEGEND:

- 45.0 — Groundwater Contour and Elevation
- Existing Wetland
- Well Locations and Number
- Existing Ground Surface Contour and Elevation



Figure 6
Groundwater Elevations on the
Auburn Wetland Mitigation Site
(December 2, 1999)

AR 047490



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 DATE: 11/08/00

LEGEND:







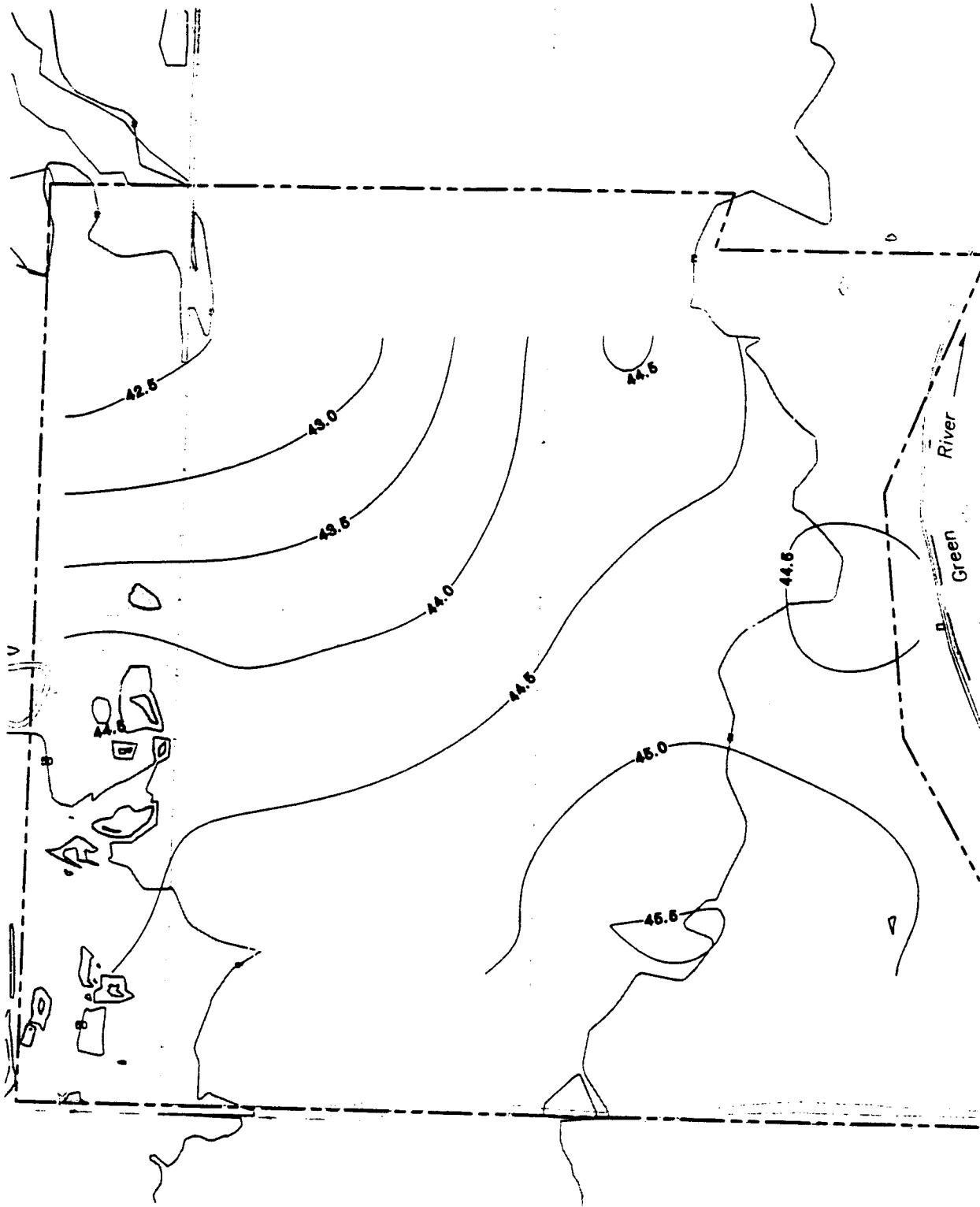
-  Groundwater Contour and Elevation
-  Existing Wetland
-  Well Locations and Number
-  Existing Ground Surface Contour and Elevation

Figure 7
Groundwater Elevations on the
Auburn Wetland Mitigation Site
(March 8, 2000)



FILE: 291214FB
 DATE: 12/10/00

LEGEND:




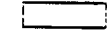


-  Groundwater Contour and Elevation
-  Existing Wetland
-  Well Locations and Number
-  Existing Ground Surface Contour and Elevation

Figure 8
Groundwater Elevations on the
Auburn Wetland Mitigation Site
(June 2, 2000)

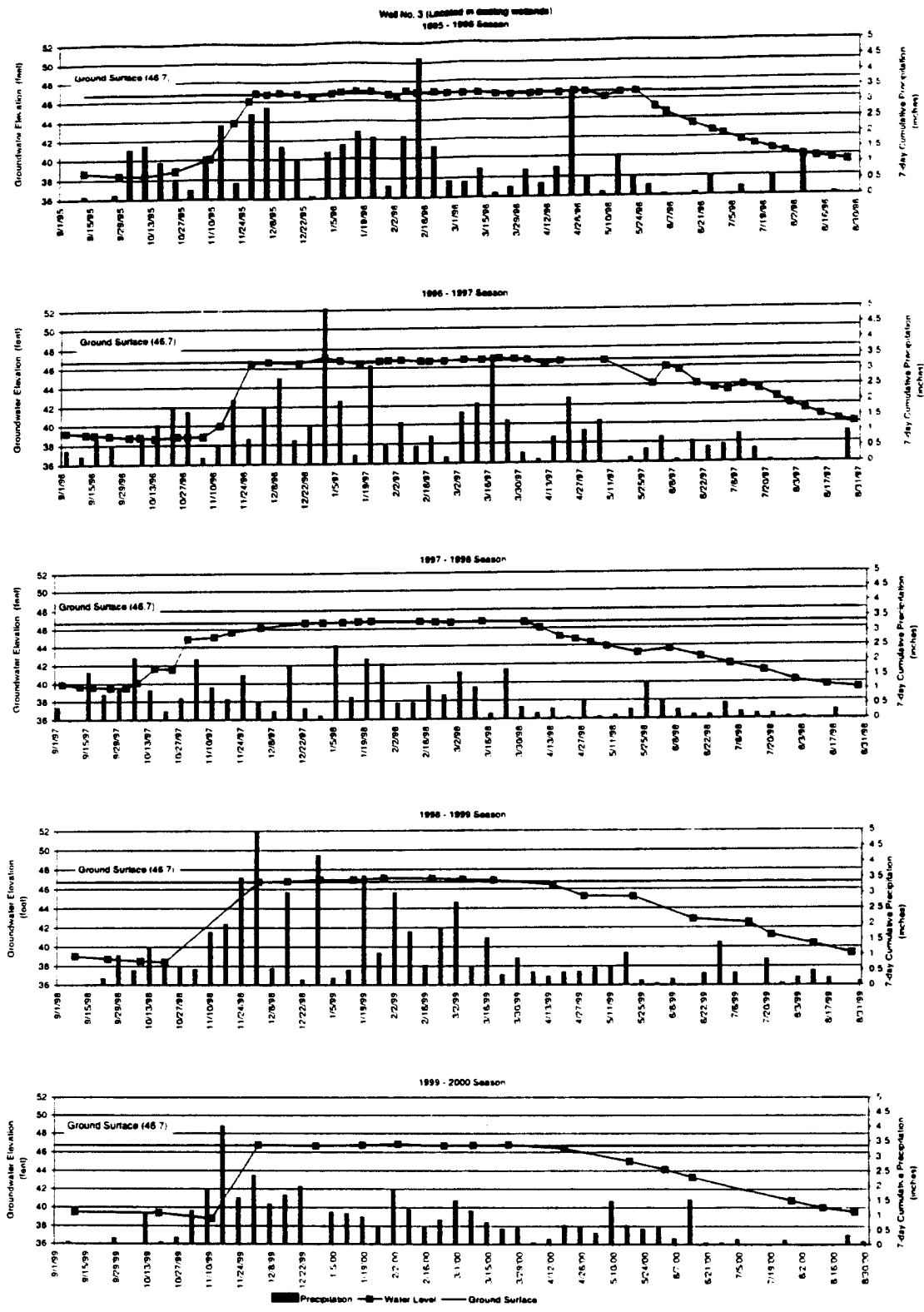


Figure 9
Variations in Groundwater and Daily Precipitation (Wetland)

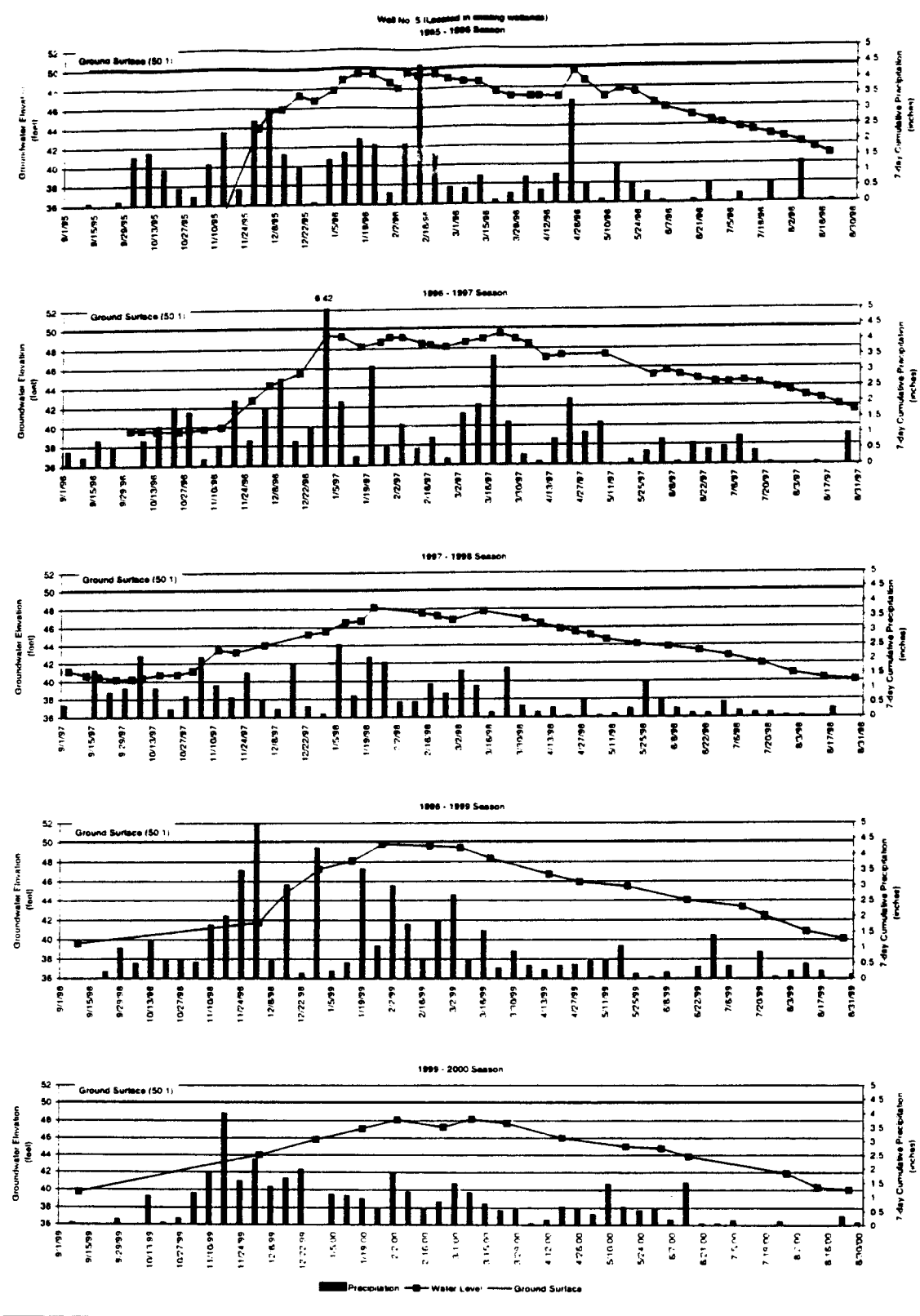


Figure 10
Variations in Groundwater and Cumulative Precipitation (Upland)

Source: from M&M 2001

Given the well monitoring data, the soils data, and field evidence of surface hydrology, the primary drivers of wetland hydrology on the mitigation site are:

- The seasonally high groundwater table
- Low soil permeability coupled with high seasonal levels of precipitation
- Overland flow during heavy precipitation from adjacent land south of the site

2.3 VEGETATION

Vegetation on the mitigation site and vicinity consists predominantly of a mix of non-native grasses and herbaceous plants, including species that are typical of abandoned agricultural land (Table 2). Locally dominant plants on the site include: meadow foxtail (*Alopecurus pratensis*), tall fescue (*Festuca arundinacea*), red fescue (*Festuca rubra*), Canada thistle (*Cirsium arvense*), quackgrass (*Agropyron repens*), timothy (*Phleum pratense*), orchardgrass (*Dactylis glomerata*), common velvet-grass (*Holcus lanatus*), perennial ryegrass (*Lolium perenne*), colonial bentgrass (*Agrostis tenuis*), and patches of reed canarygrass (*Phalaris arundinacea*). Other non-native species scattered throughout these areas include cocklebur (*Xanthium strumarium*), common dandelion (*Taraxacum officinale*), and nightshade (*Solanum* sp.). A few patches of Himalayan blackberry (*Rubus discolor*) shrubs occur in scattered areas on sidecast piles of soil. A small stand of young black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) is located along the west central property boundary.

Table 2. Mitigation site dominant vegetation.

Common Name	Scientific Name	Indicator Status	Non-Native (x)
TREES			
black cottonwood	<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	FAC	
red alder	<i>Alnus rubra</i>	FAC	
willow	<i>Salix</i> sp.	FACW	
SHRUBS			
Himalayan blackberry	<i>Rubus discolor</i>	FACU	x
red-osier dogwood	<i>Cornus stolonifera</i>	FACW	
salmonberry	<i>Rubus spectabilis</i>	FAC+	
Scot's broom	<i>Cytisus scoparius</i>	UPL	x
willow	<i>Salix</i> sp.	FACW	
HERBS			
American vetch	<i>Vicia americana</i>	FAC	x
bedstraw	<i>Galium</i> sp.	FACU	
bentgrass	<i>Agrostis</i> sp.	FAC	x
bittersweet nightshade	<i>Solanum dulcamara</i>	FAC+	x
bluegrass	<i>Poa</i> sp.	FAC	x
bracken fern	<i>Pteridium aquilinum</i>	FACU	
Canada thistle	<i>Cirsium arvense</i>	FACU+	x

Table 2. Mitigation Site dominant vegetation (continued).

Common Name	Scientific Name	Indicator Status	Non-Native (x)
HERBS (continued)			
clover	<i>Trifolium</i> sp.	FAC	
colonial bentgrass	<i>Agrostis capillaris (tenuis)</i>	FAC	x
common velvet-grass	<i>Holcus lanatus</i>	FAC	x
creeping bentgrass	<i>Agrostis stolonifera</i>	FAC	x
creeping buttercup	<i>Ranunculus repens</i>	FACW	x
curly dock	<i>Rumex crispus</i>	FAC	x
dandelion	<i>Taraxacum officinale</i>	FACU	x
fescue	<i>Festuca</i> sp.	NL	
field horsetail	<i>Equisetum arvense</i>	FAC	
fireweed	<i>Epilobium ciliatum</i>	FACW-	
giant mannagrass	<i>Glyceria grandis</i>	OBL	
Kentucky bluegrass	<i>Poa pratensis</i>	FAC	x
meadow fescue	<i>Festuca pratensis</i>	FACU+	x
orchardgrass	<i>Dactylis glomerata</i>	FACU	x
perennial ryegrass	<i>Lolium perenne</i>	FACU	x
quackgrass	<i>Agropyron repens</i>	FACU	x
red clover	<i>Trifolium pratense</i>	FACU	x
red fescue	<i>Festuca rubra</i>	FAC+	
redtop	<i>Agrostis gigantea (alba)</i>	FAC	x
reed canarygrass	<i>Phalaris arundinacea</i>	FACW	x
soft rush	<i>Juncus effusus</i>	FACW	
tall fescue	<i>Festuca arundinacea</i>	FAC-	x
thistle	<i>Cirsium</i> sp.	FACU	x
white clover	<i>Trifolium repens</i>	FACU+	x

3. WETLAND DELINEATION METHODS

The mitigation site was examined for wetland conditions, and all wetlands (as defined in 33 CFR 328.3(a)(1-8)) were delineated consistent with procedures and guidelines provided in the Environmental Laboratory (1987) and Washington State Department of Ecology (Ecology) (1997) manuals. The wetland delineation followed applicable ACOE Regulatory Guidance Letter and Memoranda, Natural Resource Conservation Service Memoranda, and Ecology Guidance letters concerning wetland delineations.

General information on the property and local area relating to wetlands was reviewed. This information included the *Soil Survey of King County Area, Washington* (Snyder et al. 1973), Federal Emergency Management Agency maps (FEMA 1989), and previous wetland evaluations (David Evans & Associates, Inc. 1995; Parametrix 1996). Wetland inventory maps, including the Mill Creek Special Areas Management Plan (City of Auburn et al. 1997) and the National Wetland Inventory (USFWS 1987), were also reviewed (Appendix C).

3.1 SOILS

Hydric soils are "soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA et al. 1996). The presence of hydric soils was determined based on criteria described in the Environmental Laboratory (1987) and Ecology (1997) manuals and current regulatory guidance (ACOE 1992; NRCS 1992).

The presence of hydric soils was determined based on extensive field evaluation. Soils were characterized as hydric or non-hydric based on field indicators. Indicators of hydric soils (non-sandy soils) include: organic soils (histosols), histic epipedons, sulfidic material, aquic or periaquic moisture regime, reducing soil conditions, soil colors (gleyed soils, soils with contrasting mottles and/or low chroma matrix), soil appearing on the hydric soil list, and iron and manganese concretions (Ecology 1997).

3.2 HYDROLOGY

Consistent with the Environmental Laboratory (1987) and Ecology (1997) manuals, and current regulatory guidance (ACOE 3-92 Memorandum; ACOE, Seattle District, 5-94 Public Notice), the presence of wetland hydrology was determined by evaluating a variety of direct and indirect indicators. Field indicators of wetland hydrology must be present within 12 inches of the soil surface. These indicators include: visual observation of inundation and/or soil saturation, oxidized rhizospheres associated with living roots, water marks on vegetation or fixed objects, drift lines, water-borne sediment deposits, water-stained leaves, surface scoured areas, wetland drainage patterns, morphological plant adaptations, and hydric soil characteristics.

Areas that are inundated and/or saturated to the surface at least 12.5 percent of the growing season (typically about 14 days during the period of February to mid-November) generally meet the technical criteria for wetlands (Environmental Laboratory 1987 and Ecology 1997 manuals). These

areas are wetlands when hydric soil indicators and hydrophytic vegetation are also present (ACOE, Seattle District, 5-94 Public Notice).

Many wetlands lack saturated soils during the dry summer months. Because the study was completed prior to the onset of heavy fall rains, direct observation of hydrology was not possible. Therefore, in most cases, wetland hydrology was inferred from the presence of hydric soils and oxidized root zones. However, direct observations of groundwater hydrology in shallow groundwater wells measured between October 1999 and July 2000² were used to supplement the field study.

3.3 VEGETATION

The presence of hydrophytic vegetation was identified consistent with the Environmental Laboratory (1987) and Ecology (1997) manuals and current regulatory guidance. Species identifications and taxonomic nomenclature follow Hitchcock and Cronquist (1973). Dominant species³ were identified. Each species' wetland indicator status was assigned using the *National List of Plant Species that Occur in Wetlands: Northwest - Region IX* (Reed 1988, 1993; hereafter cited as *The Region IX List*). The wetland indicator status (Table 3) designates the relative frequency with which the species occurs in jurisdictional wetlands.

Table 3. Wetland plant indicator categories.

Indicator Status	Definition
Obligate Wetland (OBL)	Occur almost always (estimated probability >99%) in wetlands.
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67% to 99%), but occasionally found in non-wetlands.
Facultative (FAC)	Equally likely to occur in wetlands or non-wetlands (estimated probability 34% to 66%). Considered wetland when growing on hydric soils and subject to wetland hydrology.
Facultative Upland (FACU)	Usually occur in non-wetlands, but occasionally found in wetlands (1% to 33%).
Upland (UPL)	Plants that rarely occur (estimated probability <1%) in wetlands, but occur almost always in non-wetlands.
No Indicator Status (NI)	Insufficient information exists to assign an indicator status. ^a
Not Listed (NL)	Not on the National List in any region. ^a

Source: Reed (1988).

^a For purposes of wetland delineation, species with these designations are presumed upland.

² During this time period, precipitation at STIA was measured to be near normal, and groundwater hydrology on the site should be representative of typical conditions.

³ Dominant species are those species that, when ranked in descending order of abundance and cumulatively totaled, immediately exceed 50 percent cover of the total dominance measure for that stratum, plus any species that comprises at least 20 percent cover.

An area meets the hydrophytic (wetland) vegetation criteria when, under normal circumstances, more than 50 percent of the dominant species are obligate wetland (OBL), facultative wetland (FACW), and/or facultative (FAC) species. A plus (+) or a minus (-) sign is often included in the indicator designation to specify a higher or lower level of the indicator status. For purposes of determining wetlands, plants with a FAC- indicator status are not considered to be an indicator of hydrophytic vegetation (i.e., it is treated as a facultative upland [FACU], upland [UPL], or a not listed [NL] species). In the Pacific Northwest, where a pronounced summer drought occurs, the ACOE Seattle District may include FACU dominated plant communities as wetland plants where the presence of wetland hydrology and hydric soils is clearly identified (ACOE 1994).

4. RESULTS

4.1 WETLAND IDENTIFICATION AND DELINEATION RATIONALE

Wetlands were identified and delineated consistent with procedures recommended for routine level jurisdictional determinations. The site has not been subjected to significant new soil, hydrologic, or vegetation disturbance for a period of at least 10 years, and "normal circumstances"⁴ were determined to exist throughout the site during the Parametrix October 2000 wetland delineation.

A total of 15 data plots were sampled on the mitigation site (Figure 11; Appendix D). Four of these data plots were sampled adjacent to groundwater monitoring wells, while eleven were located throughout the site representing the variety of existing upland and wetland conditions. In addition to these plots, throughout the delineation process numerous soil pits were examined using a dutch soil augur or shovel to determine soil characteristics and define wetland boundaries.

Three jurisdictional wetlands were delineated on the mitigation site. Wetland 1 extends from the northwest corner to the south-central portion of the site (Figure 11) and covers 20.45 acres of the site. The wetland also extends east through the access easement for the site. Wetland 2 is adjacent to Wetland 1, is located in the south-central portion of the site, and is about 0.60 acre in size. Wetland 3 is located in the north-central portion of the site, and is about 0.01 acre in size. Wetlands 1 and 2 are Washington State Category III Wetlands (Appendix E). Wetland 3 is a Washington State Category IV wetland (Appendix C). The soil, hydrologic, and vegetation of these wetlands are similar.

4.2 SOILS

The *Soil Survey of the King County Area, Washington* (Snyder et al. 1973) identifies Briscot, Oridia, Renton, and Woodinville silt loam soils on the site (Figure 4). All of these soils are listed as hydric on the current *King County Hydric Soils List* (NRCS 1992). Soil sample characterizations on-site were found to be most similar to descriptions of Oridia silt loam (Appendices A and D). A silt loam plow horizon (Ap) 8 to 12 inches in depth was evident throughout most of the site. Soils in this layer typically consisted of a dark grayish-brown (10YR 4/2, 10YR 3/2 to 10YR 4/3, 10YR 3/3) matrix with common to many, fine to medium, faint to distinct mottles (7.5YR 4/6 to 7.5YR 5/6).

Soils were examined for hydric or non-hydric conditions immediately below the A-horizon or at 10 inches (whichever was shallower). The primary field indicators used to determine hydric versus non-hydric soil included:

- Matrix chroma of 2 with mottles
- Matrix chroma of 2 with mottles and oxidized rhizospheres

⁴ The phrase *normal circumstances* means human or natural disturbances have not altered the site's vegetation, soils, or hydrology in the recent past (Ecology 1997; ACOE 1994).

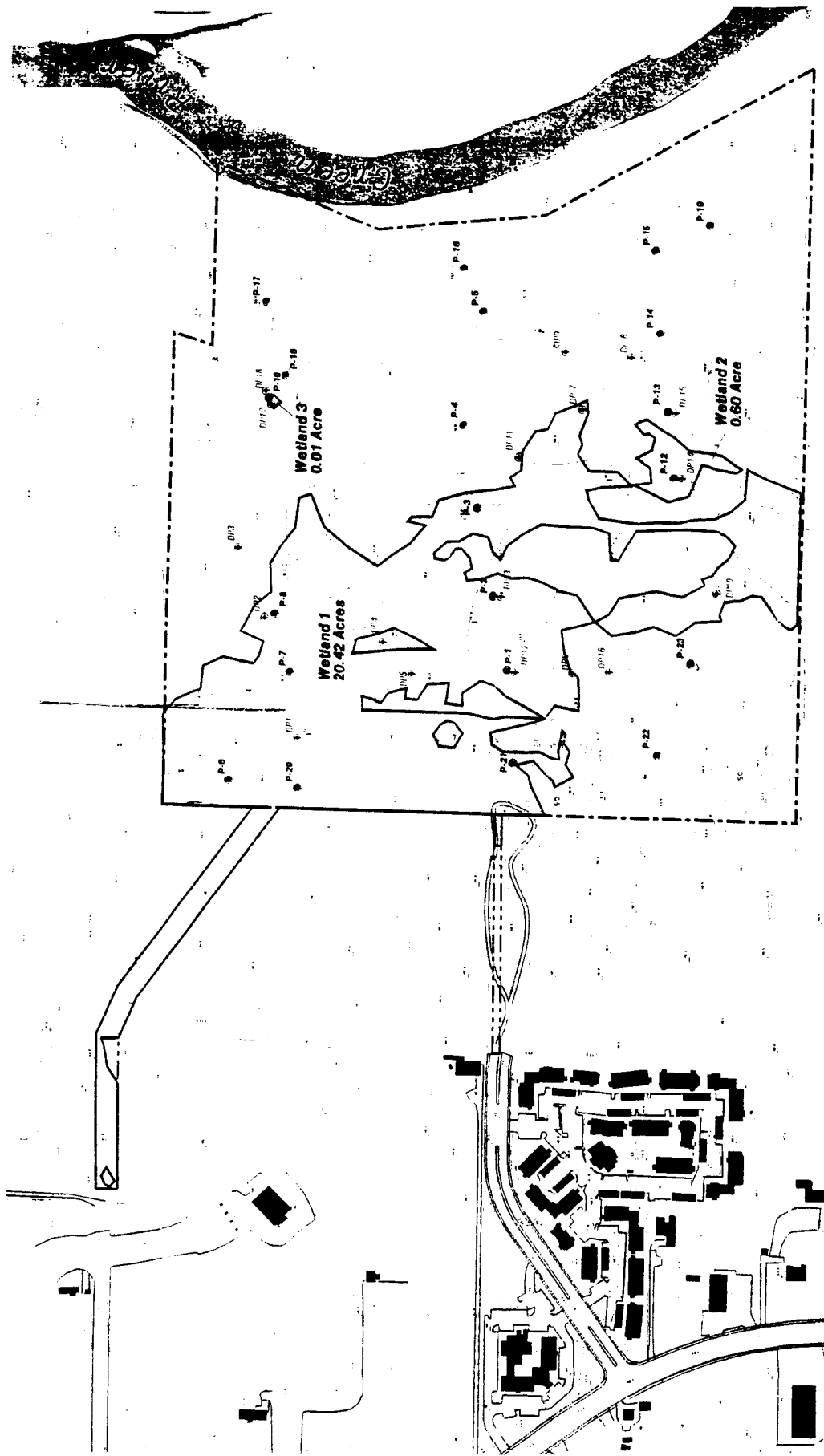


Figure 11
Jurisdictional Wetlands on
the Wetland Mitigation Site

Prepared by Parsons Brinckerhoff Inc. File: 10000171137\Wetland_100_000000.dwg (Drawing) 11/17/2009, Job: 10000171137, Date: December 12, 2009

- Jurisdictional Wetlands
- Property Boundary
- Groundwater Monitoring Wells
- ⊕ Wetland Delineation Data Pits
- Roads
- - - Easement
- Contour Lines (1 ft interval)

Although all soils mapped on the mitigation site are listed as hydric on the *King County Hydric Soil List* (NRCS 1992), field verification indicated that soils over much of the mitigation site do not meet the hydric soil criterion (see Figure 4). These non-hydric soils were generally a silt loam, and had the following characteristics:

- Matrix color of 10YR 4/3 or 10YR 3/3
- Matrix color of 10YR 4/2 or 3/2, but lacking mottles or oxidized rhizospheres

Throughout the site, distinct layers of well-sorted fine to medium sand lenses were observed at depths below 10 inches. The sand lenses were generally 3 to 6 inches thick and consisted of gleyed loamy sand.

4.3 HYDROLOGY

During the wetland delineation, soils were moist or dry. Saturated soil conditions were not observed in any of the sample plot locations. However, the groundwater well monitoring data indicate groundwater at or near the surface (within 12 inches) during the growing season at a number of wells on site during 1999-2000 (Figures 6 through 10; Appendix B). An 18-inch depth to groundwater was selected for data presentation due to attendant capillary fringe associated with actual groundwater elevation. Indicators used to determine the status of wetland hydrology at the mitigation site included:

- Recorded well monitoring data
- Oxidized rhizospheres surrounding living roots in the upper 12 inches of the soil profile
- Field indicators of hydric soils

The recorded well monitoring data indicate that Wells 1 through 4, 6 through 10, 12 through 14, and 20 through 21 had water at or near the surface (within 12 inches) for more than 14 days during the 1999-2000 growing season (Appendix D). The well data indicate the presence of groundwater at or near the surface at these well point locations; however, these data do not indicate the extent of wetlands throughout the site for jurisdictional purposes. Field sampling was used to delineate the extent of wetland hydrology and jurisdictional wetlands. The wetland field delineation included observations of several hundred soil samples taken throughout the site.

4.4 VEGETATION

The hydrophytic vegetation criterion was met at 10 of the 15 data plots (Appendix D).

Grasses including meadow foxtail, redtop, colonial bentgrass, quackgrass, tall fescue, common velvet-grass, and patches of reed canarygrass dominate Wetland 1. Other herbaceous species in the wetland include soft rush and creeping buttercup (*Ranunculus repens*). The vegetation in Wetland 2 is similar to that found in Wetland 1.

5. DISCLAIMER

Parametrix, Inc. has prepared this report for use by Port of Seattle. The results and conclusions of this report represent the professional opinion of Parametrix, Inc. They are based in part upon (a) site reconnaissance and testing, (b) information provided by the property owner(s), and (c) examination of public domain information concerning the proposed site.

Work performed conforms to accepted standards in the field of jurisdictional delineation using the U.S. Army Corps of Engineers *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997). However, final determination of wetland boundaries pertinent to Clean Water Act Section 404 or local regulations is the responsibility of the Seattle District of the U.S. Army Corps of Engineers and/or local government. Thus, the findings and conclusions contained in this report should be reviewed by appropriate regulatory agencies prior to any detailed site planning and/or construction activities.

6. REFERENCES

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- ACOE (U.S. Army Corps of Engineers). 1986. Clarification of "normal circumstances" in wetland definition. Regulatory Guidance Letter No. 86-9. (33 CFR 323.2(c)).
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APPENDIX A
SOIL PROFILE DESCRIPTIONS
KING COUNTY SOIL SURVEY

AR 047506

Briscot Series

The Briscot series is made up of somewhat poorly drained soils. These soils formed in alluvium, under conifers and grass in river valleys. Slopes are less than 2 percent. The annual precipitation is 35 to 55 inches, and the mean annual temperature is about 50° F. The frost-free season is about 200 days. Elevation ranges from about sea level to 85 feet.

In a representative profile, the surface layer is dark grayish-brown silt loam about 9 inches thick. The subsoil is mottled grayish-brown and dark-gray, stratified fine sandy loam, silt loam, and fine sand to a depth of 60 inches or more.

Briscot soils are used for row crops and seeded grass pasture and for urban development.

Briscot silt loam (Br).--Areas of this soil are irregularly shaped and range from 5 to more than 80 acres in size.

Representative profile of Briscot silt loam, cultivated, 1,000 feet north and 1,410 feet east of the southeast corner of sec. 25, T. 22 N., R. 4 E.:

- Ap--0 to 9 inches, dark grayish-brown (10YR 4/2) silt loam, grayish brown (10YR 5/2) dry; moderate, medium, granular structure; slightly hard, friable, sticky, plastic; many roots; neutral; abrupt, smooth boundary. 8 to 10 inches thick.
- B21g--9 to 17 inches, grayish-brown (2.5Y 5/2) silt loam, light brownish gray (2.5Y 6/2) dry; many, large, prominent, dark-brown (7.5YR 4/4 and 3/4) mottles, brownish yellow (10YR 6/6) dry; weak, very coarse, prismatic structure; slightly hard, friable, sticky, plastic; common roots; neutral; abrupt, wavy boundary. 7 to 9 inches thick.
- B22--17 to 44 inches, grayish-brown (2.5Y 5/2) lenses of fine sandy loam, silt loam, and fine sand, light brownish gray (2.5Y 6/2) dry; many, large, prominent, dark-brown (7.5YR 4/4) mottles, yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4) dry; massive; slightly hard, very friable, slightly sticky, nonplastic; few roots; neutral; diffuse, smooth boundary. 25 to 28 inches thick.
- B23g--44 to 60 inches, dark-gray (5Y 4/1) lenses of fine sandy loam, silt loam, and fine sand, grayish brown (2.5Y 5/2) dry; many, large, prominent, dark-brown (7.5YR 4/4) and dark-red (2.5YR 3/6) mottles, brown (7.5YR 5/4) and yellowish brown (10YR 5/6) dry; massive; very friable, slightly sticky, nonplastic; few roots; neutral. Many feet thick.

The A horizon ranges from dark gray to dark grayish brown and from silt loam to very fine sandy loam. The B horizon is grayish brown to olive gray mottled with dark brown. It is mostly fine sandy loam but is stratified with fine sand and silt loam.

Some areas are up to 5 percent included Puyallup soils, which are well drained and are on natural stream levees, and Newberg soils, which also are well drained and are in stream valleys; some areas are up to 2 percent the poorly drained Puget and Woodinville soils; and some are up to 5 percent Oridia and Renton soils.

Permeability is moderate. In winter the seasonal water table is within a depth of 1 to 2 feet. In drained areas, roots penetrate easily to a depth of 60 inches or more. In undrained areas, effective rooting depth is restricted. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. Stream overflow is a moderate hazard.

This soil is used for row crops and seeded grass pasture and for urban development. Capability unit IIw-2; woodland group 3w1.

Renton Series

The Renton series is made up of somewhat poorly drained soils that formed in alluvium in river valleys. Slopes are 0 to 1 percent. The annual precipitation is 35 to 55 inches, and the mean annual air temperature is about 50° F. The frost-free season is about 200 days. Elevation ranges from near sea level to 85 feet.

In a representative profile, the surface layer is very dark grayish-brown silt loam about 6 inches thick. The subsoil is mottled dark grayish-brown; very fine sandy loam and fine sandy loam about 10 inches thick. The substratum is mottled black sand to a depth of 60 inches or more.

Renton soils are used for row crops and seeded grass pasture and for urban development.

Renton silt loam (Re).--This soil is nearly level to very gently undulating. Slopes are 0 to 1 percent. Areas are irregular in shape and range from 2 to nearly 300 acres in size.

Representative profile of cultivated Renton silt loam, 470 feet west and 1,050 feet north of the east quarter corner of sec. 23, T. 22 N., R. 4 E.:

- Ap--0 to 6 inches, very dark grayish-brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate, medium and coarse, granular structure; slightly hard, very friable, slightly sticky, slightly plastic; many roots; medium acid; abrupt, wavy boundary. 6 to 8 inches thick.
- B21--6 to 11 inches, dark grayish-brown (2.5Y 4/2) very fine sandy loam, grayish brown (2.5Y 5/2) dry; many, medium, prominent, dark-brown (7.5YR 4/4) mottles, yellow (10YR 7/6) dry; massive; slightly hard, very friable, slightly sticky, slightly plastic; many roots; neutral (pH 6.6); clear, wavy boundary. 5 to 12 inches thick.
- B22--11 to 16 inches, dark grayish-brown (2.5Y 4/2) fine sandy loam and thin lenses of fine sand, grayish brown (2.5Y 5/2) dry; many, medium, prominent, dark-brown (7.5YR 4/4) mottles, reddish yellow (7.5YR 6/6 and 7/6) dry; massive; soft, very friable, nonsticky, nonplastic; common roots; slightly acid; abrupt, irregular boundary. 3 to 12 inches thick.
- IIC--16 to 60 inches, black (10YR 2/1) sand, dark grayish-brown (10YR 4/2) dry; common, medium, prominent, strong-brown (7.5YR 5/6) mottles, reddish yellow (7.5YR 7/6) and strong brown (7.5YR 5/6) dry; single grain; loose, nonsticky, nonplastic; few roots; slightly acid.


The A horizon ranges from dark grayish brown to very dark grayish brown. The B horizon ranges from mottled dark gray to grayish brown or dark grayish brown and from silt loam to fine sandy loam. The IIC horizon is mottled, ranges from black to dark

AR 047507






Figure 6
Aerial Photograph of
Borrow Area 1 (1980)

Part of Seattle/Wetland Delineation Report 0556-2912-001(01)(4.1), 3/00



 APPROXIMATE
 SCALE IN FEET
 0 100 200

 Approximate Boundary of Borrow Site 1
 Approximate Boundary of Borrow Site 3
 Des Moines Creek

AR 047508

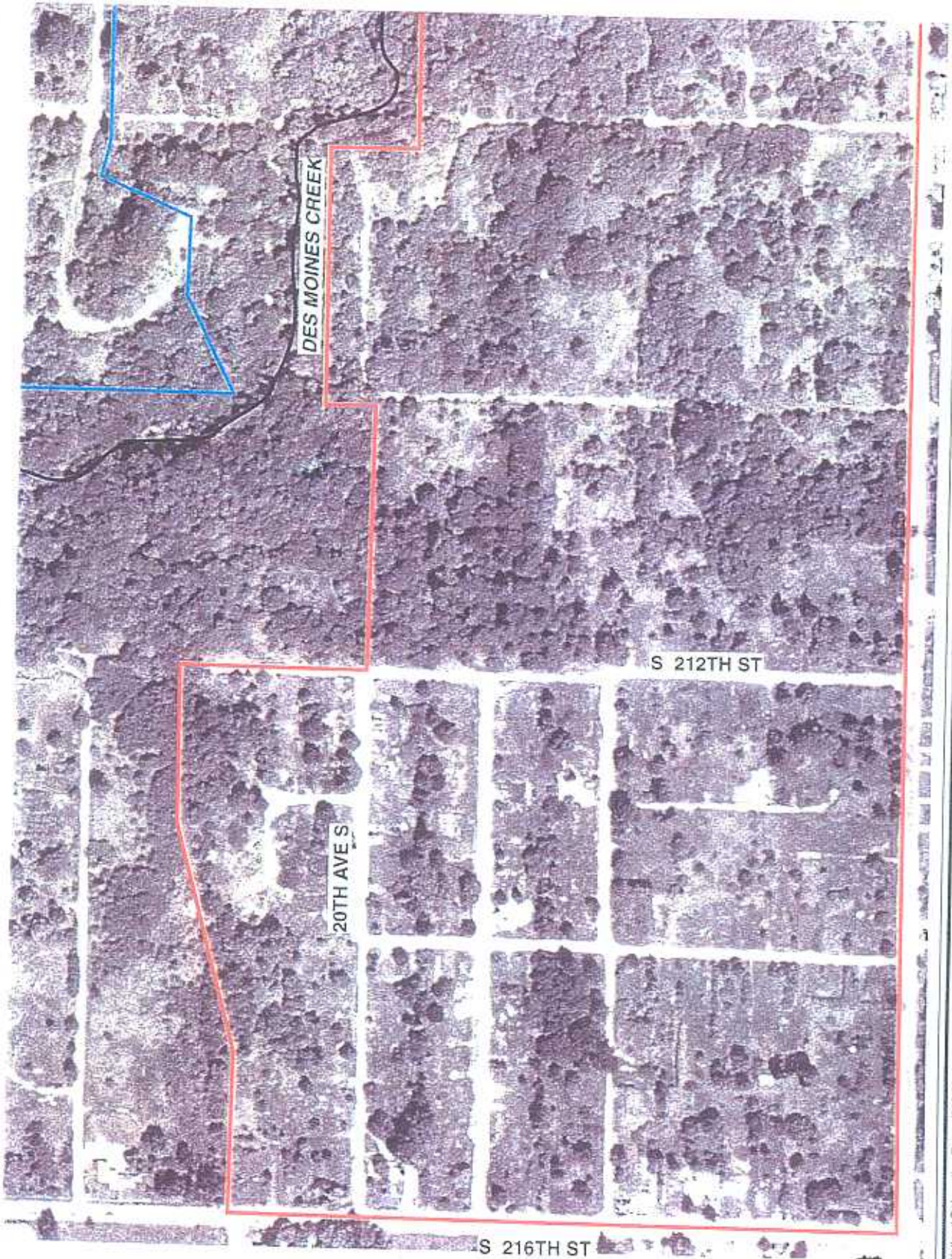


Figure 7
Aerial Photograph of
Borrow Area 1 (1996)

Port of Seattle/Walland Delineation Report 556-2012-001(01)(41) 9/00



- Approximate Boundary of Borrow Site 1
- Approximate Boundary of Borrow Site 3
- Des Moines Creek

AR 047509

grayish brown, and is sand or loamy sand. Depth to the IIC horizon ranges from 15 to 30 inches. Thick, silty layers occur in the IIC horizon in some places.

Some mapped areas of this soil are up to 2 percent inclusions of the well-drained Puyallup soils on natural stream levees; some are up to 2 percent the poorly drained Puget and Woodinville soils; and some are up to 5 percent the somewhat poorly drained Briscot and Oridia soils. Total inclusions do not exceed 10 percent.

Permeability is moderately rapid in the surface layer and subsoil and very rapid in the substratum. There is a seasonal high water table at a depth of 1 to 2 feet. In drained areas, the effective rooting depth is 60 inches or more. In undrained areas, rooting depth is restricted. The available water capacity is moderate to moderately high. Runoff is slow, and the erosion hazard is slight. Flood protection is provided. Thus, the hazard of stream overflow is slight. Capability unit IIIw-1; woodland group 3w1.

Oridia Series

The Oridia series is made up of somewhat poorly drained soils that formed in alluvium in river valleys. Slopes are 0 to 2 percent. The annual precipitation is 35 to 55 inches, and the mean annual air temperature is about 50° F. The frost-free season is about 200 days. Elevation ranges from about 0 to 85 feet.

In a representative profile, the surface layer is dark grayish-brown silt loam about 9 inches thick. The subsoil is grayish-brown, dark grayish-brown, and gray silt loam and silty clay loam that extends to a depth of 60 inches or more.

Oridia soils are used for row crops and pasture and for urban development.

Oridia silt loam (Os)--This gently undulating soil is in irregularly shaped areas. Slopes are less than 2 percent. Areas range from 10 to more than 200 acres in size.

Representative profile of Oridia silt loam, in pasture, 850 feet north, 620 feet east of the southwest corner of sec. 12, T. 22 N., R. 4 E.:

- Ap--0 to 9 inches, dark grayish-brown (10YR 4/2) heavy silt loam, light brownish gray (2.5Y 6/2) dry; few, fine, prominent, strong-brown (7.5YR 5/6) mottles, reddish yellow (7.5YR 7/6) dry; moderate, medium, granular structure; hard, friable, sticky, plastic; many roots; medium acid; abrupt, smooth boundary. 9 to 11 inches thick.
- B21g--9 to 17 inches, grayish-brown (2.5Y 5/2) heavy silt loam, light gray (2.5Y 7/2) dry; many, medium, prominent, brown (7.5YR 4/4) mottles, strong brown (7.5YR 5/6) and very pale brown (10YR 7/3 and 7/4) dry; moderate, medium and coarse, subangular blocky structure; hard, friable, sticky, plastic; many roots; slightly acid; clear, wavy boundary. 6 to 10 inches thick.
- B22g--17 to 42 inches, dark grayish-brown (2.5Y 4/1) silt loam and fine sand, white (2.5Y 8/2) dry; fine sand is light gray (10YR 6/1) dry; mottles are many, large, prominent, brown (7.5YR 4/4) and strong brown (7.5YR 5/6) and medium, prominent, very pale brown (10YR 7/4) and reddish yellow (7.5YR 6/6) dry; silt loam is massive, hard, friable, sticky, plastic; fine sand is single grain; loose, nonsticky, nonplastic; common roots; neutral; abrupt, smooth boundary. 23 to 26 inches thick.

B23--42 to 54 inches, dark grayish-brown (2.5Y 4/2) silty clay loam, light gray (5Y 7/2) dry; mottles are many, large, prominent, strong-brown (7.5YR 5/6) and medium, prominent, yellow (10YR 7/6) and brownish yellow (10YR 6/6) dry; a discontinuous strong-brown (7.5YR 5/6) and dark-brown (7.5YR 3/4) ortstein layer 1/4 inch thick; massive; hard, friable, sticky, plastic; few roots, neutral; abrupt, wavy boundary. 9 to 15 inches thick.

B24g--54 to 64 inches, gray (5Y 5/1) heavy silt loam, gray (5Y 6/1) dry; few, medium, prominent, dark brown (7.5YR 4/4) mottles; massive; hard, friable, sticky, plastic; few roots; very strongly acid.

The B horizon is mottled dark gray and dark grayish brown to olive gray. It is dominantly silt loam but contains layers of silty clay loam, fine sand, loamy fine sand, and very fine sandy loam. The sandy lenses commonly occur below a depth of 20 inches.

Some areas mapped are up to 10 percent inclusions of poorly drained Puget and Woodinville soils; and some are up to 10 percent the well-drained Newberg and Puyallup soils.

Permeability is moderate to moderately slow in the subsoil. The seasonal high water table is at a depth of 1 to 2 feet. In drained areas, the effective rooting depth is 60 inches or more. In undrained areas, rooting depth is restricted. Available water capacity is high. Runoff is slow, and the erosion hazard is slight. The flood hazard is moderate.

This soil is used for row crops and seeded grass pasture and for urban development. Capability unit IIw-2; woodland group 3w1.

APPENDIX B
GROUNDWATER WELL DATA

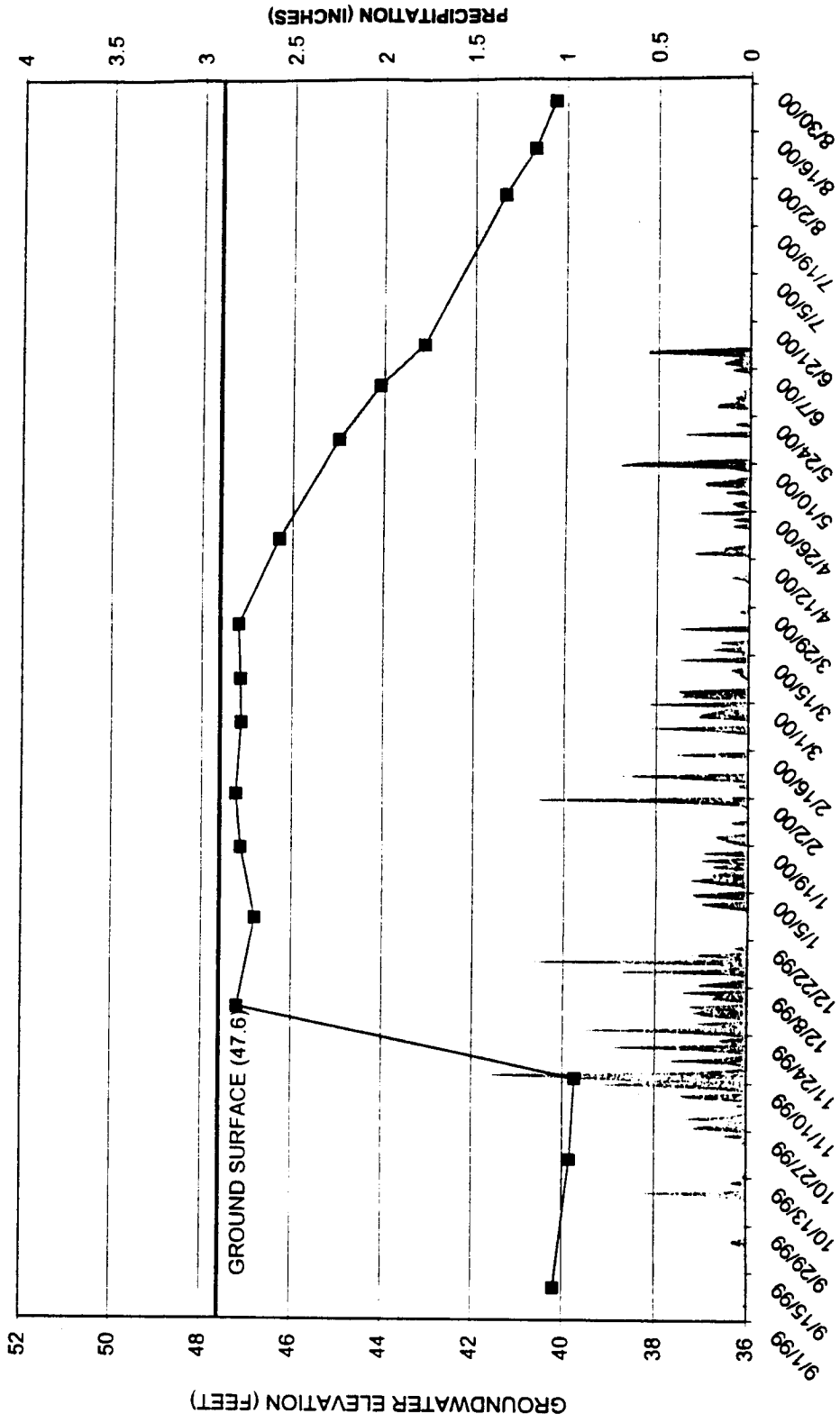
AR 047511

Table B-1. Summary of groundwater monitoring data in relation to wetlands.

Well Number ^a	Wetland Data Plot	Location in Wetlands	Dates Groundwater is Within 12 inches of Surface
P-1	DP-12	No	Dec 2 -4.8", Dec 28 -9.6", Jan 18 -6", Feb 3 -4.8", Feb 24 -6", Mar 8 -6", Mar 24 -4.8"
P-2	DP-13	Yes	Dec 2 - April 18
P-3		Yes	Dec 2 - April 18
P-4		No	Jan 18 -10.8", Feb 3 -3.6", Feb 24 -12", Mar 8 -8.4", Mar 24 -8.4"
P-5		No	NONE
P-6		Yes	Dec 2 - March 24
P-7		Yes	Dec 2 - April 18
P-8		Yes	Dec 2 - March 24
P-10		Yes	Feb 3 -10.8", Mar 8 -12", Mar 24 -12"
P-12	DP-14	Yes	Dec 2 - March 24
P-13	DP-15	No	Dec 28 -8.4", Jan 18 -1.2", Feb 3 +2.4", Feb 24 -2.4", Mar 8 -0", Mar 24 -0"
P-14		No	NONE
P-15		No	NONE
P-16		No	NONE
P-17		No	NONE
P-18		No	NONE
P-19		No	NONE
P-20		Yes	Dec 2 - March 24
P-21		Yes	NONE
P-22		No	NONE
P-23		No	NONE

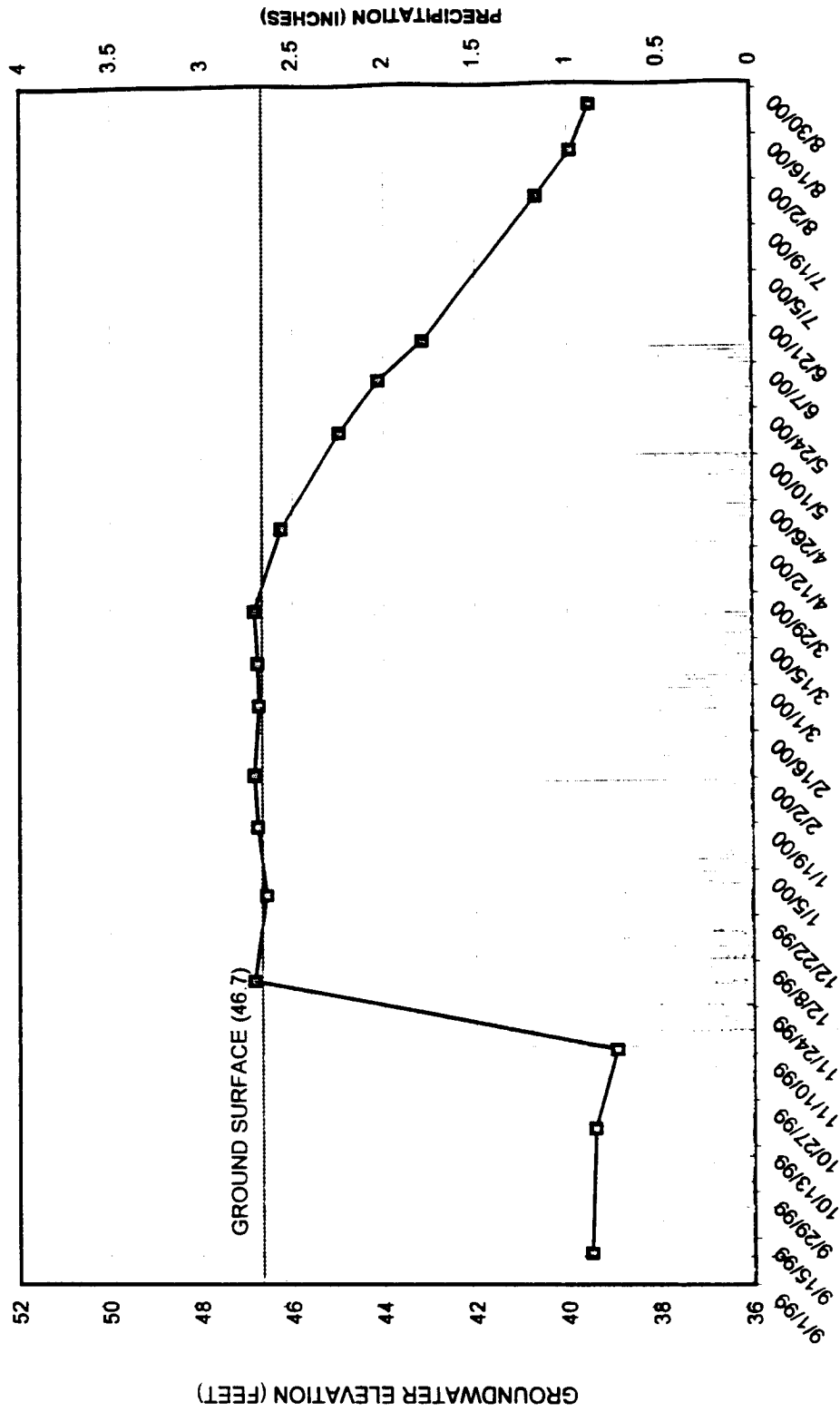
^a See Appendix C and Figure 6. Depths are given for wells located outside of wetlands.

**Well No. 1
1999 - 2000 Season**

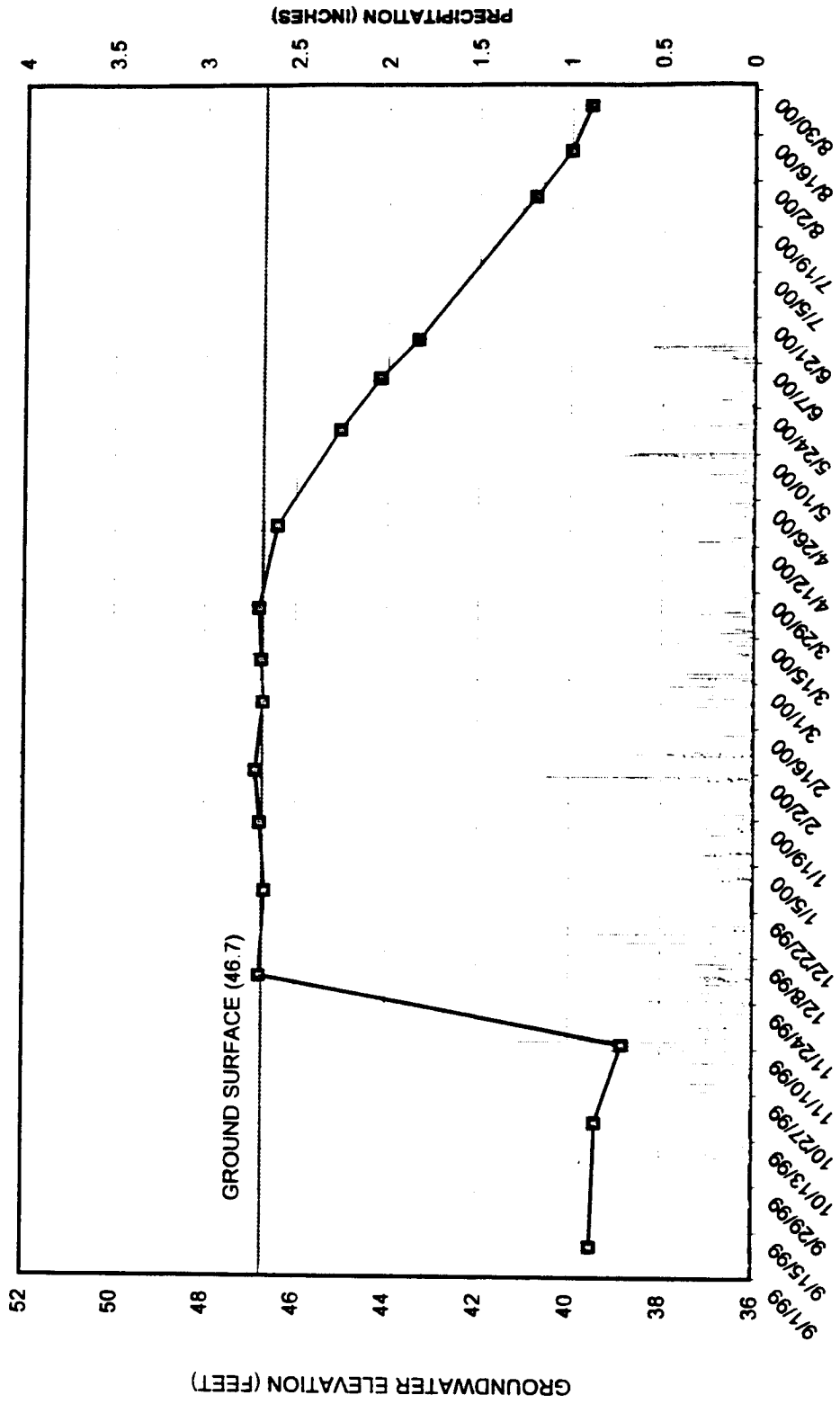


AR 047513

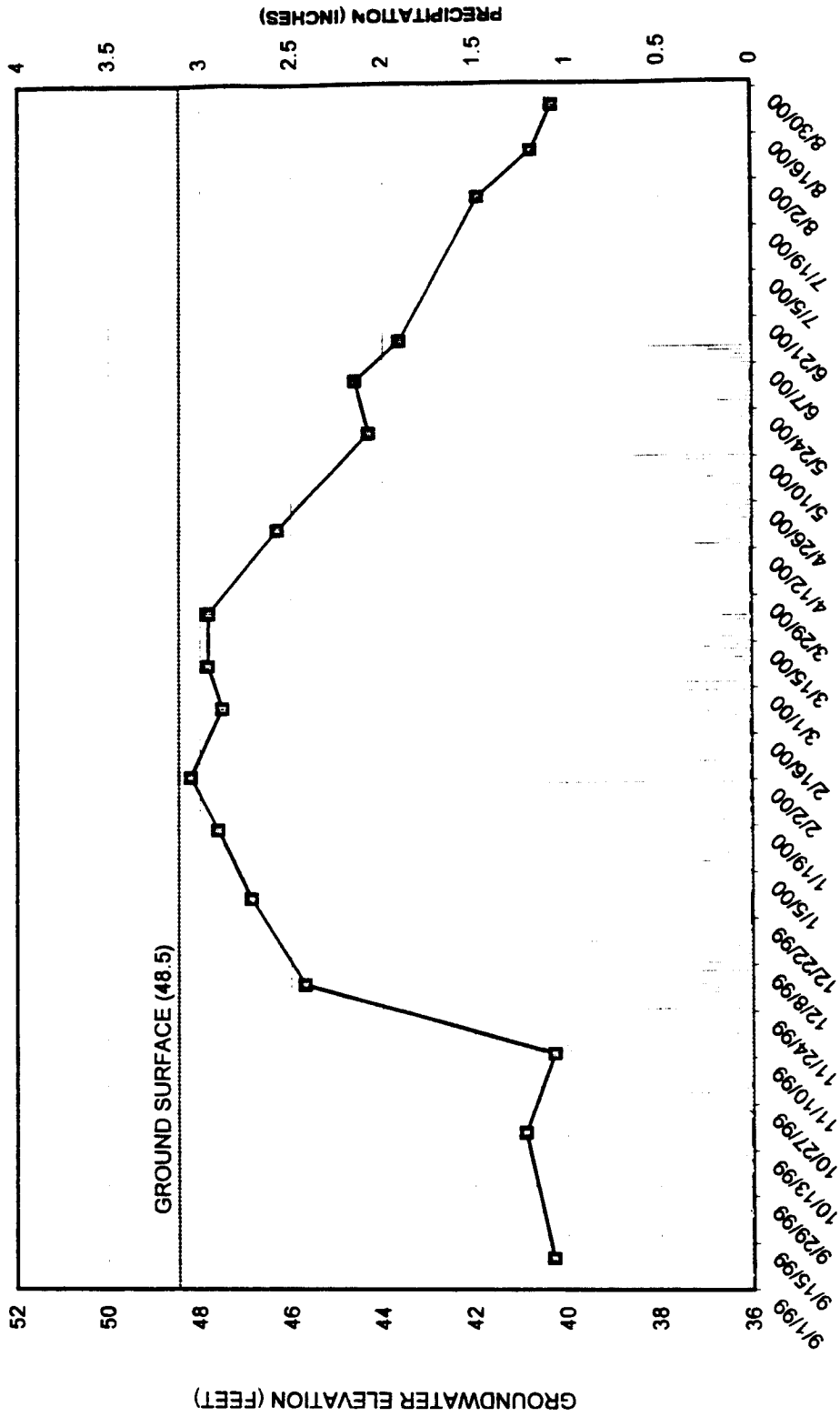
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1999 - 2000 Season**



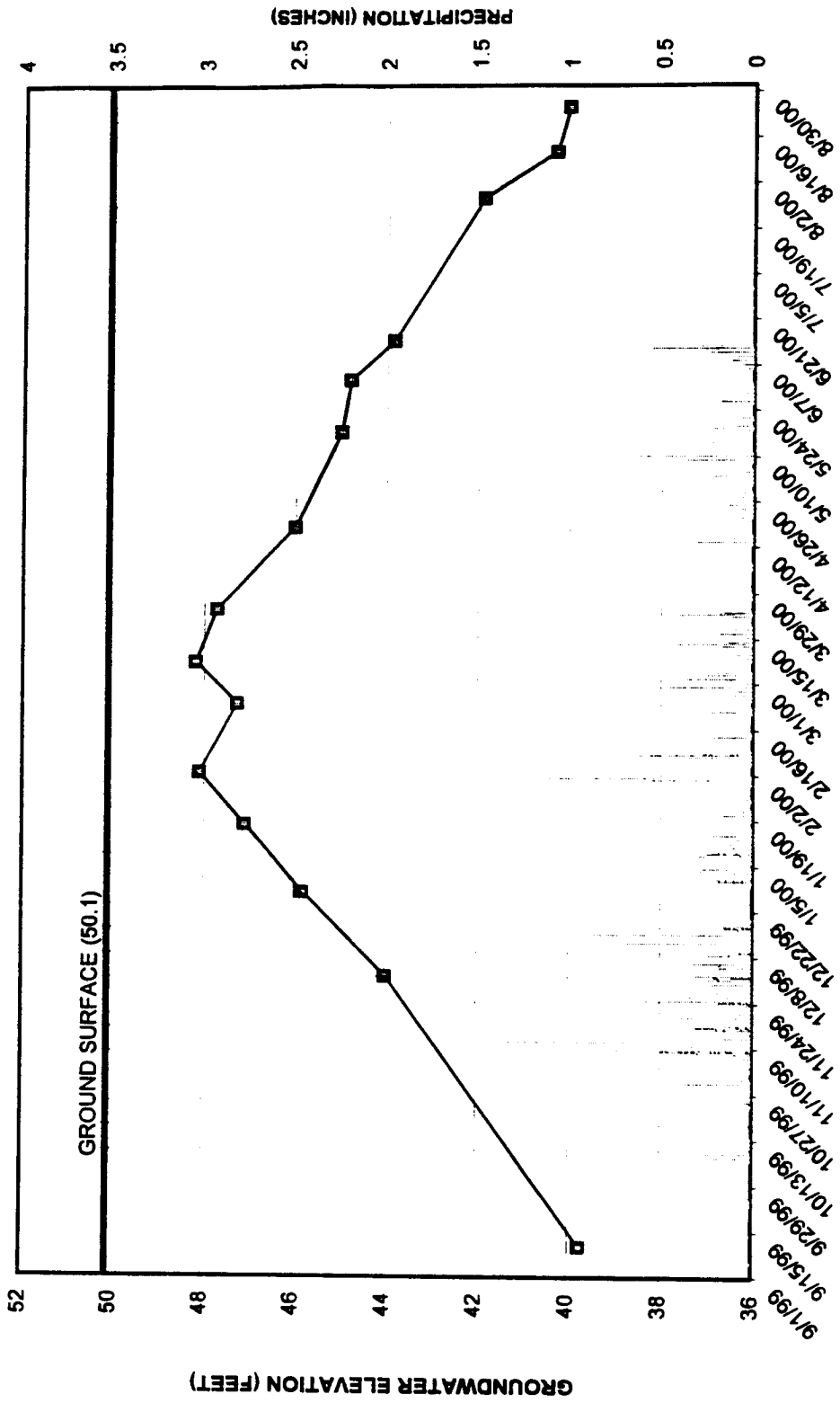
Well No. 3
1999 - 2000 Season



**Well No. 4
1999 - 2000 Season**

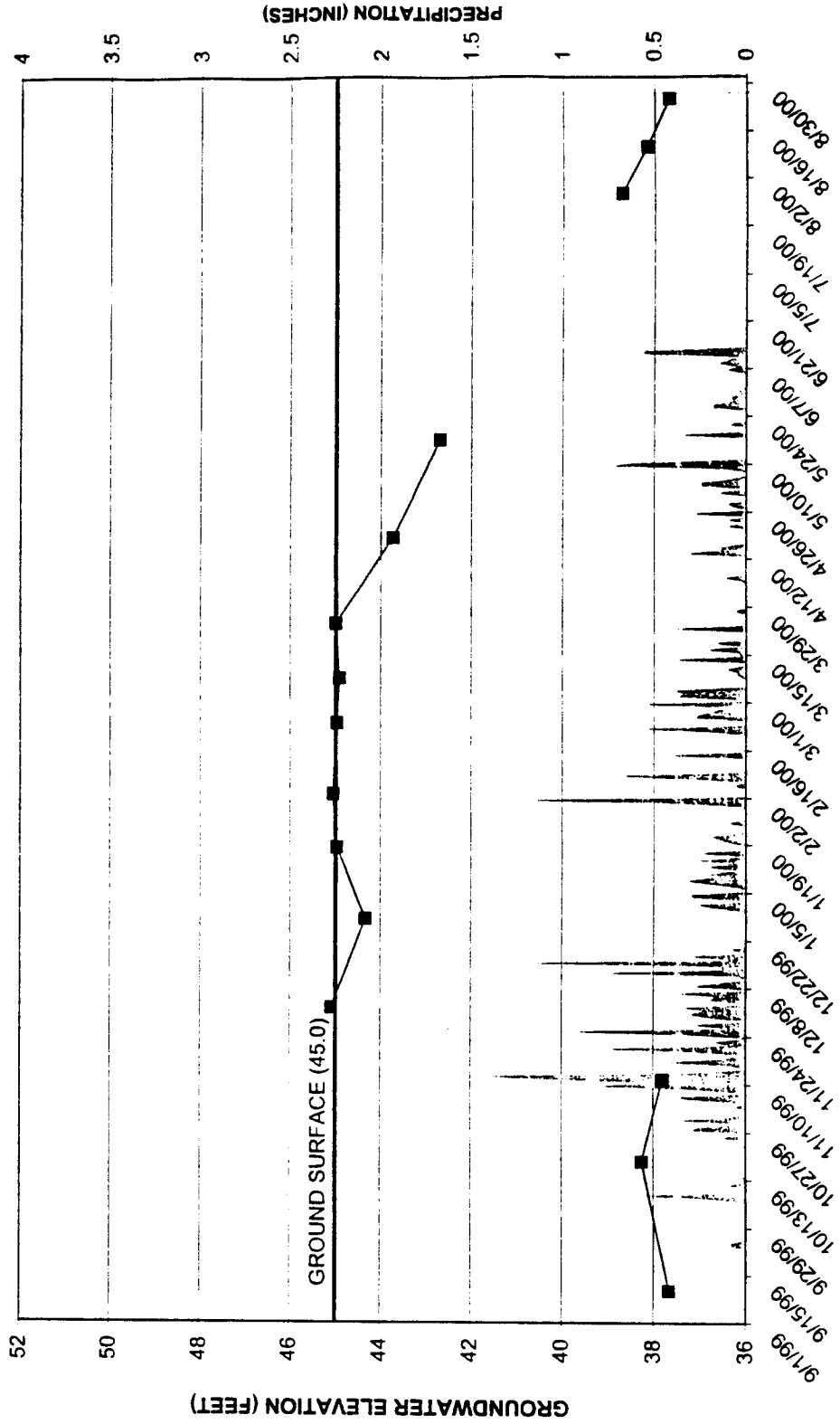


**Well No. 5
1999 - 2000 Season**

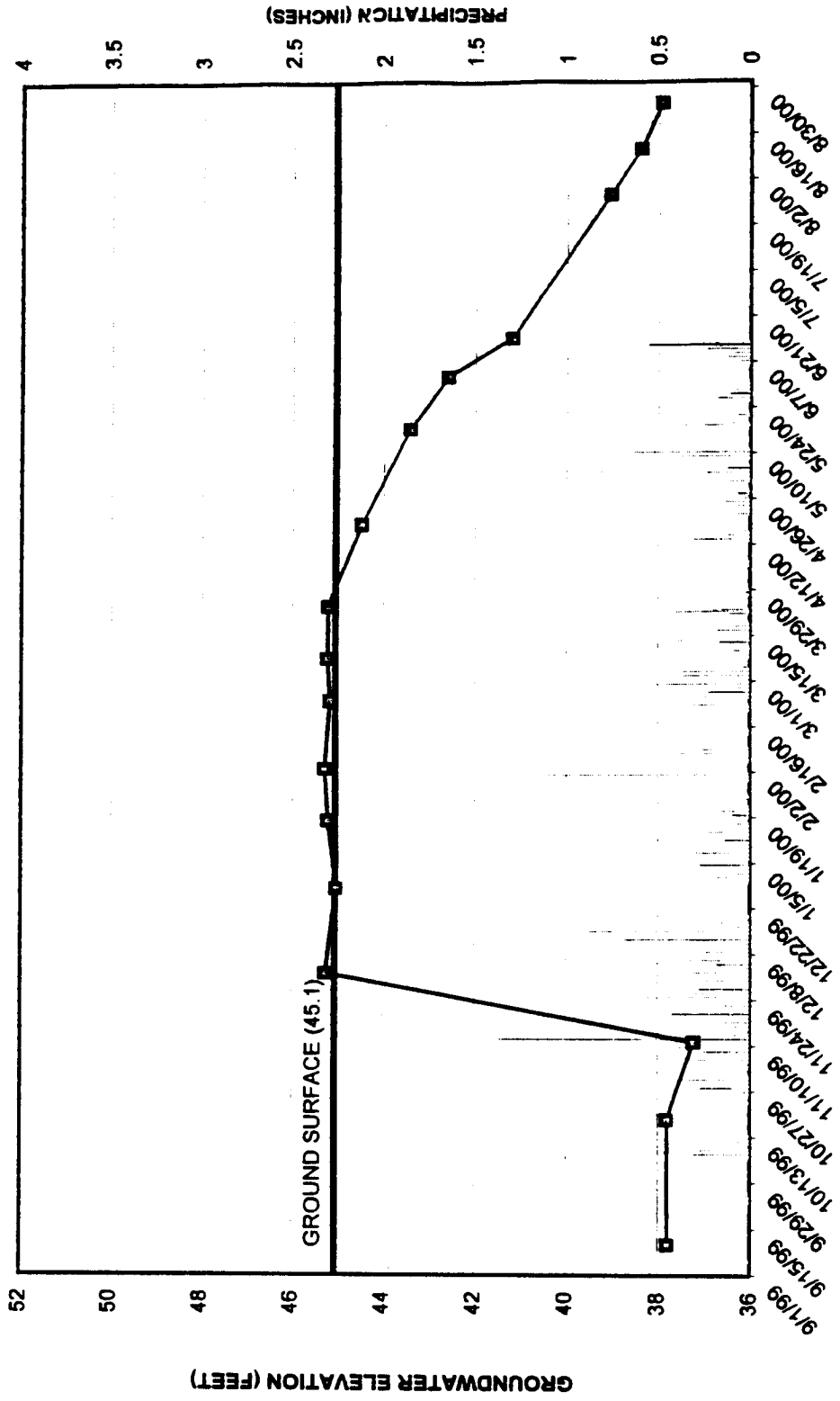


AR 047517

Well No. 6
1999 - 2000 Season

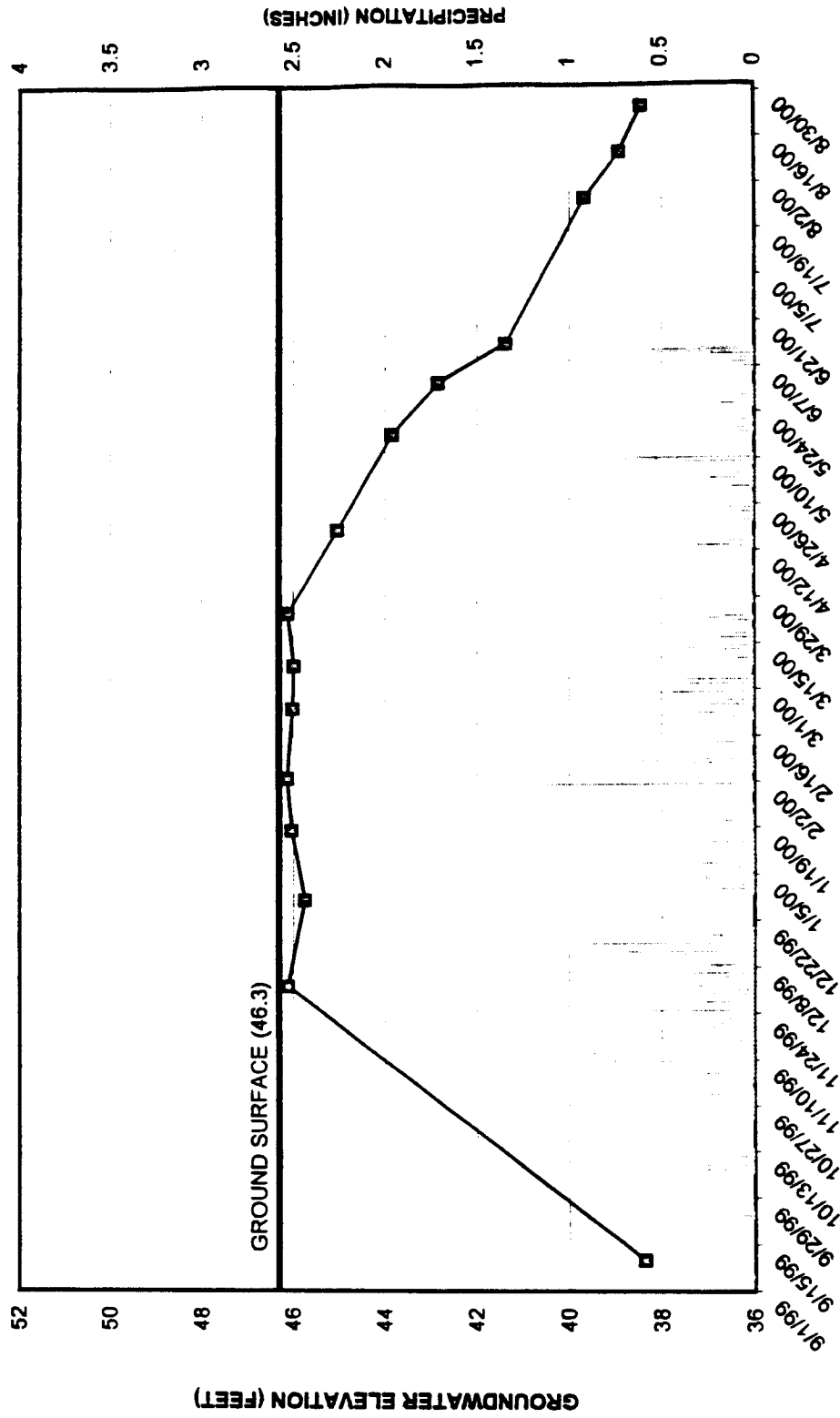


Well No. 7
1999 - 2000 Season

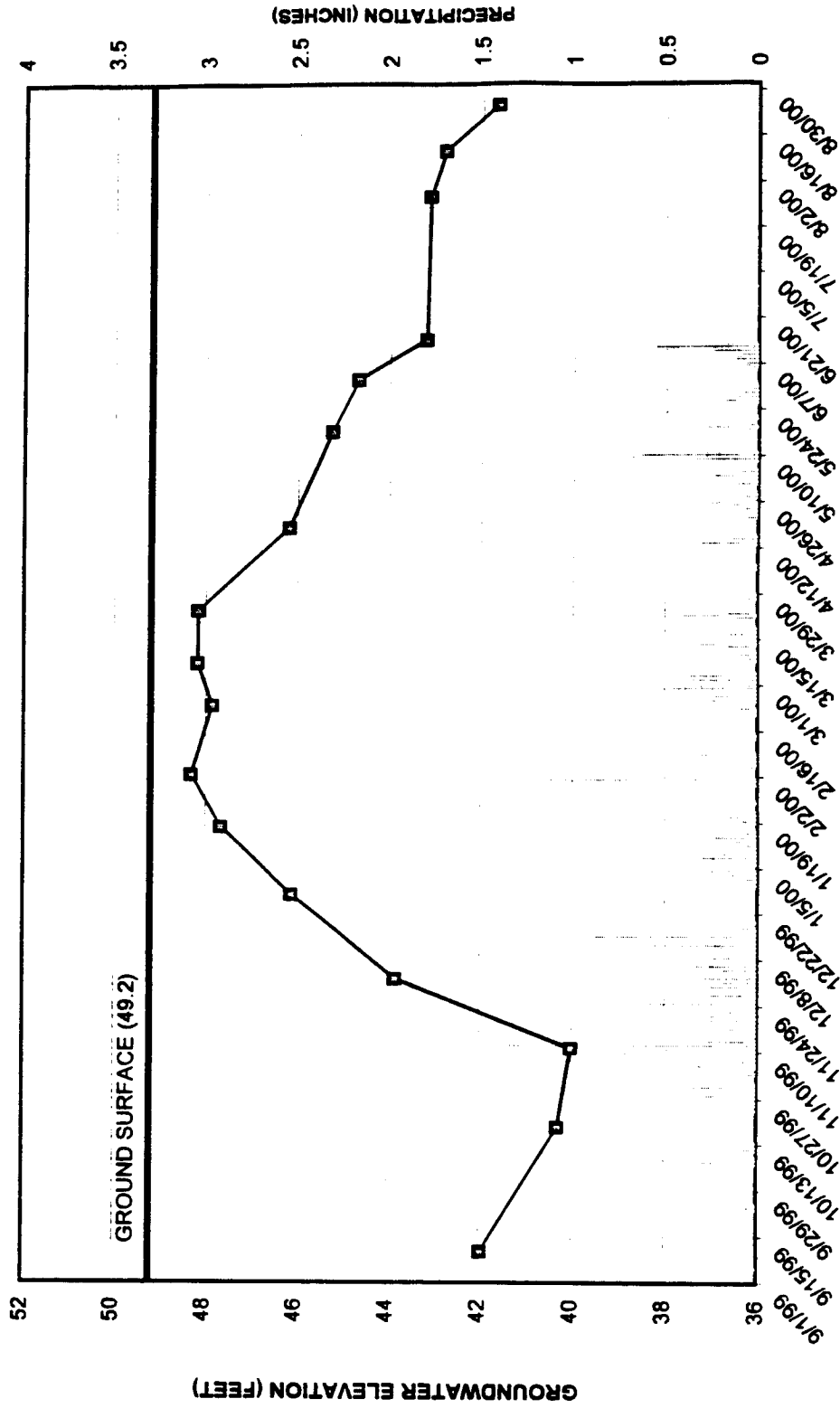


AR 047519

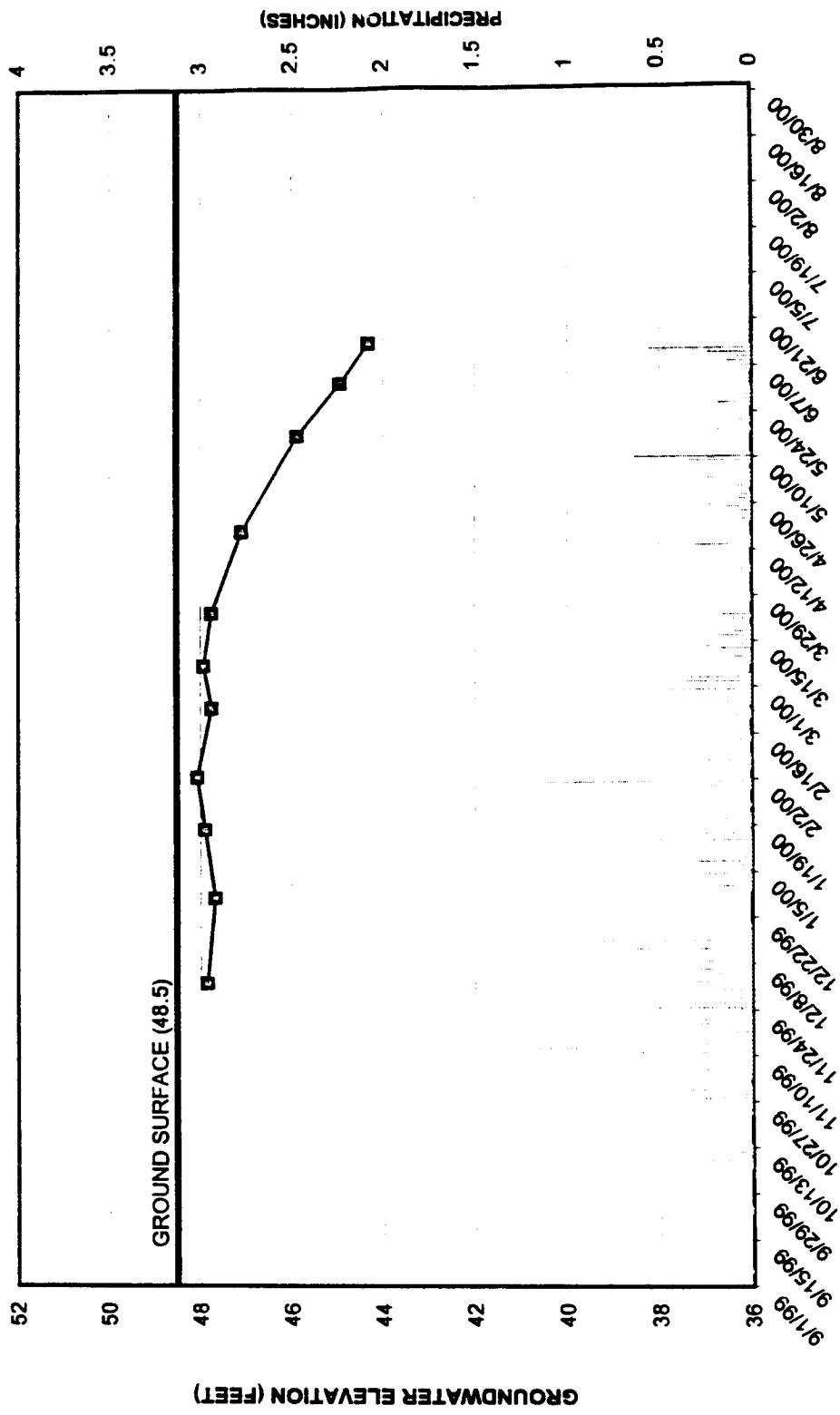
Well No. 8
1999 - 2000 Season



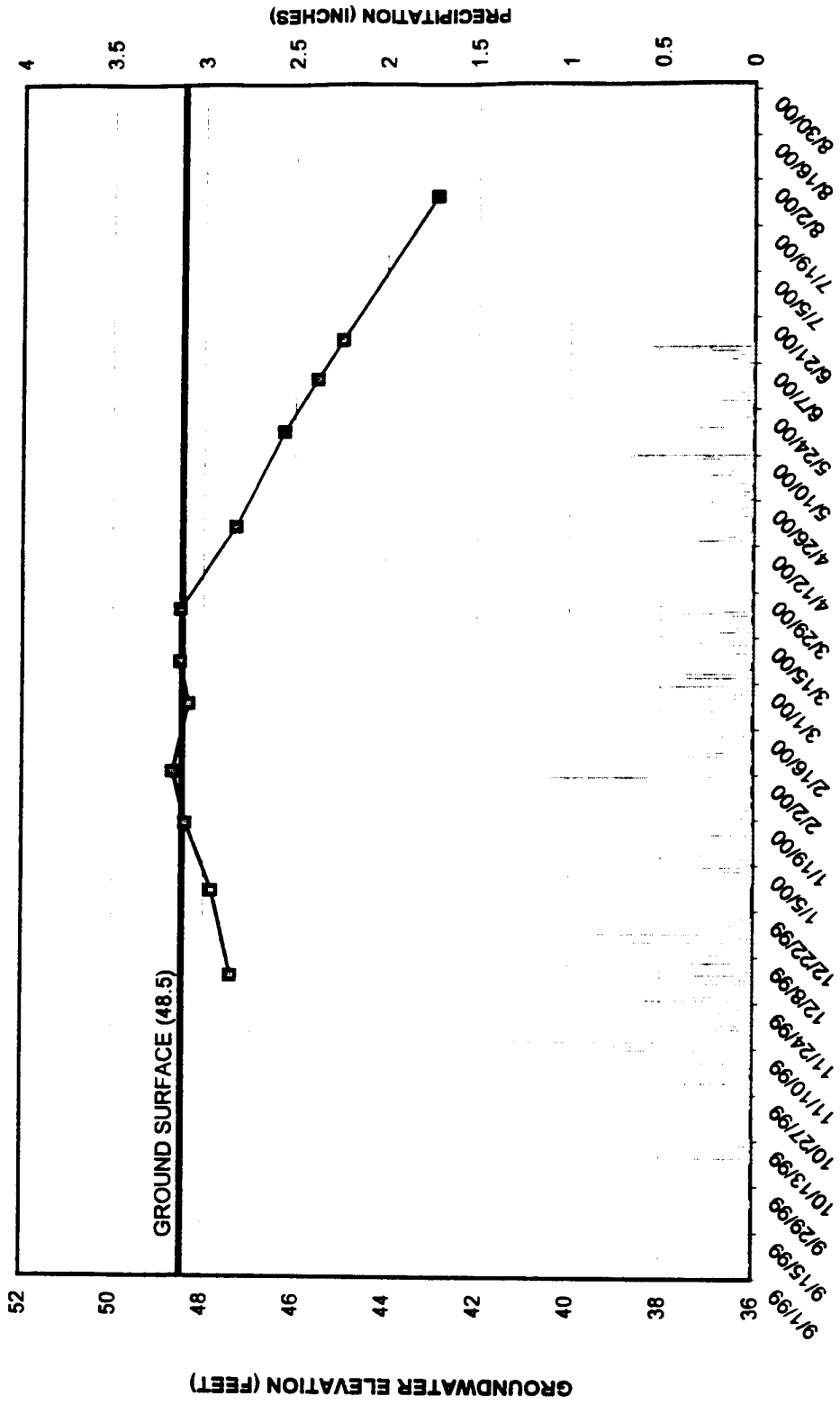
Well No. 10
1999 - 2000 Season



Well No. 12
1999 - 2000 Season

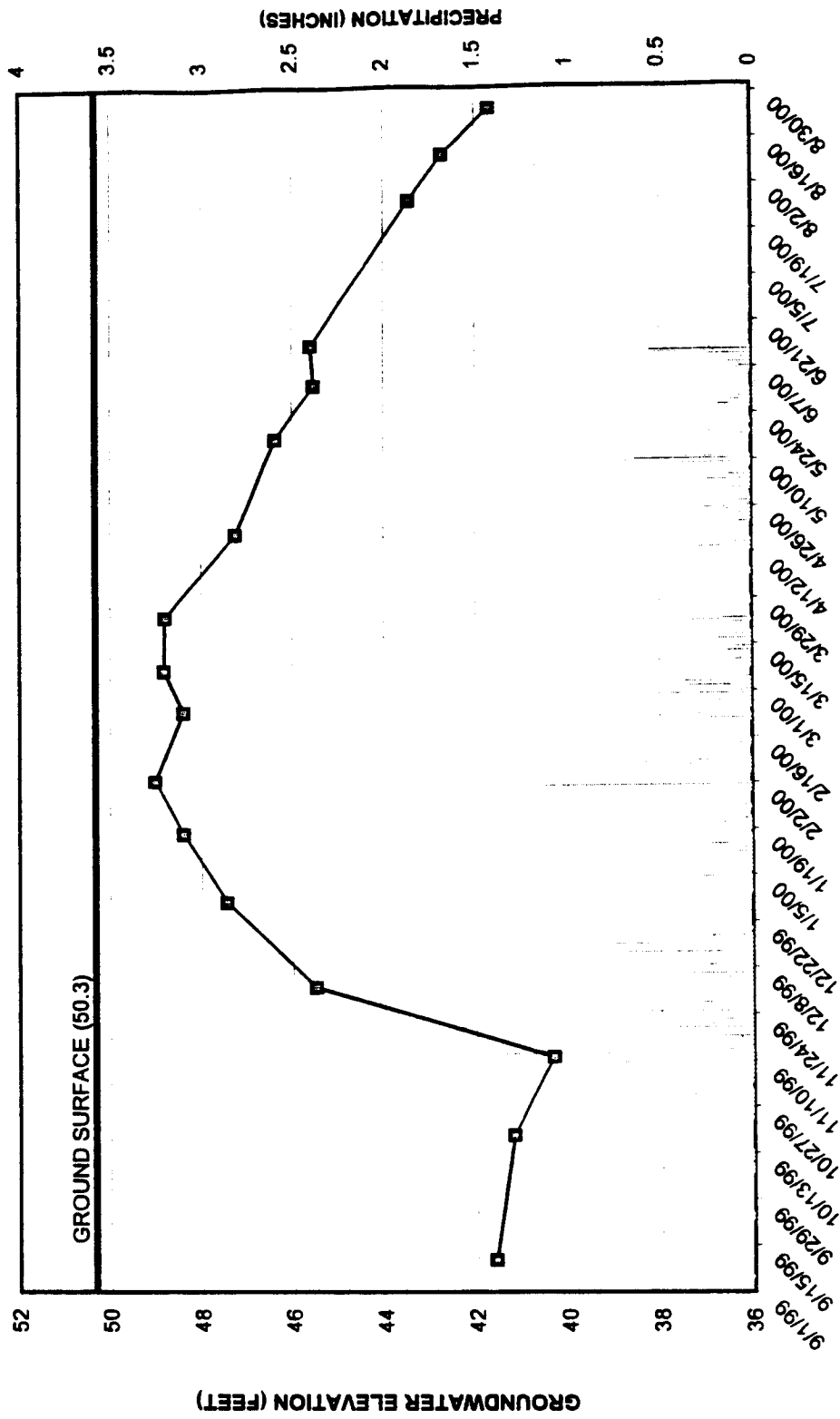


**Well No. 13
1999 - 2000 Season**

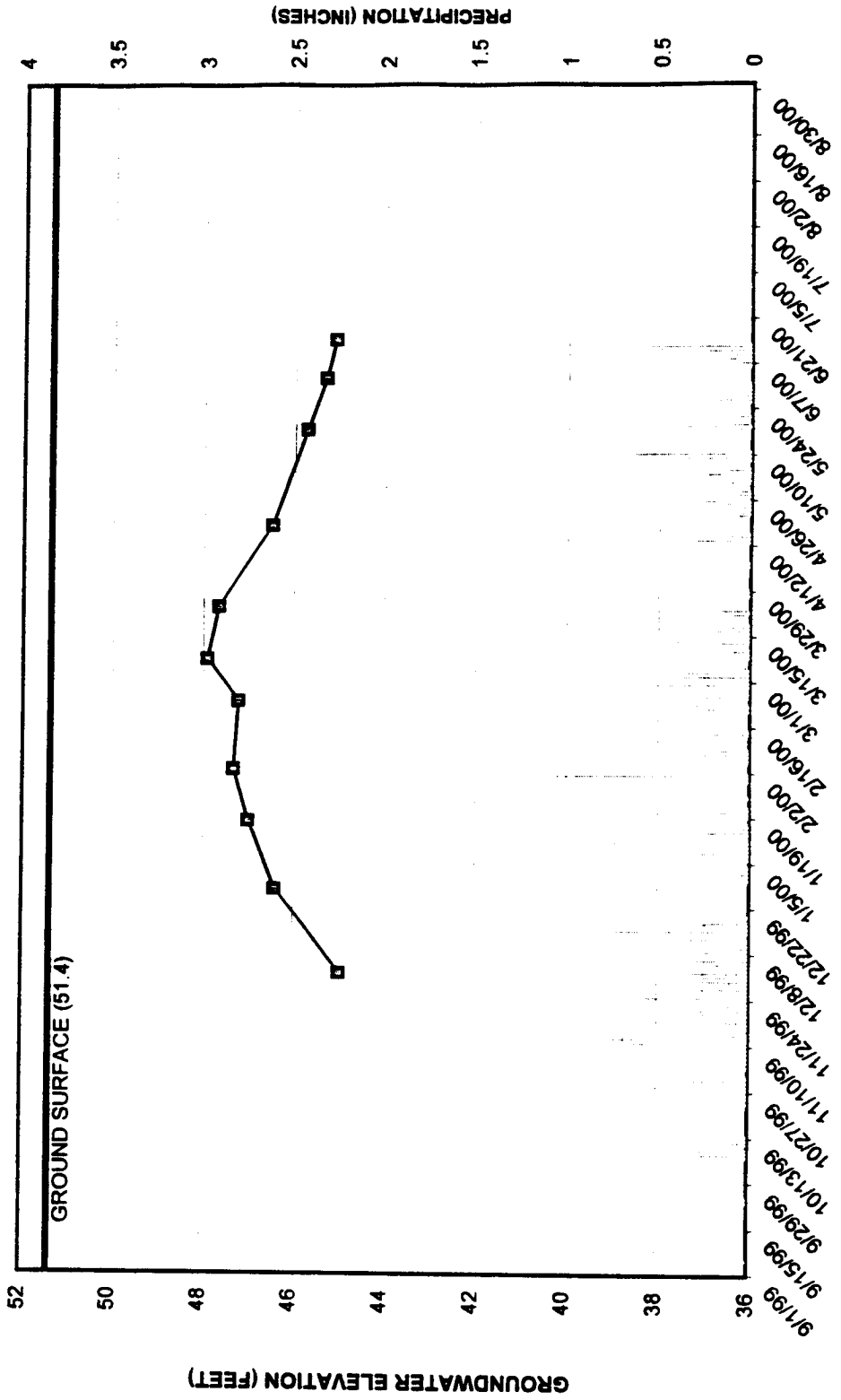


AR 047523

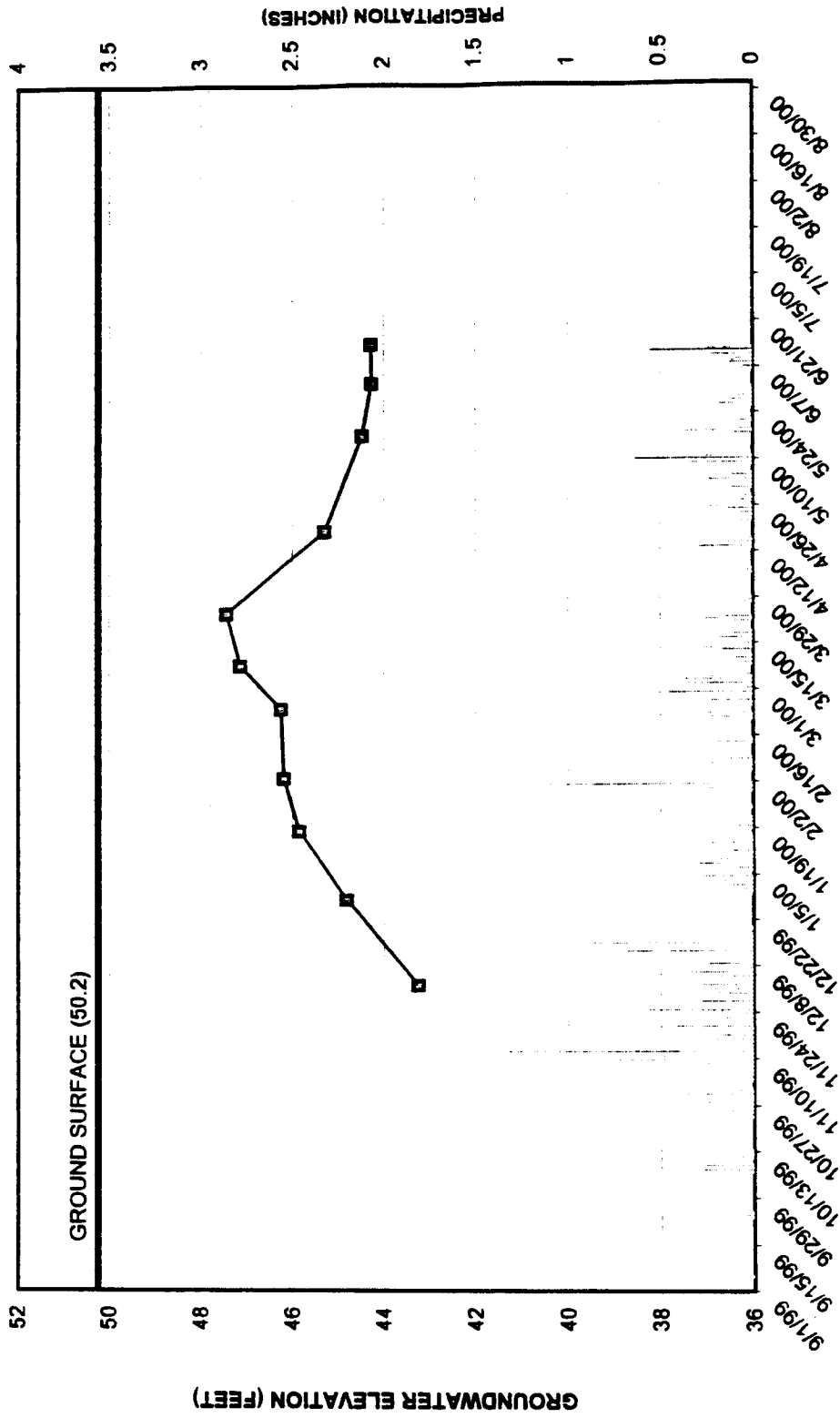
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1999 - 2000 Season



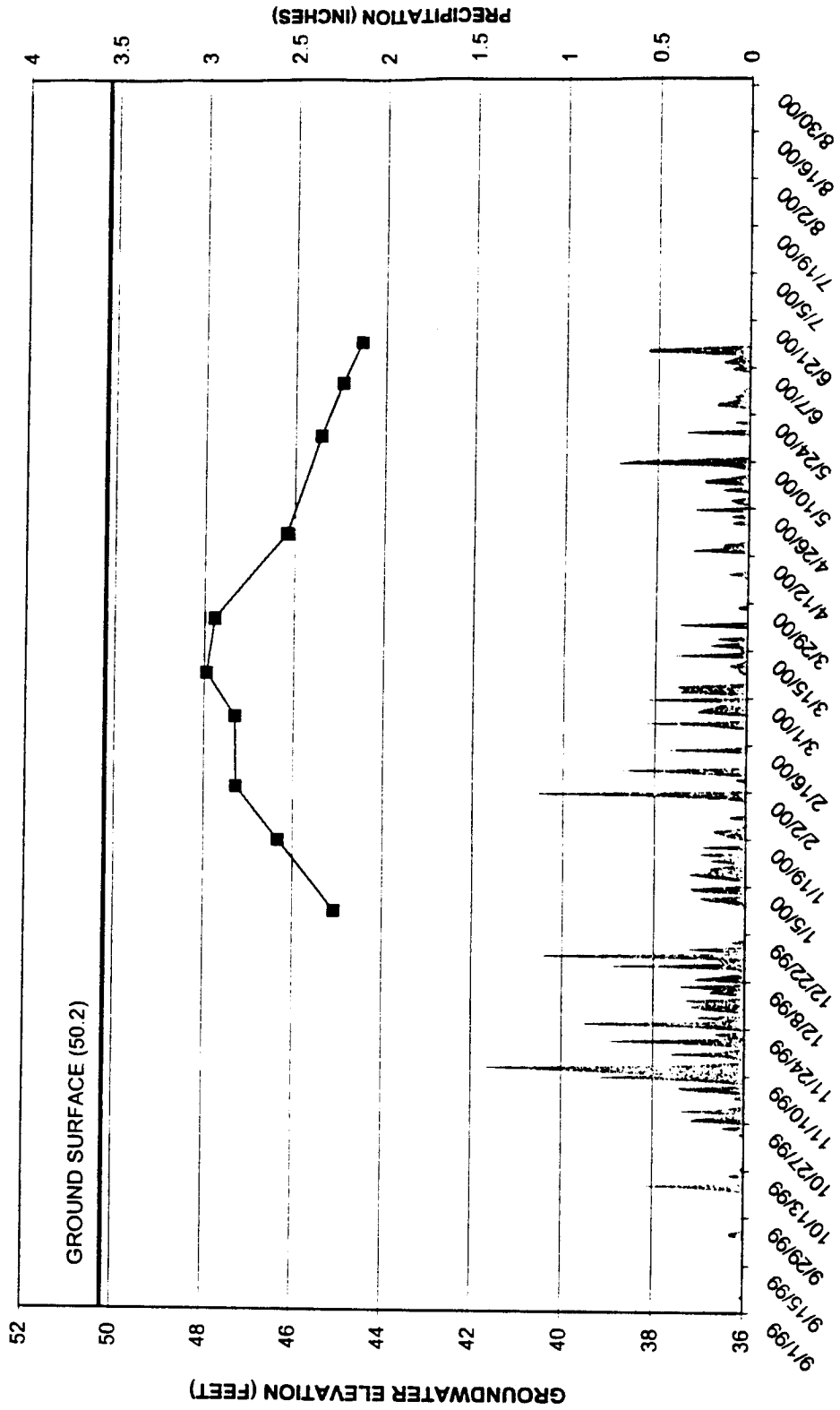
**Well No. 15
1999 - 2000 Season**



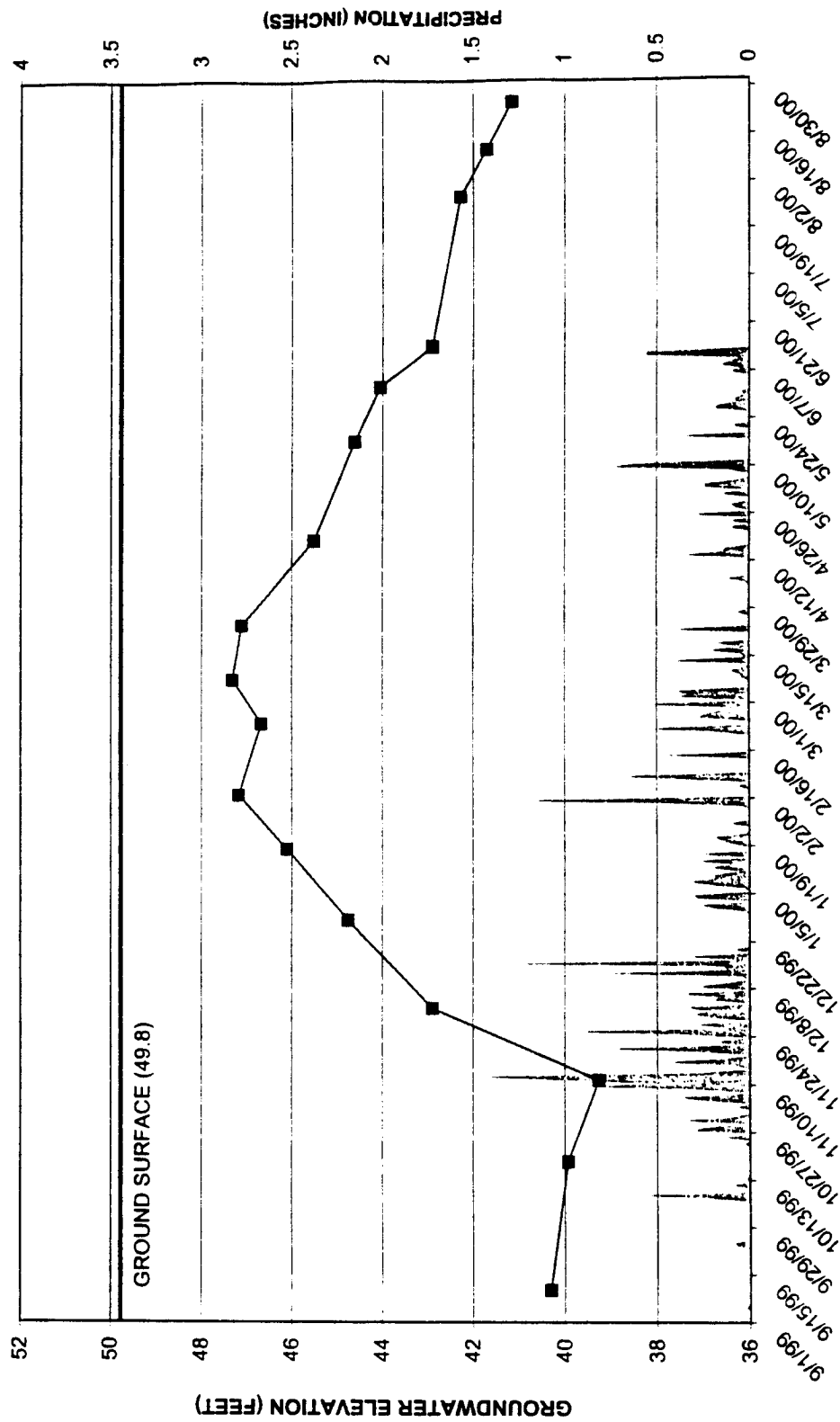
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1999 - 2000 Season



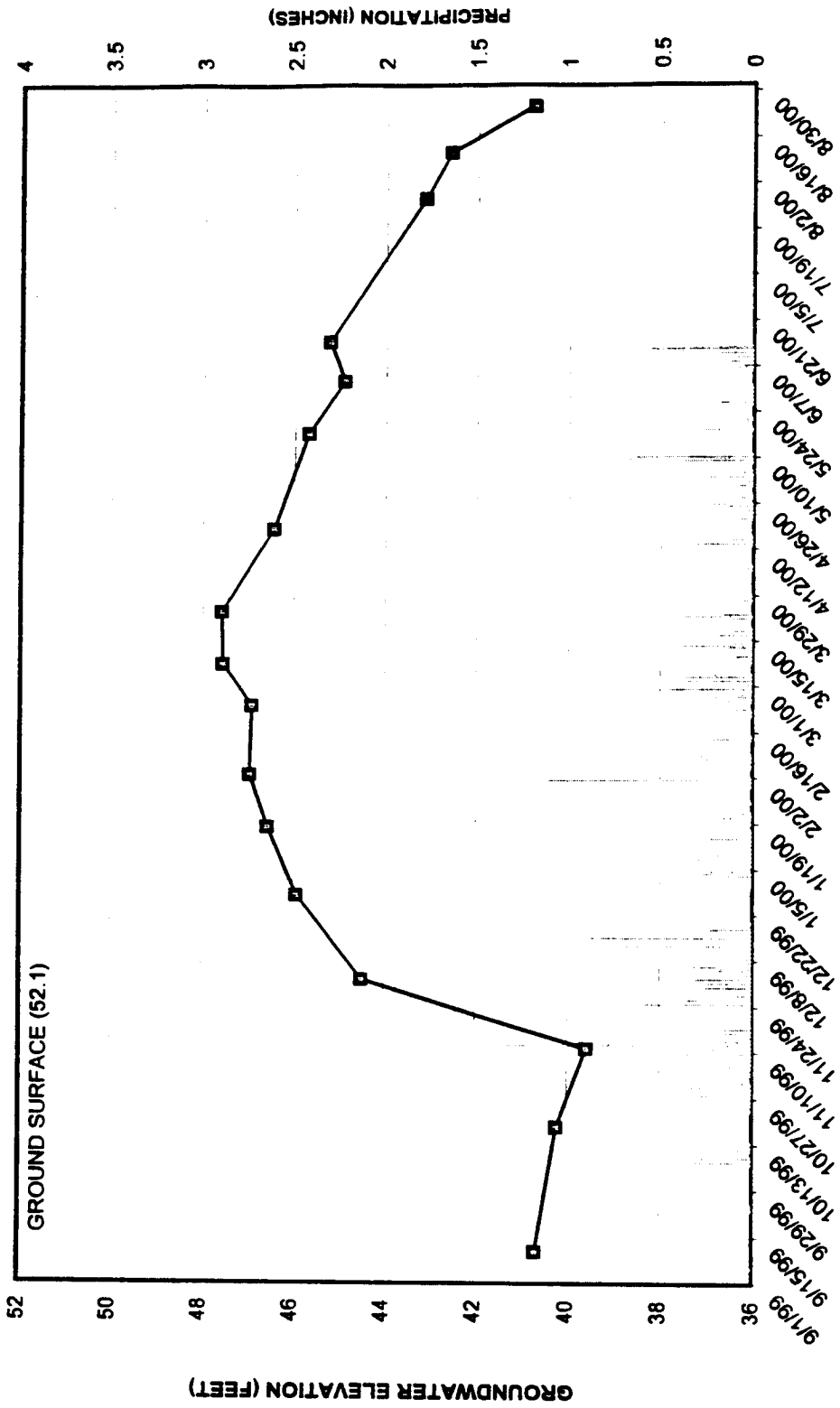
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1999 - 2000 Season



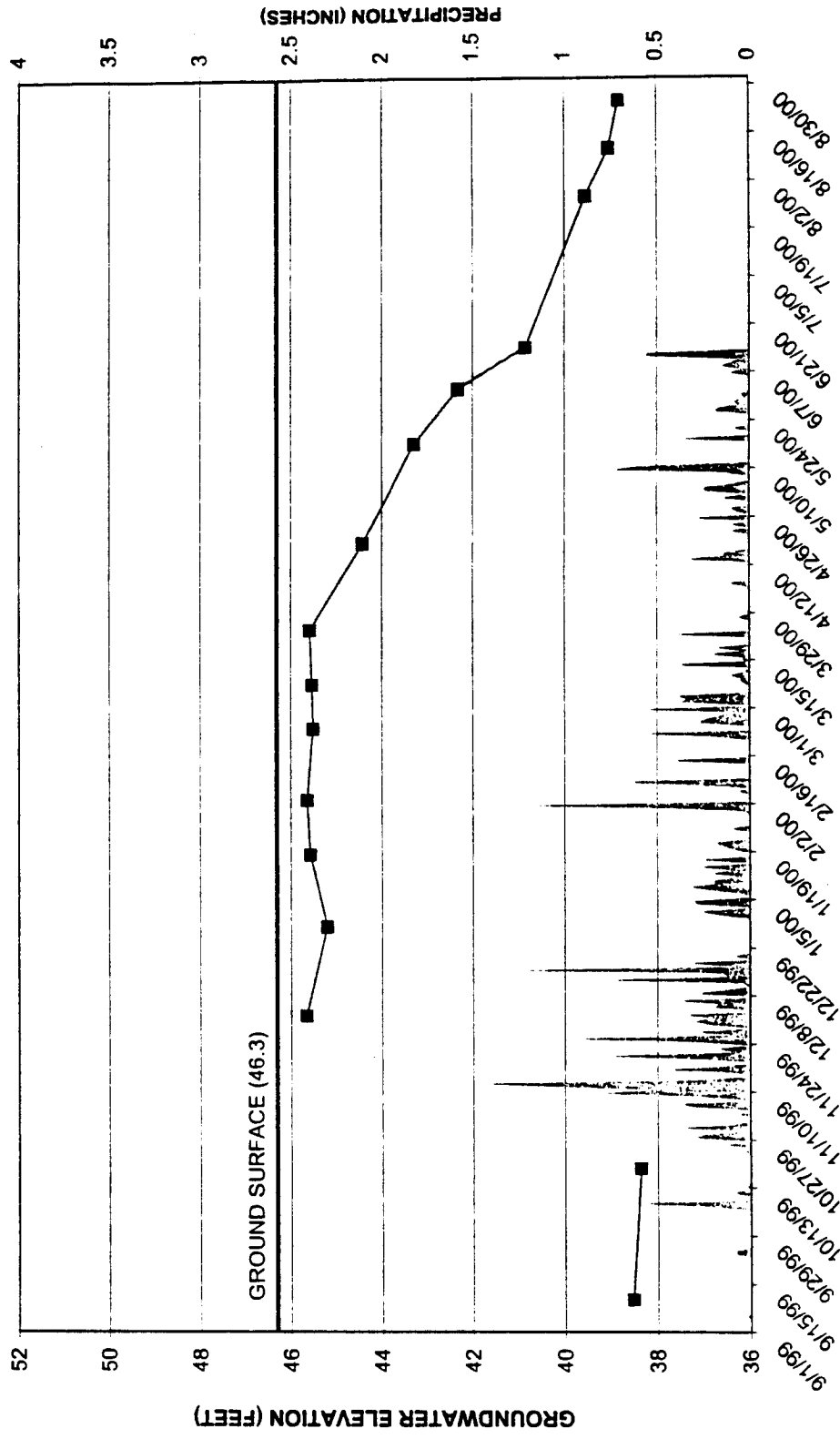
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1999 - 2000 Season



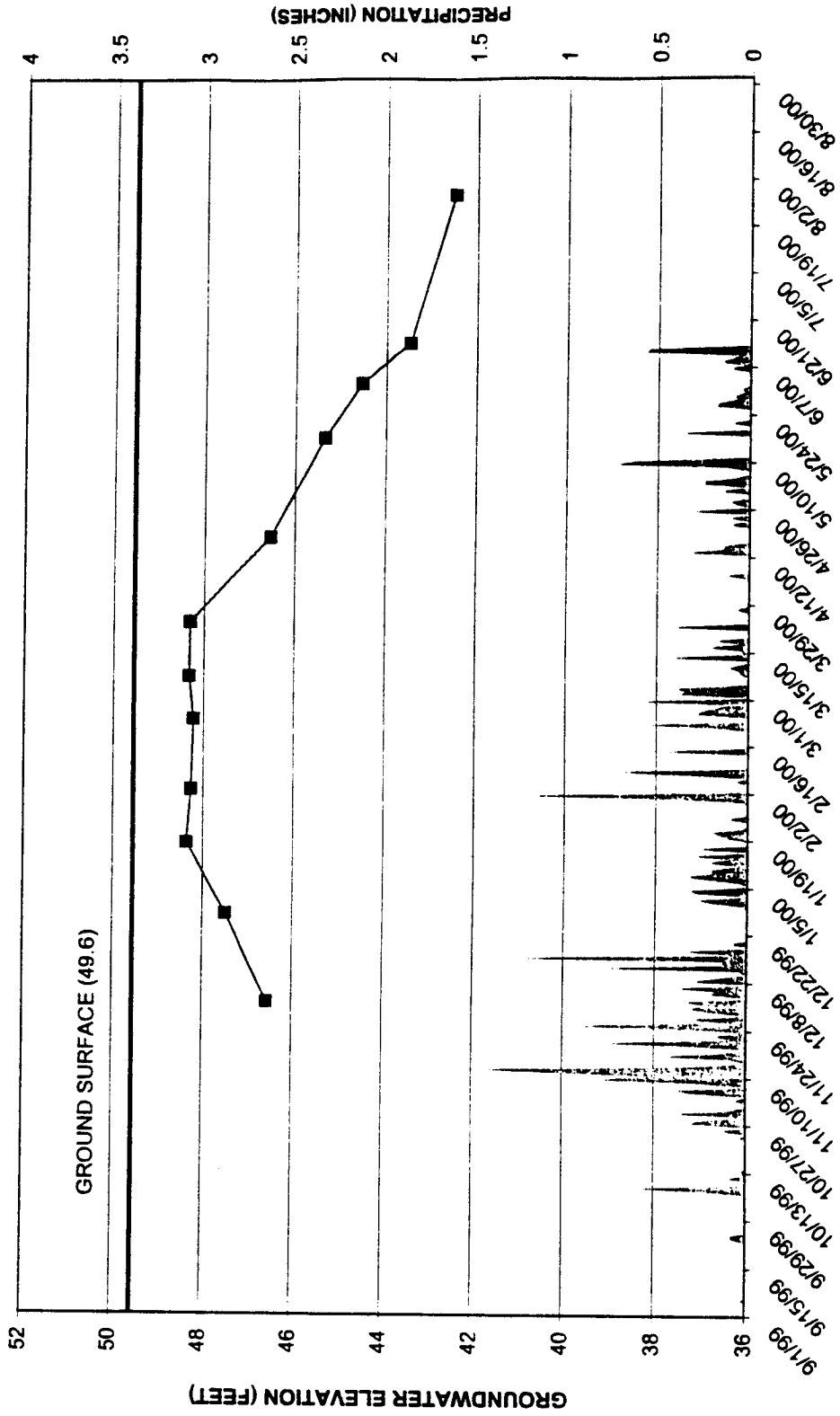
Well No. 19
1999 - 2000 Season



Well No. 20
1999 - 2000 Season

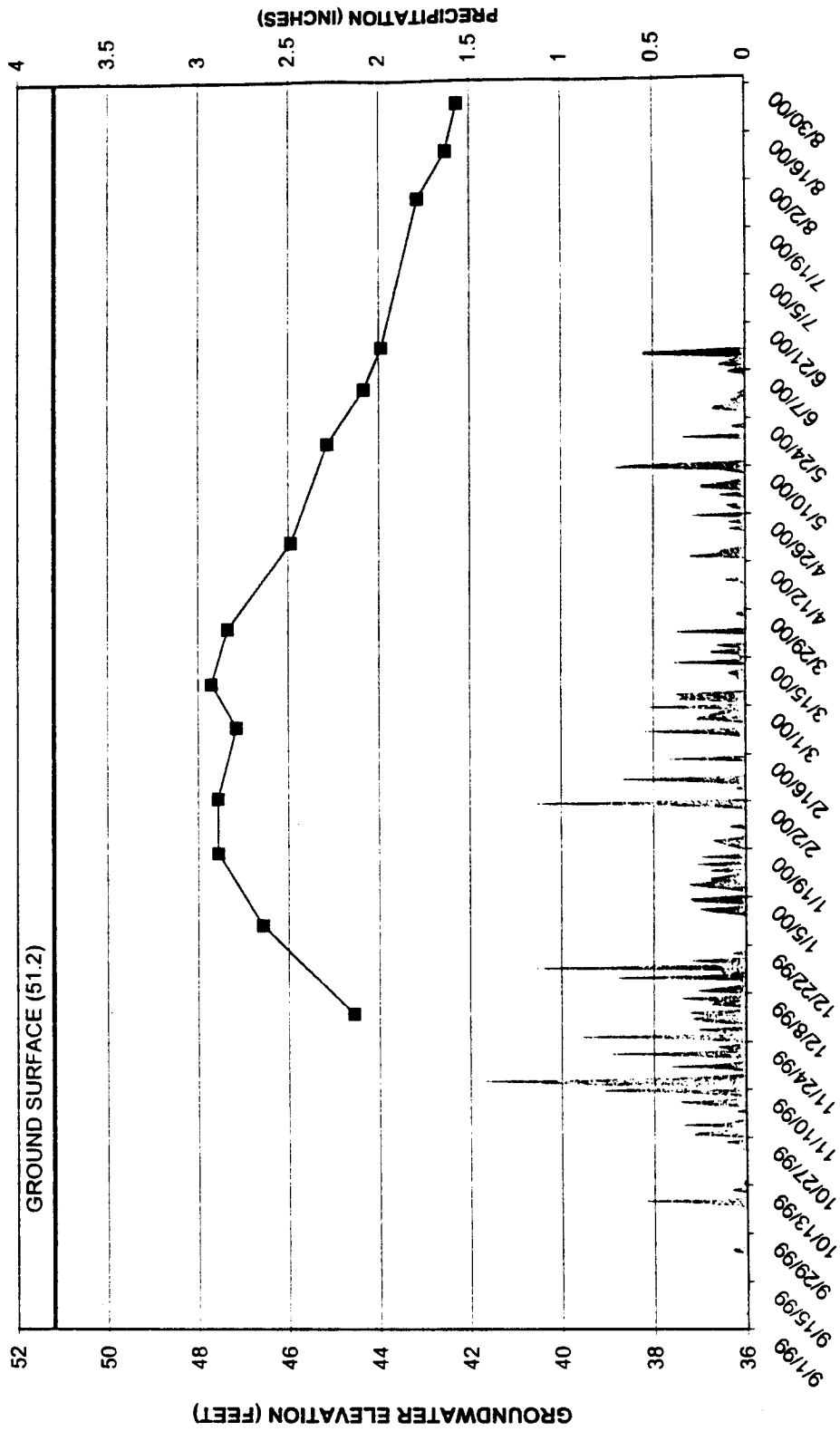


Well No. 21
1999 - 2000 Season

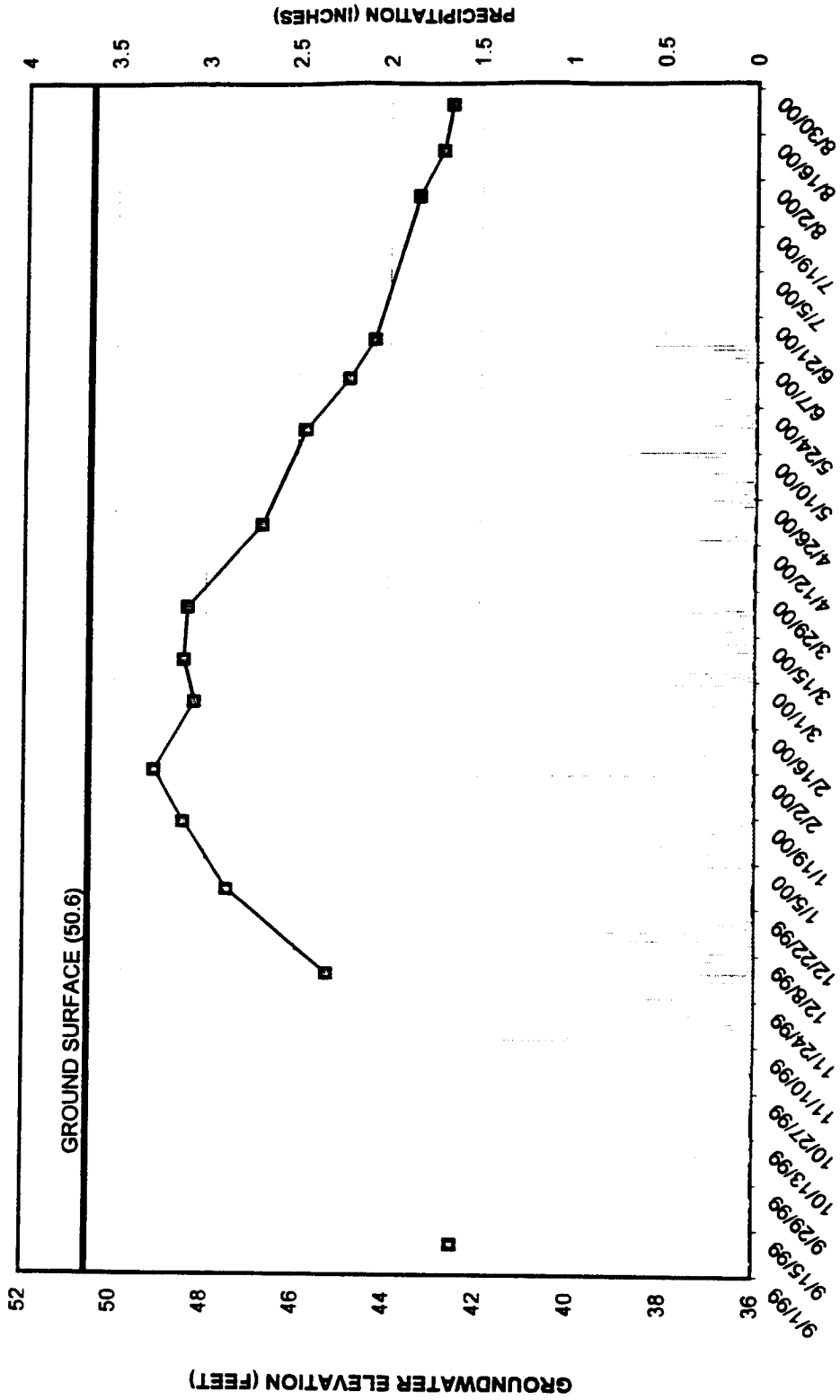


AR 047531

Well No. 22
1999 - 2000 Season

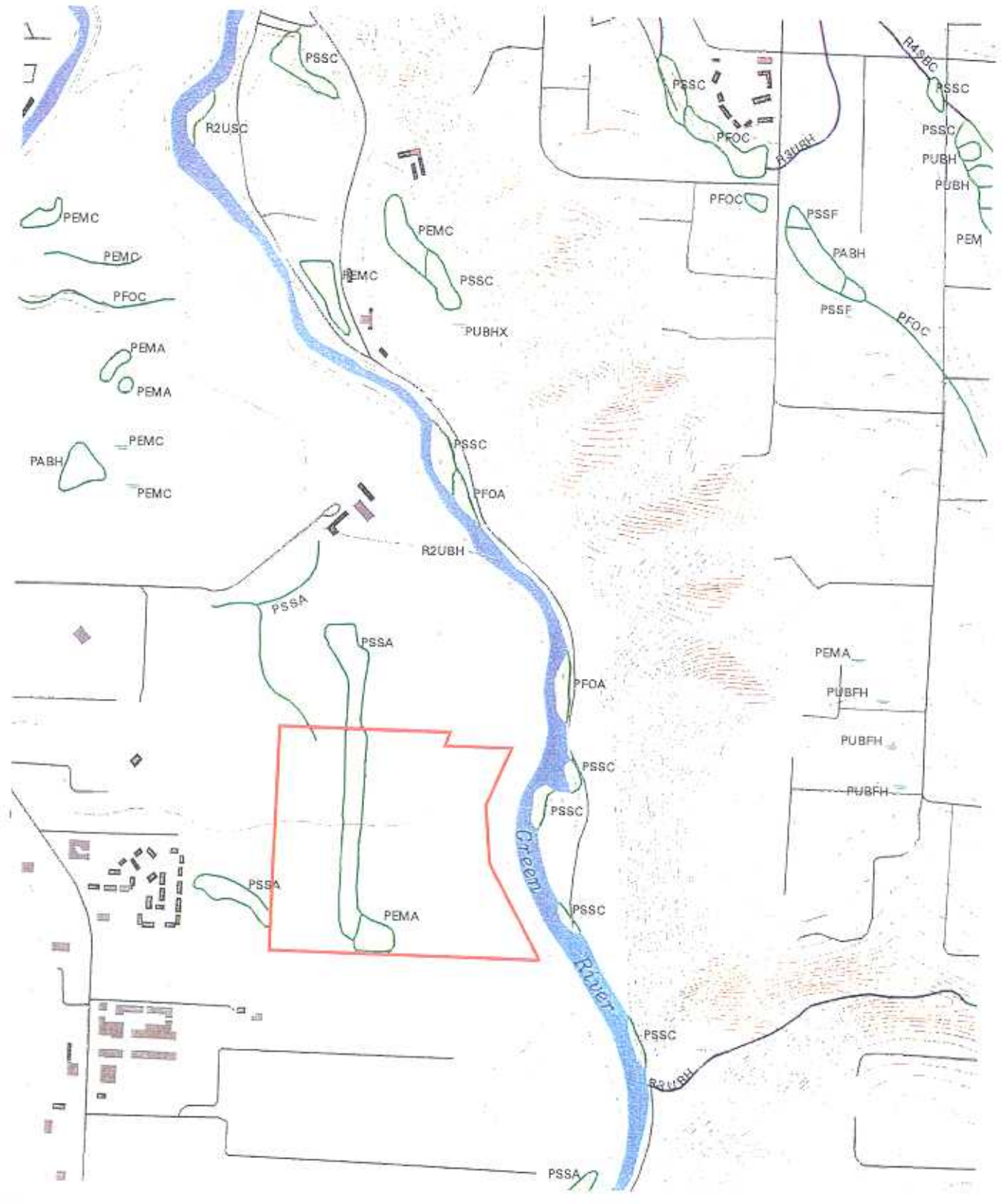


Well No. 23
1999 - 2000 Season



APPENDIX C
MILL CREEK AND NATIONAL WETLAND INVENTORY MAP

AR 047534



Prepared by Parametrix, Inc. File: seatac10x11_nwi.kml creating p8x11_nwi.pdf Date: December 08, 2000



Scale 1:12000

— Property Boundary

PEMA Palustrine emergent temporarily flooded
 PSSA Palustrine scrub-shrub temporarily flooded

**Appendix C
 National Wetland
 Inventory Map (1987)
 Auburn Quadrangle**

Source: National Wetland Inventory <http://www.nwi.fws.gov/nwi.htm>

AR 047535

APPENDIX D
WETLAND DETERMINATION DATA SHEETS

AR 047536



Data Plot #: 1
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitgation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kevin Featherston and Jennifer Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-1
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X
 Remarks (Explain sample location, disturbances, problem areas):
Located in Wetland 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Alopecurus pratensis</u>	<u>60</u>	<u>Herb</u>	<u>FACW+</u>
✓ 2. <u>Festuca arundinacea</u>	<u>40</u>	<u>Herb</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
The wetland vegetation criteria is not met because only 50 percent of the dominant species are wetland.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
X Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is not expected due to the time of year when the delineation was completed. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria.

Parametrix, Inc.



Date Plot #: 1
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Onda Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes X No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-0.5	O	-	-	-	Roots and Shoots
0.5-9	Ap	10YR 3/3	-	-	Silt loam, oxidized rhizospheres
9->16	B	10YR 4/2	7.5YR 4/6	Many, Medium, Distinct	Silt loam, oxidized rhizospheres

Hydric Soil Indicators:

<u> </u> Histosol	<u>X</u> Listed on Local Hydric Soils List
<u> </u> Histic Epipedon	<u>X</u> Listed on State Hydric Soils List
<u> </u> Sulfidic Odor	<u> </u> Listed on National Hydric Soils List
<u>X</u> Probable Aquic Moisture Regime	<u> </u> Aquic Moisture Regime
<u> </u> Reducing Conditions	<u> </u> Organic Streaking in Sandy Soils
<u>X</u> Gleyed or Low-Chroma Colors	<u>X</u> Mottles
<u> </u> High Organic Content in Surface Layer	<u> </u> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No <u> </u>	Yes <u>X</u> No <u> </u>
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of wetland hydrology indicators and hydric soils indicate the site is a wetland. The predominance (greater than 60 percent coverage) of the site by wetland plant species is consistent with this finding.

AR 047538

Parametrix, Inc.



Data Plot #: 2
 Wetland: Auburn

Project/Site: Auburn Mitgaton Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Ordia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-0.5	O	-	-	-	Roots and Shoots
0.5-11	Ap	10YR 3/2	7.5YR 4/6	Common, Fine, Distinct	Silt loam; oxidized rhizospheres
11->20	B	10YR 4/2	7.5YR 4/6	Common, Medium, Prominent	Silt loam; oxidized rhizospheres

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
All technical criteria are met.

AR 047539



Data Plot #: 2
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kevin Featherston and Jennifer Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-2
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Located in Wetland 1.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	<u>Juncus effusus</u>	<u><1</u>	<u>Herb</u>	<u>FACW</u>
✓ 2	<u>Poa pratensis</u>	<u>99</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
X Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is not expected due to the time of year when the delineation was completed. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria

Parametrix, Inc.



Data Plot #: 3
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Ordia Silt Loam Drainage Class: Somewhat poorly drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-0.5	C	-	-	-	Roots and Shoots
0.5-9	Ap	10YR 3/3	-	-	Silt loam
9-14	B	10YR 4/3	7.5YR 5/6	Common, Medium, Distinct	Silt loam
14-18	-	10YR 3/2	-	-	Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No field indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Hydric soils and wetland hydrology are not present, therefore the area is not a wetland.

AR 047541



Data Plot #: 3
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kevin Featherston and Jennifer Hawkins State: WA

1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-3
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Sample location is in NW corner in upland adjacent to wetland.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Cirsium arvense</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>
2. <u>Cirsium vulgare</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
✓ 3. <u>Holcus lanatus</u>	<u>40</u>	<u>Herb</u>	<u>FAC</u>
✓ 4. <u>Ranunculus repens</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 X Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No field indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: 4
 Wetland: Auburn

Project/Site: Auburn Mitgaton Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Ordia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-0.5	C	-	-	-	Roots and Shoots
0.5-12	Ap	10YR 3/3	-	-	Silt loam
12-17	B	10YR 4/2	7.5YR 4/4	Many, Medium, Distinct	Silt loam

Hydric Soil Indicators:

- Histosol Listed on Local Hydric Soils List
- Histic Epipedon Listed on State Hydric Soils List
- Sulfidic Odor Listed on National Hydric Soils List
- Probable Aquic Moisture Regime Aquic Moisture Regime
- Reducing Conditions Organic Streaking in Sandy Soils
- Gleyed or Low-Chroma Colors Mottles
- High Organic Content in Surface Layer Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
No field indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
None of the three parameters are present, therefore the area is not a wetland.

AR 047543

Parametrix, Inc.



Data Plot #: 4
Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
Applicant/Owner: Port of Seattle County: King
Investigator: Kevin Featherston and Jennifer Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-4
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Sample location is in a small area of upland in the north west quadrant of the site.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1	<u>Dactylis glomerata</u>	<u>50</u>	<u>Herb</u>	<u>FACU</u>
✓ 2	<u>Holcus lanatus</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
The wetland vegetation criteria is not met because only 50 percent of the dominant plants are wetland.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No field indicators of wetland hydrology are present.

AR 047544

Parametrix, Inc.



Data Plot #: 5
 Wetland: Auburn

Project/Site: Auburn Mitgation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Ordia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-1	O	-	-	-	Roots and Shoots
1-9	Ap	10YR 4/2	-	-	Silt loam, oxidized rhizospheres
9->17	B	10YR 3/2	7 5YR 4/6	Common, Medium, Distinct	Silt loam, oxidized rhizospheres

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All technical criteria are met.

AR 047545

Parametrix, Inc.



Data Plot #: 5
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitgation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kevin Featherston and Jennifer Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-5
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Located in Wetland 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Alopecurus pratensis</u>	<u>40</u>	<u>Herb</u>	<u>FACW+</u>
✓ 2. <u>Dactylis glomerata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 3. <u>Holcus lanatus</u>	<u>40</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
X Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is not expected due to the time of year when the delineation was completed. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria.

AR 047546

Parametrix, Inc.



Data Plot #: 6
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-0.5	O	-	-	-	Roots and Shoots
0.5-12	Ap	10YR 3/3	-	-	Silt loam
12-17	B	10YR 3/3	7.5YR 4/6	Common, Medium, Distinct	Silt loam, oxidized rhizospheres

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input checked="" type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input checked="" type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No field indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters absent, therefore the area is not a wetland.

AR 047547

Parametrix, Inc.



Data Plot #: 6
Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitgaton Site Date: 10/18/00
Applicant/Owner: Port of Seattle County: King
Investigator: Kevin Featherston and Jennifer Hawkins State: WA

1987 Method 1989 Method Community ID: Upland
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-6
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Upland companson plot.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	<u>Cirsium arvense</u>	<u>15</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2	<u>Dactylis glomerata</u>	<u>40</u>	<u>Herb</u>	<u>FACU</u>
✓ 3	<u>Elytngia repens (Agropyron repens)</u>	<u>45</u>	<u>Herb</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- X Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No field indicators of wetland hydrology are present.

AR 047548



Data Plot #: 7
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kristie Dunkin State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-7
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Located in Wetland 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Alopecurus pratensis</u>	<u>80</u>	<u>Herb</u>	<u>FACW+</u>
2. <u>Cirsium arvense</u>	<u><1</u>	<u>Herb</u>	<u>FAC-</u>
3. <u>Dactylis glomerata</u>	<u>15</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Holcus lanatus</u>	<u>70</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
X Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is not expected due to the time of year when the delineation was completed. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: 7
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 4/2	10YR 4/4	Common, Medium, Faint	Silt loam
6-15	B	10YR 4/2	7.5YR 4/6 and 7.5YR 4/4	Many, Medium, Distinct	Silt loam, Oxidized rhizospheres
15-24	C	2.5Y 4/2	7.5YR 4/6	Many, Medium, Distinct	Fine Sandv Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All technical criteria are met.

AR 047550

Parametrix, Inc.



Data Plot #: 8
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kriste Dunkin State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: DP-8
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):
Upland comparison plot.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	<u>Cirsium arvense</u>	<u><1</u>	<u>Herb</u>	<u>FAC-</u>
2	<u>Cirsium vulgare</u>	<u><1</u>	<u>Herb</u>	<u>FACU</u>
✓ 3	<u>Dactylis glomerata</u>	<u>100</u>	<u>Herb</u>	<u>FACU</u>
4	<u>Festuca arundinacea</u>	<u>10</u>	<u>Herb</u>	<u>FAC-</u>
✓ 5	<u>Holcus lanatus</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
6	<u>Lotus corniculatus</u>	<u><1</u>	<u>Herb</u>	<u>FAC</u>
7	<u>Phleum pratense</u>	<u>10</u>	<u>Herb</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
The wetland vegetation criteria is not met because only 50 percent of the dominant plants are wetland

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No field indicators of wetland hydrology are present.

AR 047551

Parametrix, Inc.



Data Plot #: 8
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	Ac	10YR 3/3	-	-	Silt loam
8-12	B	10YR 4/2	-	-	Silt loam
12->18	C	2.5Y 4/2	-	-	Fine Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No field indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters absent, therefore the area is not a wetland.

AR 047552



Data Plot #: 9
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Marti Louther State: WA

1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-9
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Upland companson plot.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Cirsium vulgare</u>	<u>25</u>	<u>Herb</u>	<u>FACU</u>
✓ 2. <u>Dactylis glomerata</u>	<u>25</u>	<u>Herb</u>	<u>FACU</u>
✓ 3. <u>Festuca arundinacea</u>	<u>25</u>	<u>Herb</u>	<u>FAC-</u>
✓ 4. <u>Phleum pratense</u>	<u>25</u>	<u>Herb</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 X Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No field indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: 9
Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	A	10YR 4/3	-	-	Silt loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input checked="" type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input checked="" type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No field indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters absent, therefore the area is not a wetland.

AR 047554



Data Plot #: 10
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kevin Featherston and Jennifer Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: DP-10
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No
 Remarks (Explain sample location, disturbances, problem areas):
Located in Wetland 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

- Primary Indicators:
- Inundated
 - Saturated in Upper 12 inches
 - Saturated in Upper 18 inches
 - Water Marks
 - Drift Lines
 - Sediment Deposits
 - Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

- Secondary Indicators (2 or more required):
- Oxidized Root Channels in Upper 12 inches
 - Water-Stained Leaves
 - Local Soil Survey Data
 - Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is not expected due to the time of year when the delineation was completed. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: 10
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): Typic Fluvaquents Yes No _____ NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-1	O	-	-	-	Roots and Shoots
1-8	Ap	10YR 3/2	5YR 3/4	Few, Medium, Distinct	Silt loam; oxidized rhizospheres
8->19	B	10YR 3/2	5YR 3/4	Many, Medium, Distinct	Silt loam; oxidized rhizospheres

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No _____	Yes <input checked="" type="checkbox"/> No _____
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All technical criteria are met.

AR 047556



Data Plot #: 11
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 10/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kevin Featherston and Jennifer Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-11
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Located in Wetland 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Cirsium arvense</u>	<u>40</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2. <u>Dactylis glomerata</u>	<u>60</u>	<u>Herb</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 X Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No field indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: 11
 Wetland: Auburn

Project/Site: Auburn Mitgaton Site Date: 10/18/00

SOILS

Soil Survey Data:

Map Unit Name: Ordia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-0.5	O	-	-	-	Roots and Shoots
0.5-16	-	10YR 3/3	-	-	Silt loam

Hydric Soil Indicators:

- Histosol Listed on Local Hydric Soils List
- Histic Epipedon Listed on State Hydric Soils List
- Sulfidic Odor Listed on National Hydric Soils List
- Probable Aquic Moisture Regime Aquic Moisture Regime
- Reducing Conditions Organic Streaking in Sandy Soils
- Gleyed or Low-Chroma Colors Mottles
- High Organic Content in Surface Layer Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
No field indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
All three parameters absent, therefore the area is not a wetland.



Data Plot #: 12
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 9/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Jan Cassin, Knste Dunkin, Steve Emge State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-12
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Data plot is adjacent to well P-1 in Wetland 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Alopecurus pratensis</u>	<u>20</u>	<u>Herb</u>	<u>FACW+</u>
✓ 2. <u>Cirsium arvense</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>
✓ 3. <u>Dactylis glomerata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Festuca arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>
✓ 5. <u>Festuca rubra</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 40

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- X Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

- Primary Indicators:
- Inundated
 - Saturated in Upper 12 inches
 - Saturated in Upper 18 inches
 - Water Marks
 - Drift Lines
 - Sediment Deposits
 - Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- X Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- X Local Soil Survey Data
- X Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is not expected due to the time of year when the delineation was completed. Well data at this location indicates water within 12 inches of the surface for more than 2 weeks during the growing season. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: 12
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 9/18/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-0.5	O	-	-	-	Roots and Shoots
0.5-7	A	10YR 3/2	-	-	Silt loam; oxidized rhizospheres
7-12	B	10YR 4/2	7.5YR 4/4	Faint, Common, Fine	Silt loam
12-18+	B2	5YR 4/1	7.5YR 4/3	Coarse, Common, Prominent	Silt Loam

Hydric Soil Indicators:

Histosol Listed on Local Hydric Soils List
 Histic Epipedon Listed on State Hydric Soils List
 Sulfidic Odor Listed on National Hydric Soils List
 Probable Aquic Moisture Regime Aquic Moisture Regime
 Reducing Conditions Organic Streaking in Sandy Soils
 Gleyed or Low-Chroma Colors Mottles
 High Organic Content in Surface Layer Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are not met, therefore the area is not a wetland.

AR 047560

Parametrix, Inc.



Data Plot #: 13
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 9/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Jan Cassin, Knsbe Dunkin, Steve Emge State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: DP-13
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):
Site is located adjacent to well P-2 in Wetland 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Agrostis gigantea (alba)</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Alopecurus pratensis</u>	<u>20</u>	<u>Herb</u>	<u>FACW+</u>
✓ 4. <u>Elyngia repens (Agropyron repens)</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>
✓ 5. <u>Holcus lanatus</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
X Other
 _____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 _____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
X Local Soil Survey Data
X Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is not expected due to the time of year when the delineation was completed. Well data at this location indicates water within 12 inches of the surface for more than 2 weeks during the growing season. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: 13
 Wetland: Auburn

Project/Site: Auburn Mitgaton Site Date: 9/18/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 3/3	-	-	Silt Loam
3-8	B	2.5Y 2/2	7.5YR 4/4	Fine, Common, Distinct	Silt loam, oxidized rhizospheres
8-18	C	5YR 4/1	10YR 4/3	Coarse, Common, Distinct	Silt Loam

Hydric Soil Indicators:

- Histosol Listed on Local Hydric Soils List
- Histic Epipedon Listed on State Hydric Soils List
- Sulfidic Odor Listed on National Hydric Soils List
- Probable Aquic Moisture Regime Aquic Moisture Regime
- Reducing Conditions Organic Streaking in Sandy Soils
- Gleyed or Low-Chroma Colors Mottles
- High Organic Content in Surface Layer Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All technical criteria are met.



Data Plot #: 14
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 9/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Jan Cassin, Kristie Dunkin, Steve Emge State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: DP-14
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Site is adjacent to well P-12 in Wetland 2.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Cirsium arvense</u>	<u>25</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2. <u>Dactylis glomerata</u>	<u>25</u>	<u>Herb</u>	<u>FACU</u>
✓ 3. <u>Juncus effusus</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Phalaris arundinacea</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The wetland vegetation criteria is not met because only 50 percent of the dominant plants are wetland.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

- Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is not expected due to the time of year when the delineation was completed. Well data at this location indicates water within 12 inches of the surface for more than 2 weeks during the growing season. The presence of oxidized rhizospheres and mapped soils on the King County Hydric Soils List satisfy the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: 14
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 9/18/00

SOILS

Soil Survey Data:

Map Unit Name: Ondia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 4/3 to 10YR 4/4	-	-	Silt loam with very dense root mat
3-9	B	10YR 4/3	-	-	Silt loam
9-14	B2	2.5Y 5/2	10YR 4/4 to 10YR 4/6	Few, faint	Silt loam; oxidized rhizospheres

Hydric Soil Indicators:

Histosol Listed on Local Hydric Soils List
 Histic Epipedon Listed on State Hydric Soils List
 Sulfidic Odor Listed on National Hydric Soils List
 Probable Aquic Moisture Regime Aquic Moisture Regime
 Reducing Conditions Organic Streaking in Sandy Soils
 Gleyed or Low-Chroma Colors Mottles
 High Organic Content in Surface Layer Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All technical criteria are met.



Data Plot #: 15
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitgation Site Date: 9/18/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: Jan Cassin, Kriste Dunkin, Steve Emge State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: DP-15
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample locaton, disturbances, problem areas):
Site is adjacent to well P-13.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Cirsium arvense</u>	<u>33</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2. <u>Dactylis glomerata</u>	<u>33</u>	<u>Herb</u>	<u>FACU</u>
✓ 3. <u>Holcus lanatus</u>	<u>33</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptatons to wetlands. "T" indicates trace. 33

Remarks (Describe disturbances, relevant local vanatons, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation critena is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 Other
 _____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 _____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 _____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local vanatons, etc.):
All mapped soils on-site are on the King County Hydnc Soils List. Well data at this location indicates water within 12 inches of the surface for more than 2 weeks during the growing season, therefore the wetland hydrology critena is met.

Parametrix, Inc.



Data Plot #: 15
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 9/18/00

SOILS

Soil Survey Data:

Map Unit Name: Ordia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 3/2	-	-	Silt Loam
6-12	B	10YR 3/2	-	-	Silt Loam
12-18	B2	2.5Y 4/2	10YR 5/4	Few and Faint	Fine Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators do not meet the hydric soil criteria at 10 inches.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Vegetation and hydric soils criteria are not met, therefore the area is not a wetland.

AR 047566



Data Plot #: 16
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 12/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: DP-16
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
Upland comparison plot, approximately 100 feet south of data plot 6.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1	<u>Cirsium arvense</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2	<u>Cirsium vulgare</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 3	<u>Dactylis glomerata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 4	<u>Holcus lanatus</u>	<u>60</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 25

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 _____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 _____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No field indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: 16
 Wetland: Auburn

Soil Profile: 16A1

Soil Profile: 16A1

Project/Site: Auburn Mitigation Site Date: 12/1/00

SOILS

Soil Survey Data:

Map Unit Name: Oridia Silt Loam Drainage Class: Somewhat poorly drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	A	10YR 4/3	-	-	Silt Loam
18+	B	10YR 3/3	10YR 4/4	coarse. Common. Faint	Silt Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators do not meet the hydric soil criteria at 10 inches.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are not met, therefore the area is not a wetland.

AR 047568



Data Plot #: 17
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 12/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: DP-17
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Site is adjacent to well P-10 in Wetland 3.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Dactylis glomerata</u>	<u>40</u>	<u>Herb</u>	<u>FACU</u>
✓ 2. <u>Holcus lanatus</u>	<u>60</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
X Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
X Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

All mapped soils on-site are on the King County Hydric Soils List. Well data at this location indicates water within 12 inches of the surface for more than 2 weeks during the growing season, therefore the wetland hydrology criteria is met.

Parametrix, Inc.



Data Plot #: 17
Wetland: Auburn

Project/Site: Auburn Mitgation Site Date: 12/1/00

SOILS

Soil Survey Data:

Map Unit Name: Ondia Silt Loam Drainage Class: Somewhat poorly drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaents Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/3	-	-	Silt loam
9-18+	B	10YR 4/2	10YR 3/3	Many, Coarse, Distinct	Silt loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators do meet the hydric soil criteria at 10 inches.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Vegetation criteria is not met, however well data indicates that wetland hydrology is present for at least 2 weeks in the growing season.

AR 047570

Parametrix, Inc.



Data Plot #: 18
 Wetland: Auburn

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Auburn Mitigation Site Date: 12/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: DP-18
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Upland comparison plot for Wetland 3

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Cirsium arvense</u>	<u>40</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2. <u>Cirsium vulgare</u>	<u>40</u>	<u>Herb</u>	<u>FACU</u>
✓ 3. <u>Holcus lanatus</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 4. <u>Ranunculus repens</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
5. <u>Rumex crispus</u>	<u>10</u>	<u>Herb</u>	<u>FAC+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No field indicators of wetland hydrology are present.

AR 047571

Parametrix, Inc.



Data Plot #: 18
 Wetland: Auburn

Project/Site: Auburn Mitigation Site Date: 12/1/00

SOILS

Soil Survey Data:

Map Unit Name: Ordia Silt Loam Drainage Class: Somewhat poorly drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Typic Fluvaquents Yes X No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	A	10YR 3/3	-	-	Silt loam
18+	C	-	-	-	Sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Hydric soil criteria is not met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is this Sampling Point Within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soils Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are not met, therefore the area is not a wetland.

AR 047572

APPENDIX E
WASHINGTON DEPARTMENT OF ECOLOGY
WETLAND RATING

AR 047573

Wetlands Rating Field Data Form

Background Information:

Name of Rater: William Keindl / ^{Lumen} 10/16 Affiliation: FRANCOIS, INC Date: 10/30/00

Name of wetland (if known): Port F STATE - AUBURN SITE wetlands 2 & 2

Government Jurisdiction of wetland: FEDERAL / WA. STATE / CITY OF AUBURN

Location: 1/4 Section: _____ of 1/4 S: _____ Section: _____ Township: _____ Range: _____

Sources of Information: (Check all sources that apply)

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

Other: Describe: on-site wetland delineation

When The Field Data form is complete enter Category here:



Q.1. High Quality Natural Wetland

Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.

1a. Human caused disturbances.

Is there significant evidence of human-caused changes to topography or hydrology of the wetland as indicated by any of the following conditions? Consider only changes that may have taken place in the last 5 decades. The impacts of changes done earlier have probably been stabilized and the wetland ecosystem will be close to reaching some new equilibrium that may represent a high quality wetland.

- 1a1. Upstream watershed > 12% impervious.
- 1a2. Wetland is ditched and water flow is not obstructed.
- 1a3. Wetland has been graded, filled, logged.
- 1a4. Water in wetland is controlled by dikes, weirs, etc.
- 1a5. Wetland is grazed.
- 1a6. Other indicators of disturbance (list below)

Circle Answers

- Yes: go to Q.2
- ~~Yes~~: go to Q.2
- Yes: go to Q.2
- ~~Yes~~: go to Q.2
- Yes: go to Q.2
- Yes: go to Q.2
- No: go to 1b.

<p>1b Are there populations of non-native plants which are currently present, cover more than 10% of the wetland, and appear to be invading native populations? Briefly describe any non-native plant populations and Information source(s): _____</p> <hr/> <p>1c. Is there evidence of human-caused disturbances which have visibly degraded water quality. Evidence of the degradation of water quality include: direct (untreated) runoff from roads or parking lots; presence, or historic evidence, of waste dumps; oily sheens; the smell of organic chemicals; or livestock use. Briefly describe: _____</p> <hr/>	<p>YES: go to Q.2 No: go to 1c.</p> <p>YES: go to Q.2 NO: Possible Cat. I contact DNR</p>
<p>Q.2. Irreplaceable Ecological Functions: Does the wetland:</p> <ul style="list-style-type: none"> ⊕ have at least 1/4 acre of organic soils deeper than 16 inches and the wetland is relatively undisturbed; OR [If the answer is NO because the wetland is disturbed briefly describe: Indicators of disturbance may include: <ul style="list-style-type: none"> - Wetland has been graded, filled, logged; - Organic soils on the surface are dried-out for more than half of the year; - Wetland receives direct stormwater runoff from urban or agricultural areas.]; <p>OR</p> <ul style="list-style-type: none"> ⊕ have a forested class greater than 1 acre; OR ⊕ have characteristics of an estuarine system; OR ⊕ have eel grass, floating or non-floating kelp beds? 	<p>(NO to all: go to Q.3) YES go to 2a</p> <p>YES: Go to 2b</p> <p>YES: Go to 2c</p> <p>YES: Go to 2d</p>
<p>2a. Bogs and Fens Are any of the three following conditions met for the area of organic soil?</p> <p>2a.1. Are Sphagnum mosses a common ground cover (>30%) and the cover of invasive species (see Table 3) is less than 10%?</p> <p>Is the area of sphagnum mosses and deep organic soils > 1/2 acre? Is the area of sphagnum mosses and deep organic soils 1/4-1/2 acre?</p> <p>2a.2. Is there an area of organic soil which has an emergent class with at least one species from Table 2, and cover of invasive species is < 10% (see Table 3)?</p> <p>Is the area of herbaceous plants and deep organic soils > 1/2 acre? Is the area of herbaceous plants and deep organic soils 1/4-1/2 acre?</p>	<p>YES: Category I YES: Category II</p> <p>NO: Go to 2a.3</p> <p>YES: Category I YES: Category II</p> <p>NO: Go to 2a.3</p>

<p>2a.3. Is the vegetation a mixture of only herbaceous plants and Sphagnum mosses with no scrub/shrub or forested classes?</p> <p>Is the area of herbaceous plants, Sphagnum, and deep organic soils > 1/2 acre? Is the area of herbaceous plants, Sphagnum, and deep organic soils 1/4-1/2 acre?</p>	<p>YES: Category I YES: Category II NO: Go to Q.3.</p>
<p>Q.2b. Mature forested wetland.</p> <p>2b.1. Does 50% of the cover of upper forest canopy consist of evergreen trees older than 80 years or deciduous trees older than 50 years? <i>Note: The size of trees is often not a measure of age, and size cannot be used as a surrogate for age (see guidance).</i></p> <p>2b.2. Does 50% of the cover of forest canopy consist of evergreen trees older than 50 years, AND is the structural diversity of the forest high as characterized by an additional layer of trees 20'-49' tall, shrubs 6' - 20' tall, and a herbaceous groundcover?</p> <p>2b.3. Does < 25% of the areal cover in the herbaceous/groundcover or the shrub layer consist of invasive/exotic plant species from the list on p. 19?</p>	<p>YES: Category I NO: Go to 2b.2</p> <p>YES: Go to 2b.3 NO: Go to Q.3</p> <p>YES: Category I NO: Go to Q.3</p>
<p>Q.2c. Estuarine wetlands.</p> <p>2c1. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?</p> <p>2c.2. Is the wetland > 5 acres; <i>Note: If an area contains patches of salt tolerant vegetation that are</i> 1) less than 600 feet apart and that are separated by mudflats that go dry on a Mean Low Tide, or 2) separated by tidal channels that are less than 100 feet wide; all the vegetated areas are to be considered together in calculating the wetland area.</p> <p>or is the wetland 1-5 acres;</p> <p>or is the wetland < 1 acre?</p>	<p>YES: Category I NO: Go to 2c.2</p> <p>YES: Category I</p> <p>YES: Go to 2c.3</p> <p>YES: Go to 2c.4</p>

<p>2c.3. Does the wetland meet at least 3 of the following 4 criteria:</p> <ul style="list-style-type: none"> - minimum existing evidence of human related disturbance such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species (see guidance for definition); - surface water connection with tidal saltwater or tidal freshwater; - at least 75% of the wetland has a 100' buffer of ungrazed pasture, open water, shrub or forest; - has at least 3 of the following features: low marsh; high marsh; tidal channels; lagoon(s);woody debris; or contiguous freshwater wetland. <p>2c.4. Does the wetland meet all of the four criteria under 2c3. (above)? . .</p>	<p>YES: Category I NO: Category II</p> <p>YES: Category II NO: Category III</p>
<p>Q.2d. Eel Grass and Kelp Beds.</p> <p>2d.1. Are eel grass beds present?</p> <p>2d.2. Are there floating or non-floating kelp bed(s) present with greater than 50% macro algal cover in the month of August or September?</p>	<p>YES: Category I NO: go to 2d.2</p> <p>YES: Category I NO: Category II</p>
<p>Q.3. Category IV wetlands.</p> <p>3a. Is the wetland: less than 1 acre <u>and</u>, hydrologically isolated <u>and</u>, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from Table 3 (page 19) or Table 4 (page 20)</p> <p>3b. Is the wetland: less than two acres <u>and</u>, hydrologically isolated, with one vegetated class, <u>and</u> > 90% of areal cover is any combination of species from Table 3 (page 19)</p> <p>3c. Is the wetland excavated from upland <u>and</u> a pond smaller than 1 acre without a surface water connection to streams, lakes, rivers, or other wetland, <u>and</u> has < 0.1 acre of vegetation.</p>	<p>YES: Category IV NO: go to 3b</p> <p>YES: Category IV NO: go to 3c</p> <p>YES: Category IV NO: go to Q.4</p>

Q.4. Significant habitat value.

Answer all questions and enter data requested.

4a. Total wetland area

Estimate area, select from choices in the near-right column, and score in the far column:

Enter acreage of wetland here: _____ acres, and source: _____

Circle scores that qualify

acres	points
> 200	6
40- 200	5
10 - 40	4
5 - 10	3
1 - 5	2
0.1 - 1	1
< 0.1	0

4b. Wetland classes: Circle the wetland classes below that qualify:

Open Water: if the area of open water is > 1/4 acre

Aquatic Beds: if the area of aquatic beds > 1/4 acre.

Emergent: if the area of emergent class is > 1/4 acre.

Scrub-Shrub: if the area of scrub-shrub class is > 1/4 acre.

Forested: if area of forested class is > 1/4 acre.

Add the number of wetland classes, above, that qualify, and then score according to the columns at right.

e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub- shrub), you would circle 8 points in the far right column.

# of classes	Points
1	0
2	3
3	6
4	8
5	10

4c. Plant species diversity.

For each wetland class (at right) that qualifies in 4b above, count the number of different plant species you can find that cover more than 5% of the ground. You do not have to name them.

Score in column at far right:

e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.

Note: Any plant species with a cover of > 5% qualifies for points within a class, even those that are not of that class.

Class	# species in class	Points
Aquatic Bed	1	0
	2	1
	3	2
	> 3	3
Emergent	1	0
	2-3	1
	4-5	2
	> 5	3
Scrub-Shrub	1	0
	2	1
	3-4	2
	> 4	3
Forested	1	0
	2	1
	3-4	2
	> 4	3

4d. Structural diversity.

If the wetland has a forested class, add 1 point if each of the following classes is present within the forested class and is larger than 1/4 acre:

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

Also add 1 point if there is any "open water" or "aquatic bed" class immediately next to the forested area (ie. there is no scrub/shrub or emergent vegetation between them).

- YES - 1
- YES - 1
- YES - 1
- YES - 1

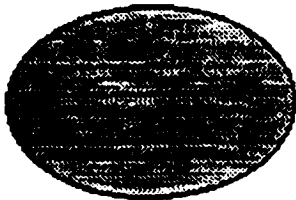
YES - 1

0

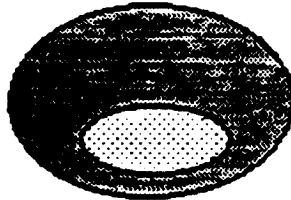
4e. Decide from the diagrams below whether interspersions between wetland classes is high, moderate, low or none? If you think the amount of interspersions falls in between the diagrams score accordingly (i.e. a moderately high amount of interspersions would score a 4, while a moderately low amount would score a 2)

- High - 5
- Moderate - 3
- Low - 1

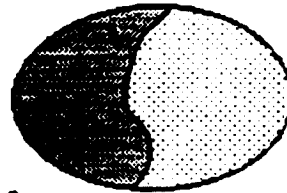
~~None - 0~~



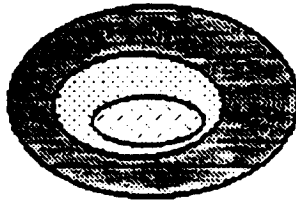
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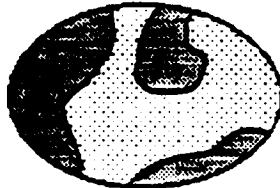
low



low



moderate



moderate



high

4f. Habitat features.

Answer questions below. Circle features that apply, and score to the right:

Is there evidence that the open or standing water was caused by beavers?

YES = 2

Is a heron rookery located within 300'?

YES = 1

Are raptor nest/s located within 300'?

YES = 1

Are there at least 3 standing dead trees (snags) per acre greater than 10" in diameter at "breast height" (DBH)?

YES = 1

Are there at least 3 downed logs per acre with a diameter > 6" (or at least 10' in length)?

YES = 1

Are there areas (vegetated or unvegetated) within the wetland that are ponded for at least 4 months out of the year, and the wetland has not qualified as having an open water class in Question 4b.?

YES = 2

<p>4g. Connection to streams. (Score one answer only.)</p> <p>4g.1. Does the wetland provide habitat for fish at any time of the year AND does it have a perennial surface water connection to a fish bearing stream.</p> <p>4g.2 Does the wetland provide fish habitat seasonally AND does it have a seasonal surface water connection to a fish bearing stream.</p> <p>4g.3 Does the wetland function to export organic matter through a surface water connection at all times of the year to a perennial stream.</p> <p>4g.4 Does the wetland function to export organic matter through a surface water connection to a stream on a seasonal basis?</p>	<p>YES = 6</p> <p>YES = 4</p> <p>YES = 4</p> <p>YES = 2</p>
<p>4h. Buffers.</p> <p>Score the existing buffers on a scale of 1-5 based on the following four descriptions. If the condition of the buffers do not exactly match the description, score either a point higher or lower depending on whether the buffers are less or more degraded.</p> <p>Forest, scrub, native grassland or open water buffers are present for more than 100' around 95% of the circumference.</p> <p>Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/2 of the wetland circumference, or a forest, scrub, grasslands, or open water buffers for more than 50' around 95% of the circumference.</p> <p>Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/4 of the wetland circumference, or a forest, scrub, native grassland, or open water buffers wider than 50' for more than 1/2 of the wetland circumference.</p> <p>No roads, buildings or paved areas within 100' of the wetland for more than 95% of the wetland circumference.</p> <p>No roads, buildings or paved areas within 25' of the wetland for more than 95% of the circumference, or No roads buildings or paved areas within 50' of the wetland for more than 1/2 of the wetland circumference.</p> <p>Paved areas, industrial areas or residential construction (with less than 50' between houses) are less than 25 feet from the wetland for more than 95% of the circumference of the wetland.</p>	<p>Score = 5</p> <p>Score = 3</p> <p>Score = 2</p> <p>Score = 2</p> <p>Score = 1</p> <p>Score = 0</p>

<p>4i. Connection to other habitat areas: Select the description which best matches the site being evaluated.</p> <ul style="list-style-type: none"> - Is the wetland connected to, or part of, a riparian corridor at least 100' wide connecting two or more wetlands; or, is there an upland connection present >100' wide with good forest or shrub cover (>25% cover) connecting it with a Significant Habitat Area? - Is the wetland connected to any other Habitat Area with either 1) a forested/shrub corridor < 100' wide, or 2) a corridor that is > 100' wide, but has a low vegetative cover less than 6 feet in height? - Is the wetland connected to, or a part of, a riparian corridor between 50' - 100' wide with scrub/shrub or forest cover connection to other wetlands? - Is the wetland connected to any other Habitat Area with narrow corridor (<100') of low vegetation (< 6' in height)? - Is the wetland and its buffer (if the buffer is less than 50' wide) completely isolated by development (urban, residential with a density greater than 2/acre, or industrial)? 	<p style="text-align: center;">YES = 5</p> <p style="text-align: center;">YES = 3</p> <p style="text-align: center;">YES = 3</p> <p style="text-align: center;">YES = 1</p> <p style="text-align: center;">YES = 0</p>
<p>Now add the scores circled (for Q.5a - Q.5i above) to get a total. Is the Total greater than or equal to 22 points? 21</p> <p style="text-align: right;">YES = Category II NO = Category III</p>	

Wetlands Rating Field Data Form

Background Information:

Name of Rater: William KLEIN Affiliation: PARAMOUNT, INC Date: 12/1/00

Name of wetland (if known): Port of Seattle - Auburn Site Wetland 3

Government Jurisdiction of wetland: Federal / WA State / City of Auburn

Location: 1/4 Section: _____ of 1/4 S: _____ Section: _____ Township: _____ Range: _____

Sources of Information: (Check all sources that apply)

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

Other: Describe: on site wetland delineation

When The Field Data form is complete enter Category here:

IV

Q.1. High Quality Natural Wetland

Circle Answers

Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.

1a. Human caused disturbances.

Is there significant evidence of human-caused changes to topography or hydrology of the wetland as indicated by any of the following conditions? Consider only changes that may have taken place in the last 5 decades. The impacts of changes done earlier have probably been stabilized and the wetland ecosystem will be close to reaching some new equilibrium that may represent a high quality wetland.

- 1a1. Upstream watershed > 12% impervious.
- 1a2. Wetland is ditched and water flow is not obstructed.
- 1a3. Wetland has been graded, filled, logged.
- 1a4. Water in wetland is controlled by dikes, weirs, etc.
- 1a5. Wetland is grazed.
- 1a6. Other indicators of disturbance (list below)

From a nearby well about
7.57

Yes: go to Q.2
Yes: go to Q.2
Yes: go to Q.2
Yes: go to Q.2
Yes: go to Q.2
~~Yes~~ go to Q.2
No: go to 1b.

AR 047582

<p>1b Are there populations of non-native plants which are currently present, cover more than 10% of the wetland, and appear to be invading native populations? Briefly describe any non-native plant populations and Information source(s): _____</p> <hr/> <p>1c. Is there evidence of human-caused disturbances which have visibly degraded water quality. Evidence of the degradation of water quality include: direct (untreated) runoff from roads or parking lots; presence, or historic evidence, of waste dumps; oily sheens; the smell of organic chemicals; or livestock use. Briefly describe: _____</p> <hr/>	<p>YES: go to Q.2 No: go to 1c.</p> <p>YES: go to Q.2 NO: Possible Cat. I contact DNR</p>
<p>Q.2. Irreplaceable Ecological Functions: Does the wetland:</p> <ul style="list-style-type: none"> ⊕ have at least 1/4 acre of organic soils deeper than 16 inches and the wetland is relatively undisturbed: OR [If the answer is NO because the wetland is disturbed briefly describe: Indicators of disturbance may include: <ul style="list-style-type: none"> - Wetland has been graded, filled, logged; - Organic soils on the surface are dried-out for more than half of the year; - Wetland receives direct stormwater runoff from urban or agricultural areas.]; <p>OR</p> <ul style="list-style-type: none"> ⊕ have a forested class greater than 1 acre: <p>OR</p> <ul style="list-style-type: none"> ⊕ have characteristics of an estuarine system; <p>OR</p> <ul style="list-style-type: none"> ⊕ have eel grass, floating or non-floating kelp beds? 	<p>(NO to all: go to Q.3) YES go to 2a</p> <p>YES: Go to 2b</p> <p>YES: Go to 2c</p> <p>YES: Go to 2d</p>
<p>2a. Bogs and Fens Are any of the three following conditions met for the area of organic soil?</p> <p>2a.1. Are Sphagnum mosses a common ground cover (>30%) and the cover of invasive species (see Table 3) is less than 10%?</p> <p>Is the area of sphagnum mosses and deep organic soils > 1/2 acre? Is the area of sphagnum mosses and deep organic soils 1/4-1/2 acre?</p> <p>2a.2. Is there an area of organic soil which has an emergent class with at least one species from Table 2, and cover of invasive species is < 10% (see Table 3)?</p> <p>Is the area of herbaceous plants and deep organic soils > 1/2 acre? Is the area of herbaceous plants and deep organic soils 1/4-1/2 acre?</p>	<p>YES: Category I YES: Category II</p> <p>NO: Go to 2a.3</p> <p>YES: Category I YES: Category II</p> <p>NO: Go to 2a.3</p>

<p>2a.3. Is the vegetation a mixture of only herbaceous plants and Sphagnum mosses with no scrub/shrub or forested classes?</p> <p>Is the area of herbaceous plants, Sphagnum, and deep organic soils > 1/2 acre? Is the area of herbaceous plants, Sphagnum, and deep organic soils 1/4-1/2 acre?</p>	<p>YES: Category I</p> <p>YES: Category II</p> <p>NO: Go to Q.3.</p>
<p>Q.2b. Mature forested wetland.</p> <p>2b.1. Does 50% of the cover of upper forest canopy consist of evergreen trees older than 80 years or deciduous trees older than 50 years? <i>Note:</i> The size of trees is often not a measure of age, and size cannot be used as a surrogate for age (see guidance).</p> <p>2b.2. Does 50% of the cover of forest canopy consist of evergreen trees older than 50 years, AND is the structural diversity of the forest high as characterized by an additional layer of trees 20'-49' tall, shrubs 6' - 20' tall, and a herbaceous groundcover?</p> <p>2b.3. Does < 25% of the areal cover in the herbaceous/groundcover or the shrub layer consist of invasive/exotic plant species from the list on p. 19?</p>	<p>YES: Category I NO: Go to 2b.2</p> <p>YES: Go to 2b.3 NO: Go to Q.3</p> <p>YES: Category I NO: Go to Q.3</p>
<p>Q.2c. Estuarine wetlands.</p> <p>2c.1. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?</p> <p>2c.2. Is the wetland > 5 acres: <i>Note:</i> If an area contains patches of salt tolerant vegetation that are 1) less than 600 feet apart and that are separated by mudflats that go dry on a Mean Low Tide, or 2) separated by tidal channels that are less than 100 feet wide; all the vegetated areas are to be considered together in calculating the wetland area.</p> <p>or is the wetland 1-5 acres:</p> <p>or is the wetland < 1 acre?</p>	<p>YES: Category I NO: Go to 2c.2</p> <p>YES: Category I</p> <p>YES: Go to 2c.3</p> <p>YES: Go to 2c.4</p>

Q.4. Significant habitat value.
 Answer all questions and enter data requested.

4a. Total wetland area
 Estimate area, select from choices in the near-right column, and score in the far column:

Enter acreage of wetland here: _____ acres, and source: _____

Circle scores that qualify	
acres	points
> 200	6
40- 200	5
10 - 40	4
5 - 10	3
1 - 5	2
0.1 - 1	1
< 0.1	0

4b. Wetland classes: Circle the wetland classes below that qualify:

Open Water: if the area of open water is > 1/4 acre
 Aquatic Beds: if the area of aquatic beds > 1/4 acre.

Emergent: if the area of emergent class is > 1/4 acre.

Scrub-Shrub: if the area of scrub-shrub class is > 1/4 acre.

Forested: if area of forested class is > 1/4 acre.

Add the number of wetland classes, above, that qualify, and then score according to the columns at right.
 e.g. If there are 4 classes (aquatic beds, open water, emergent & scrub- shrub), you would circle 8 points in the far right column.

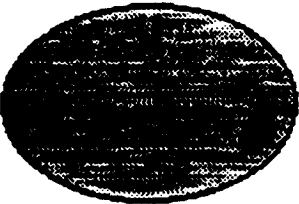
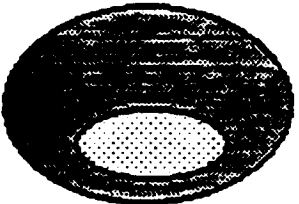
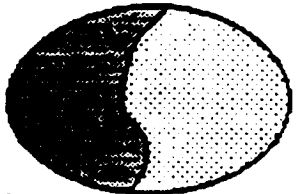
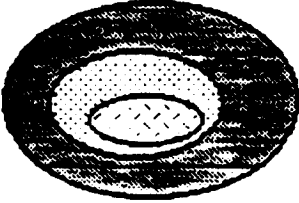
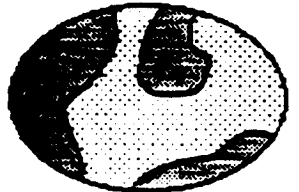

# of classes	Points
1	0
2	3
3	6
4	8
5	10

4c. Plant species diversity.
 For each wetland class (at right) that qualifies in 4b above, count the number of different plant species you can find that cover more than 5% of the ground. You do not have to name them.

Score in column at far right:
 e.g. If a wetland has an aquatic bed class with 3 species, an emergent class with 4 species and a scrub-shrub class with 2 species you would circle 2, 2, and 1 in the far column.

Note: Any plant species with a cover of > 5% qualifies for points within a class, even those that are not of that class.

Class	# species in class	Points
Aquatic Bed	1	0
	2	1
	3	2
	> 3	3
Emergent	1	0
	2-3	1
	4-5	2
	> 5	3
Scrub-Shrub	1	0
	2	1
	3-4	2
	> 4	3
Forested	1	0
	2	1
	3-4	2
	> 4	3

<p>4d. Structural diversity. If the wetland has a forested class, add 1 point if each of the following classes is present within the forested class and is larger than 1/4 acre: -trees > 50' tall -trees 20' -49' tall -shrubs -herbaceous ground cover..... Also add 1 point if there is any "open water" or "aquatic bed" class immediately next to the forested area (ie. there is no scrub/shrub or emergent vegetation between them).</p>	<p>YES - 1 YES - 1 YES - 1 YES - 1 YES - 1</p>
<p>4e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none? If you think the amount of interspersion falls in between the diagrams score accordingly (i.e. a moderately high amount of interspersion would score a 4, while a moderately low amount would score a 2)</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>none</p> </div> <div style="text-align: center;">  <p>low</p> </div> <div style="text-align: center;">  <p>low</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  <p>moderate</p> </div> <div style="text-align: center;">  <p>moderate</p> </div> <div style="text-align: center;">  <p>high</p> </div> </div>	<p>High - 5 Moderate - 3 Low - 1 None - 0</p>
<p>4f. Habitat features. Answer questions below, circle features that apply, and score to right:</p> <p>Is there evidence that the open or standing water was caused by beavers Is a heron rookery located within 300'? Are raptor nest/s located within 300'? Are there at least 3 standing dead trees (snags) per acre greater than 10" in diameter at "breast height" (DBH)? Are there at least 3 downed logs per acre with a diameter > 6" for at least 10' in length? Are there areas (vegetated or unvegetated) within the wetland that are ponded for at least 4 months out of the year, and the wetland has not qualified as having an open water class in Question 4b. ?</p>	<p>YES = 2 YES = 1 YES = 1 YES = 1 YES = 1 YES = 2</p>

<p>4g. Connection to streams. (Score one answer only.)</p> <p>4g.1. Does the wetland provide habitat for fish at any time of the year AND does it have a perennial surface water connection to a fish bearing stream.</p> <p>4g.2 Does the wetland provide fish habitat seasonally AND does it have a seasonal surface water connection to a fish bearing stream.</p> <p>4g.3 Does the wetland function to export organic matter through a surface water connection at all times of the year to a perennial stream.</p> <p>4g.4 Does the wetland function to export organic matter through a surface water connection to a stream on a seasonal basis?</p>	<p>YES = 6</p> <p>YES = 4</p> <p>YES = 4</p> <p>YES = 2</p>
<p>4h. Buffers.</p> <p>Score the existing buffers on a scale of 1-5 based on the following four descriptions. If the condition of the buffers do not exactly match the description, score either a point higher or lower depending on whether the buffers are less or more degraded.</p> <p>Forest, scrub, native grassland or open water buffers are present for more than 100' around 95% of the circumference.</p> <p>Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/2 of the wetland circumference, or a forest, scrub, grasslands, or open water buffers for more than 50' around 95% of the circumference.</p> <p>Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/4 of the wetland circumference, or a forest, scrub, native grassland, or open water buffers wider than 50' for more than 1/2 of the wetland circumference.</p> <p>No roads, buildings or paved areas within 100' of the wetland for more than 95% of the wetland circumference.</p> <p>No roads, buildings or paved areas within 25' of the wetland for more than 95% of the circumference, or No roads buildings or paved areas within 50' of the wetland for more than 1/2 of the wetland circumference.</p> <p>Paved areas, industrial areas or residential construction (with less than 50' between houses) are less than 25 feet from the wetland for more than 95% of the circumference of the wetland.</p>	<p>Score = 5</p> <p>Score = 3</p> <p>Score = 2</p> <p>Score = 2</p> <p>Score = 1</p> <p>Score = 0</p>

<p>4i. Connection to other habitat areas: Select the description which best matches the site being evaluated.</p>	
<p>-Is the wetland connected to, or part of, a riparian corridor at least 100' wide connecting two or more wetlands; or, is there an upland connection present >100' wide with good forest or shrub cover (>25% cover) connecting it with a Significant Habitat Area?</p>	<p>YES = 5</p>
<p>- Is the wetland connected to any other Habitat Area with either 1) a forested/shrub corridor < 100' wide, or 2) a a corridor that is > 100' wide, but has a low vegetative cover less than 6 feet in height?</p>	<p>YES = 3</p>
<p>-Is the wetland connected to, or a part of, a riparian corridor between 50 - 100' wide with scrub/shrub or forest cover connection to other wetlands?</p>	<p>YES = 3</p>
<p>- Is the wetland connected to any other Habitat Area with narrow corridor (<100') of low vegetation (< 6' in height)?</p>	<p>YES = 1</p>
<p>- Is the wetland and its buffer (if the buffer is less than 50' wide) completely isolated by development (urban, residential with a density greater than 2/acre, or industrial)?</p>	<p>YES = 0</p>
<p>Now add the scores circled (for Q.5a - Q.5i above) to get a total.</p>	
<p>Is the Total greater than or equal to 22 points?</p>	<p>YES = Category II NO = Category III</p>

APPENDIX B
FIELD DATA SHEETS
(bound separately)

AR 047591

C. PRIOR CONVERTED CROP.
LAND AT THE VACCA FARM SITE

AR 047592

APPENDIX C
PRIOR CONVERTED CROPLANDS AT THE
VACCA FARM SITE

AR 047593

APPENDIX C PRIOR CONVERTED CROPLAND

Parametrix, Inc. staff conducted a review of the farming history on several parcels of farmland in the Port of Seattle's acquisition area (referred to as Vacca Farm) to classify these areas as upland, farmed wetland (FW), prior converted (PC) cropland, or wetland. This review included an evaluation of aerial photographs, field studies during 1998 and 1999, discussions with local landowners, and contacting the U.S. Department of Agriculture (USDA). The Vacca Farm was visited on several occasions throughout the rainy seasons of 1998 and 1999 to determine the extent of inundation and soil saturation. Areas within the Vacca Farm that satisfy the criteria for farmed wetlands were staked and surveyed in the field. Areas that meet the farmed wetland criteria are described on pages 3-18 and 3-19 in the report text and Maps 1 and 4 in Appendix D.

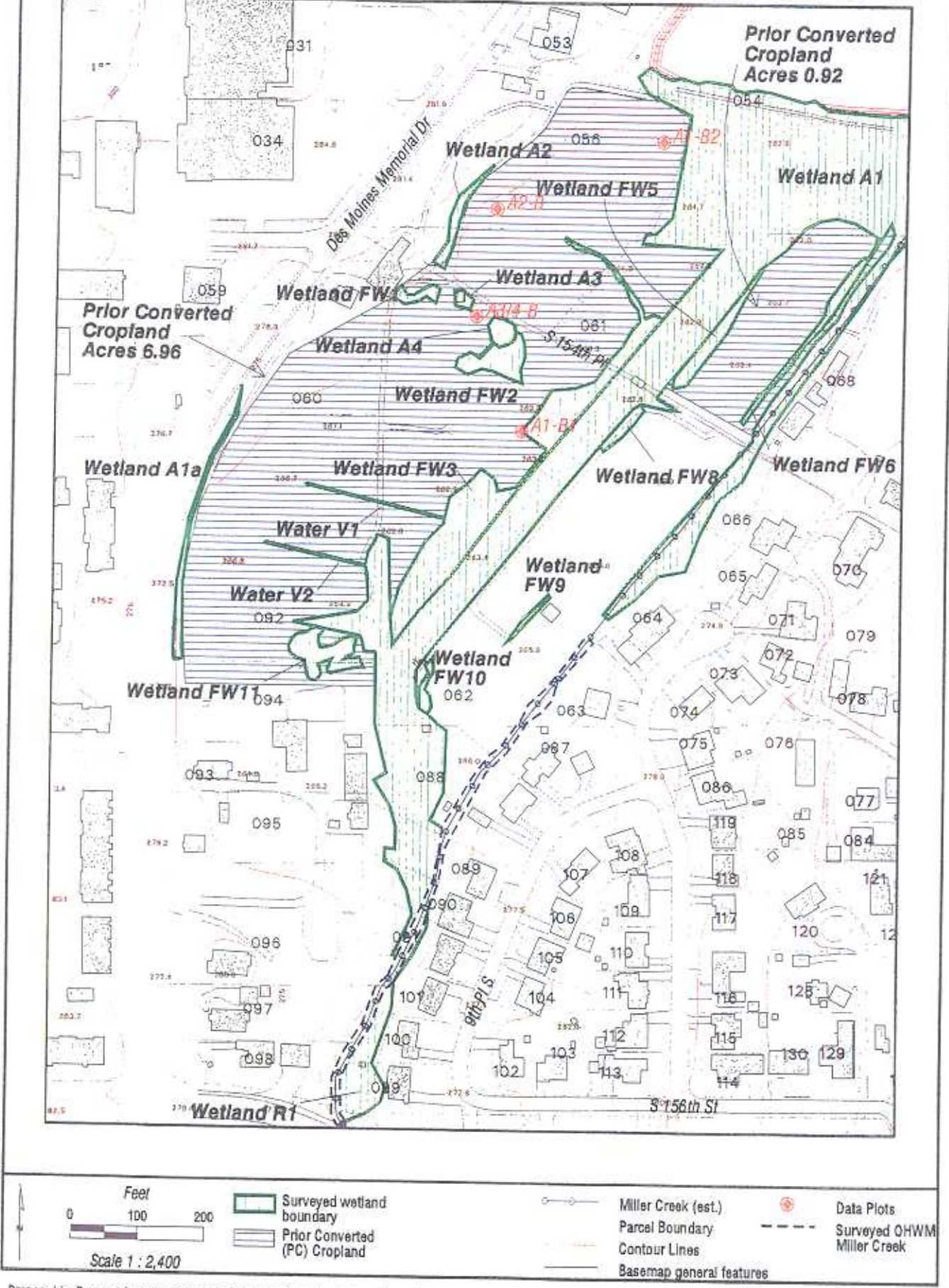
A total of 7.88 acres of actively farmed area within the Vacca Farm parcels were found to meet the criteria for PC cropland (see Figure B.1 and attached data sheets). These areas have hydric soils and soil saturation within 12 inches of the soil surface for more than 15 consecutive days during the growing season. It is likely that these areas were wetlands before being converted to active farmland. However, these areas lacked inundation for at least 15 consecutive days during the early growing season. They do not meet the criteria for farmed wetlands according to the Food Security Act (Section 514.22).

A system of tile drains has altered the soil saturation within the Vacca Farm site. However, saturation was observed within the prior converted area for greater than 14 consecutive days during the growing season during several site visits in 1998 and 1999. Portions of the PC area near Wetland A1, in the lowest portions of the site, remain saturated for much of the growing season. Other areas along the western edge of the site are better drained and soils are saturated during the winter and early spring months. Most of the PC areas are within the 100-year floodplain of Miller Creek and are subjected to periodic, short-term (typically 1 to several days) inundation during storm events.

The soils found in the prior converted cropland generally have a 6-inch till (Ap) layer of black (10YR 2/1) silt loam or highly organic loam over a highly organic loam or peat. The sub-soils range from black to dark yellowish brown (10YR 3/4) to gray (10YR 6/1) with mottles. Lenses of sands were also found in the sub-soil, indicating historic flooding.

Other farmed areas in the Vacca Farm site that lacked wetland hydrology or soil indicators were not considered or PC cropland (see Figure B.1). These areas include portions of Parcel 62 and the eastern farmed area of Parcel 68. Parcel 62 had been filled with approximately 3 feet of sandy loam obtained from the Highline High School expansion in the 1970s. The eastern farmed area of Parcel 68 is a well-drained upland.

Figure C1: Prior Converted Cropland at the Vacca Farm Site

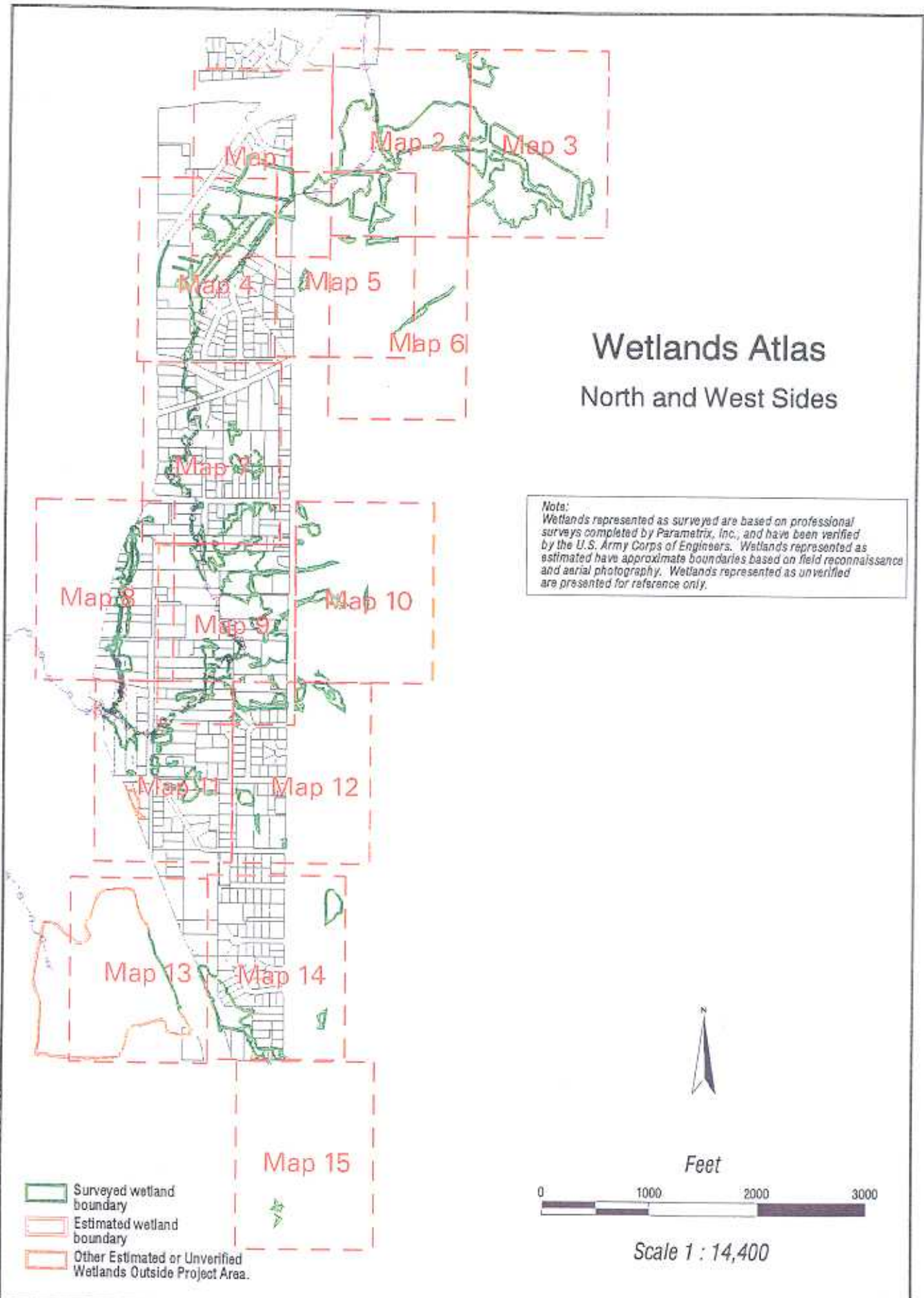


Prepared by Paramatrix, Inc. File: seatac2/plotamls/p_water_state.aml creating water_map3.gra Date: December 12, 2000

APPENDIX D

MAP ATLAS




AR 047597

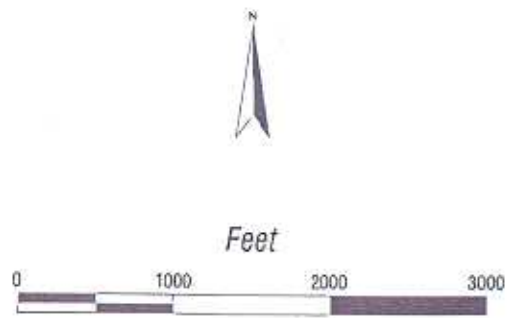


Wetlands Atlas

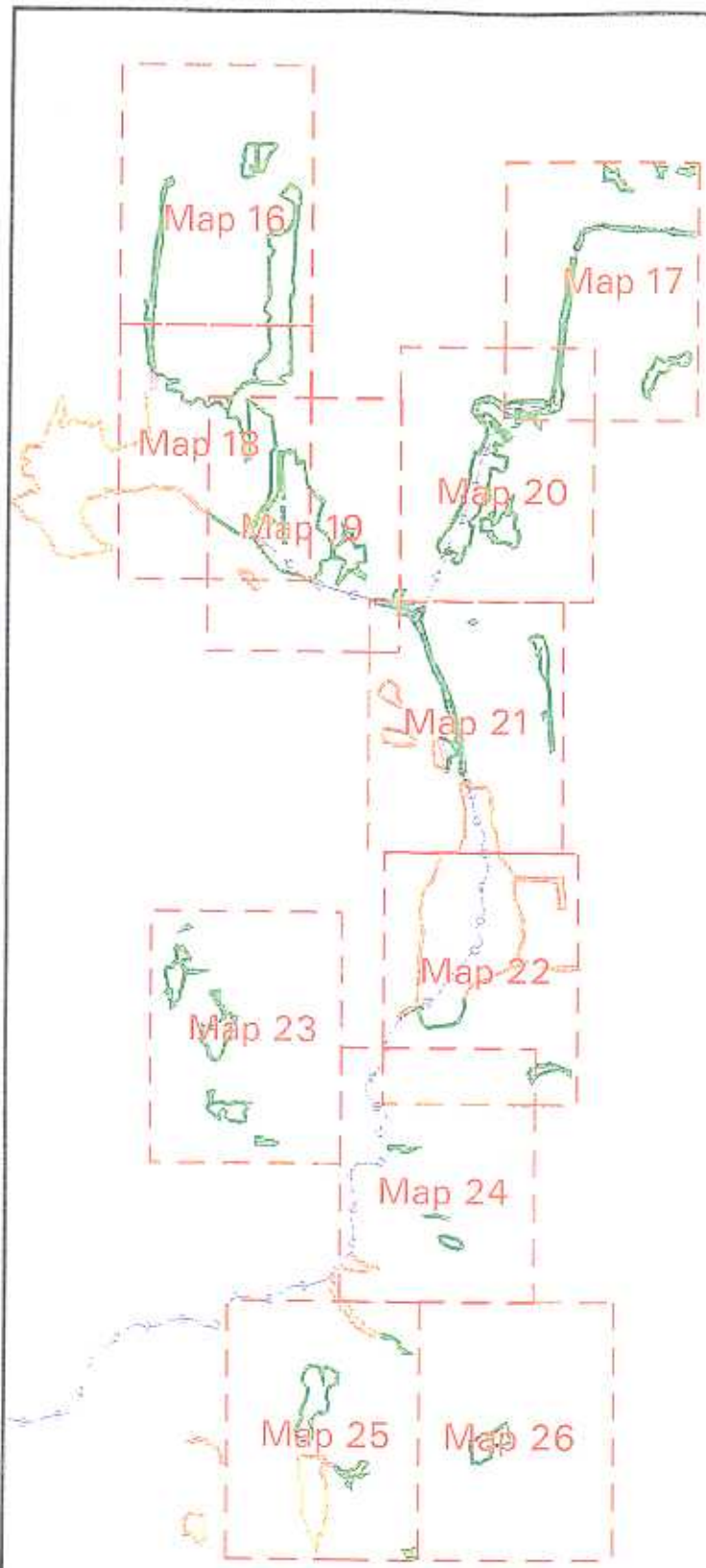
North and West Sides

Notes:
 Wetlands represented as surveyed are based on professional surveys completed by Parametrix, Inc., and have been verified by the U.S. Army Corps of Engineers. Wetlands represented as estimated have approximate boundaries based on field reconnaissance and aerial photography. Wetlands represented as unverified are presented for reference only.

-  Surveyed wetland boundary
-  Estimated wetland boundary
-  Other Estimated or Unverified Wetlands Outside Project Area.



Scale 1 : 14,400

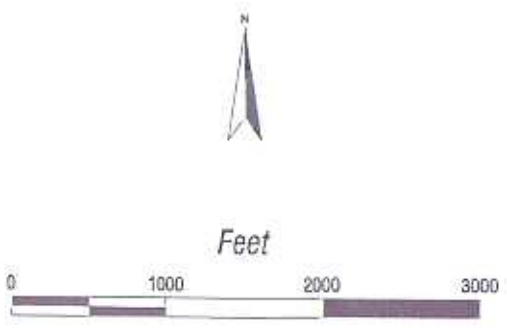


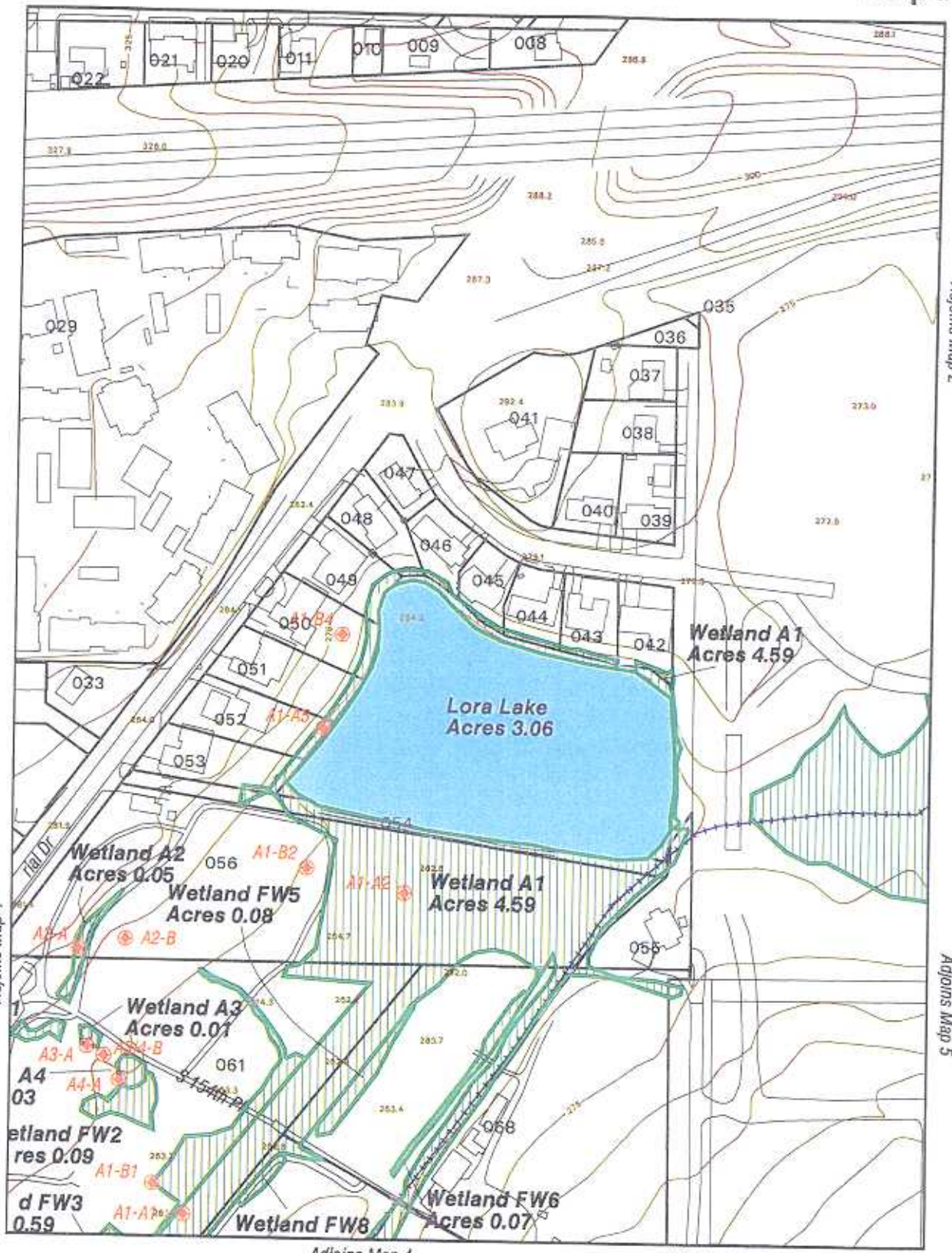
Wetlands Atlas

SASA, Tye Golf Course and Borrow Pit Areas

Note:
 Wetlands represented as surveyed are based on professional surveys completed by Parametrix, Inc., and have been verified by the U.S. Army Corps of Engineers. Wetlands represented as estimated have approximate boundaries based on field reconnaissance and aerial photography. Wetlands represented as unverified are presented for reference only.

- Surveyed wetland boundary
- Estimated wetland boundary
- Other Estimated or Unverified Wetlands Outside Project Area.





Scale 1 : 2,400

0 100 200 Feet

Surveied wetland boundary
 Miller Creek (est.)
 Parcel Boundary
 Contour Lines
 Basemap general features
 Data Plots



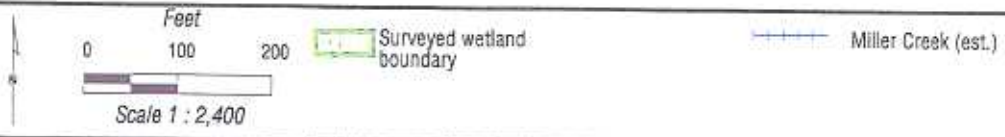
Adjoins Map 4

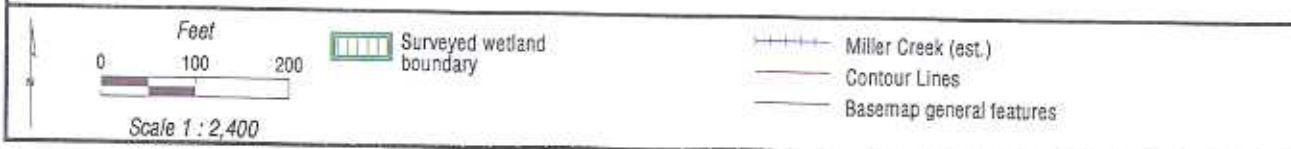
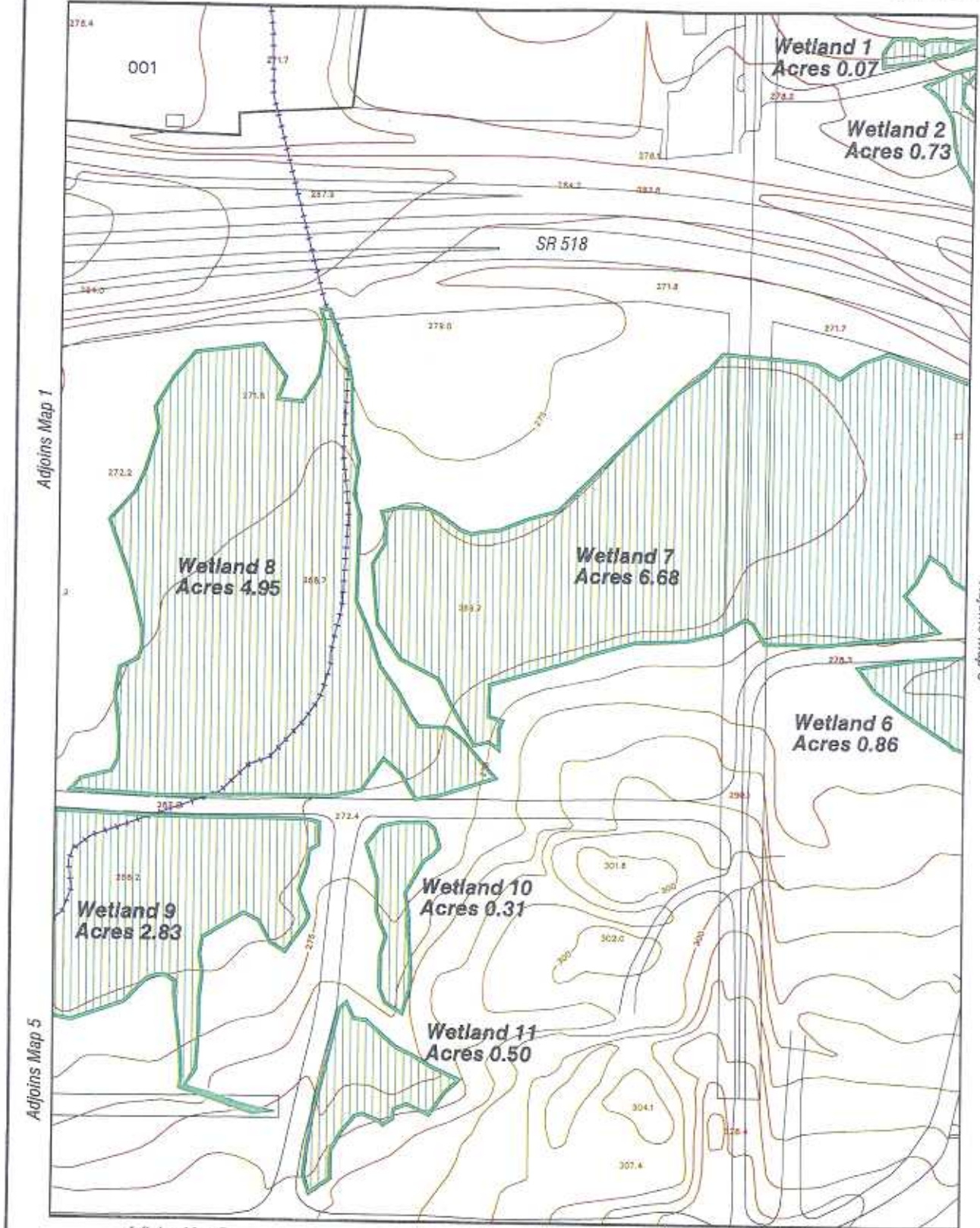
Adjoins Map 2

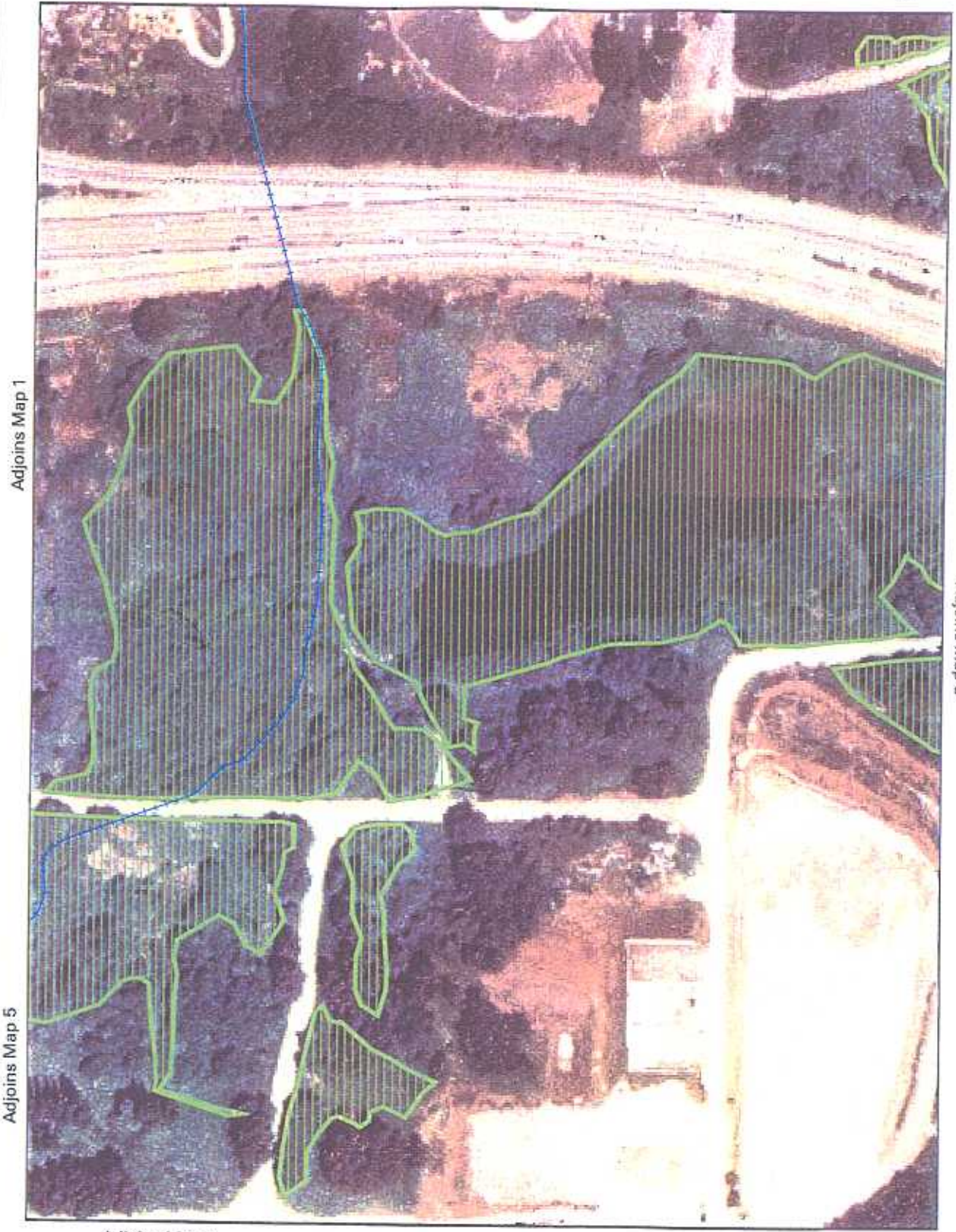
Adjoins Map 5

Adjoins Map 4

Adjoins Map 5







Adjoins Map 1

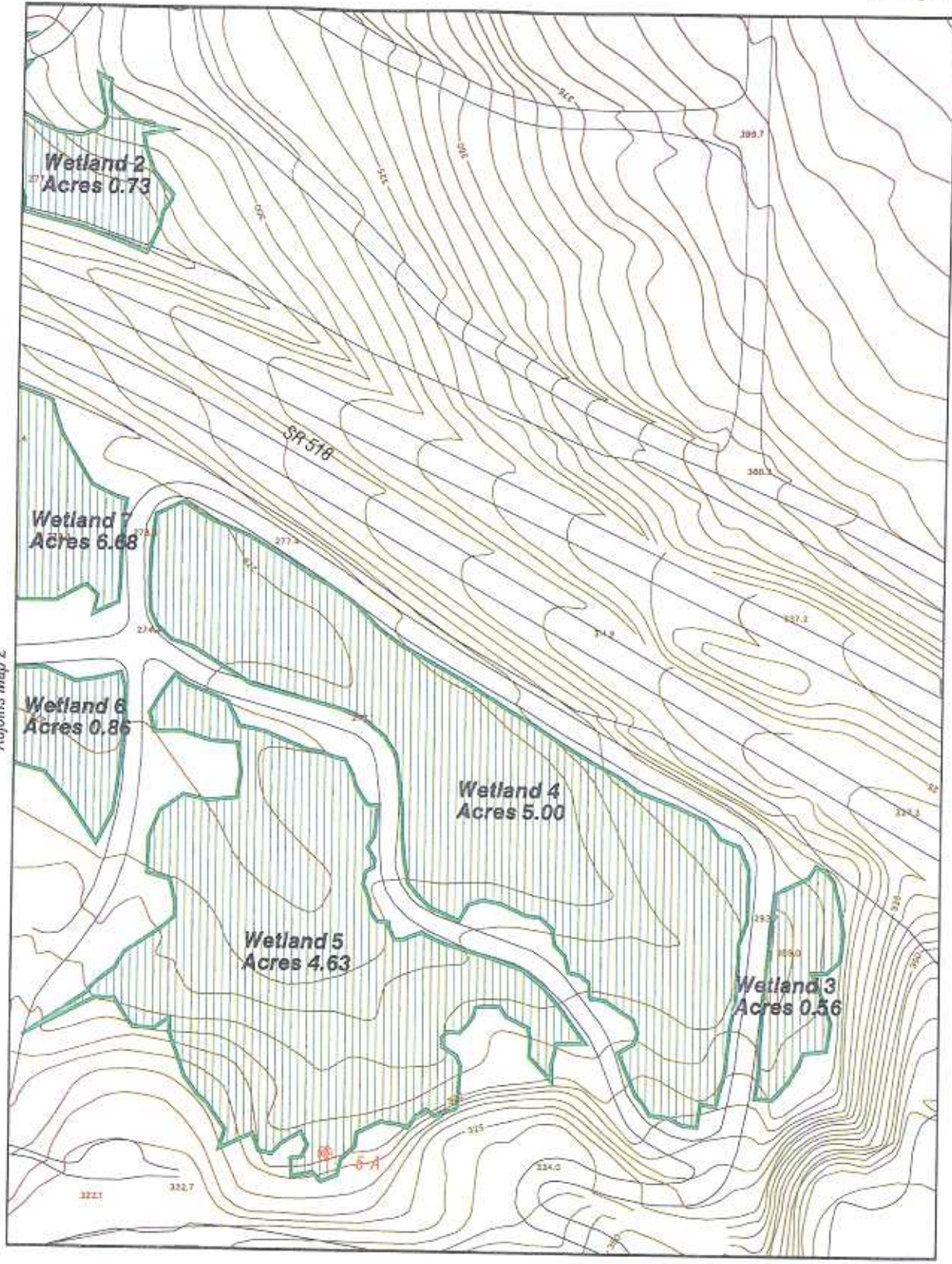
Adjoins Map 3

Adjoins Map 5

Adjoins Map 5

Adjoins Map 6





Adjoins Map 2

Scale 1 : 2,400

0 100 200 Feet

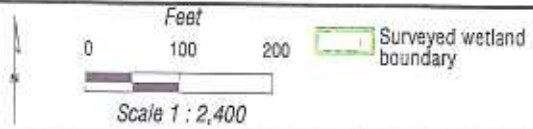
Surveyed wetland boundary

Contour Lines

Basemap general features

Data Plots

Adjoins Map 2

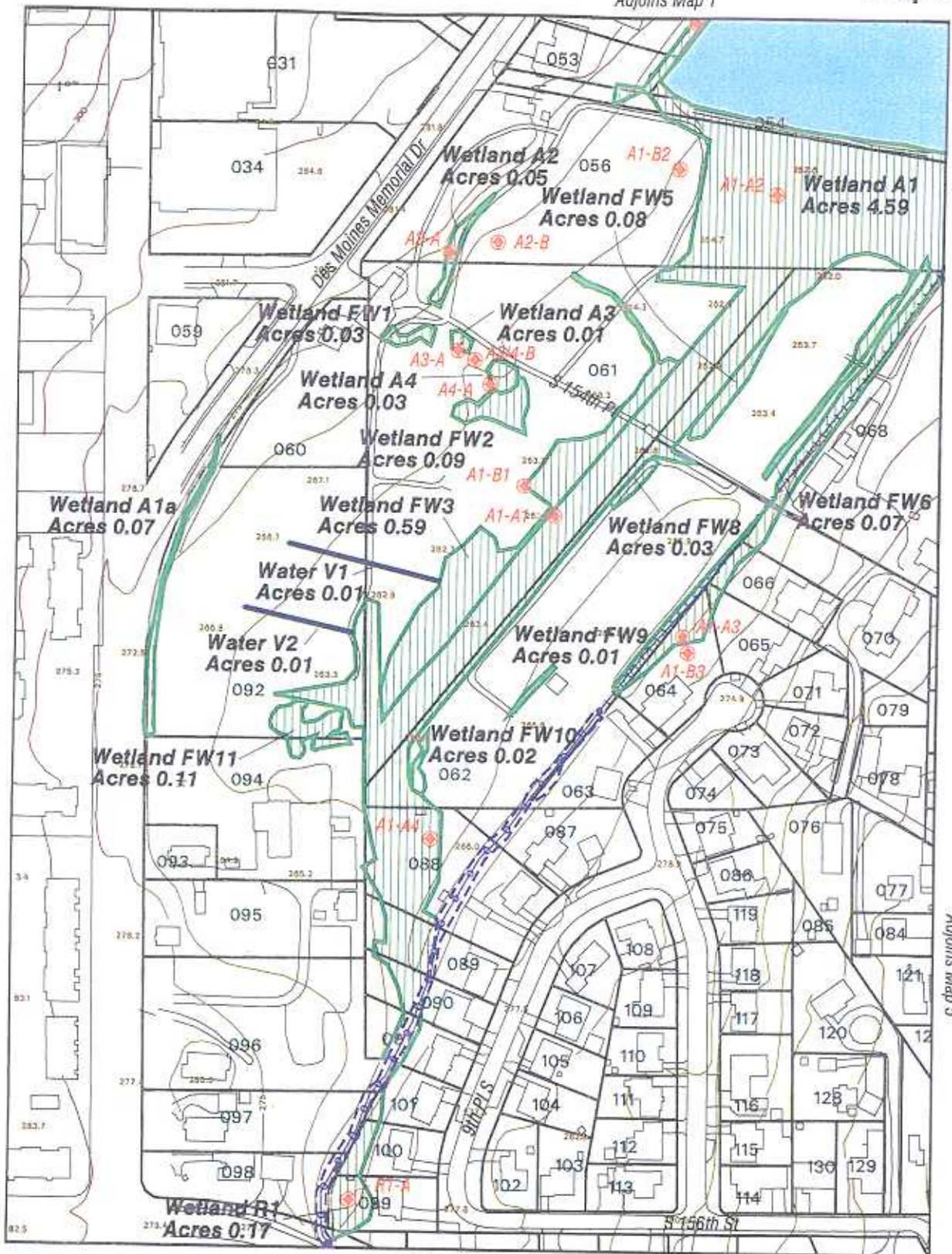


Adjoins Map 1

Adjoins Map 1

Adjoins Map 5

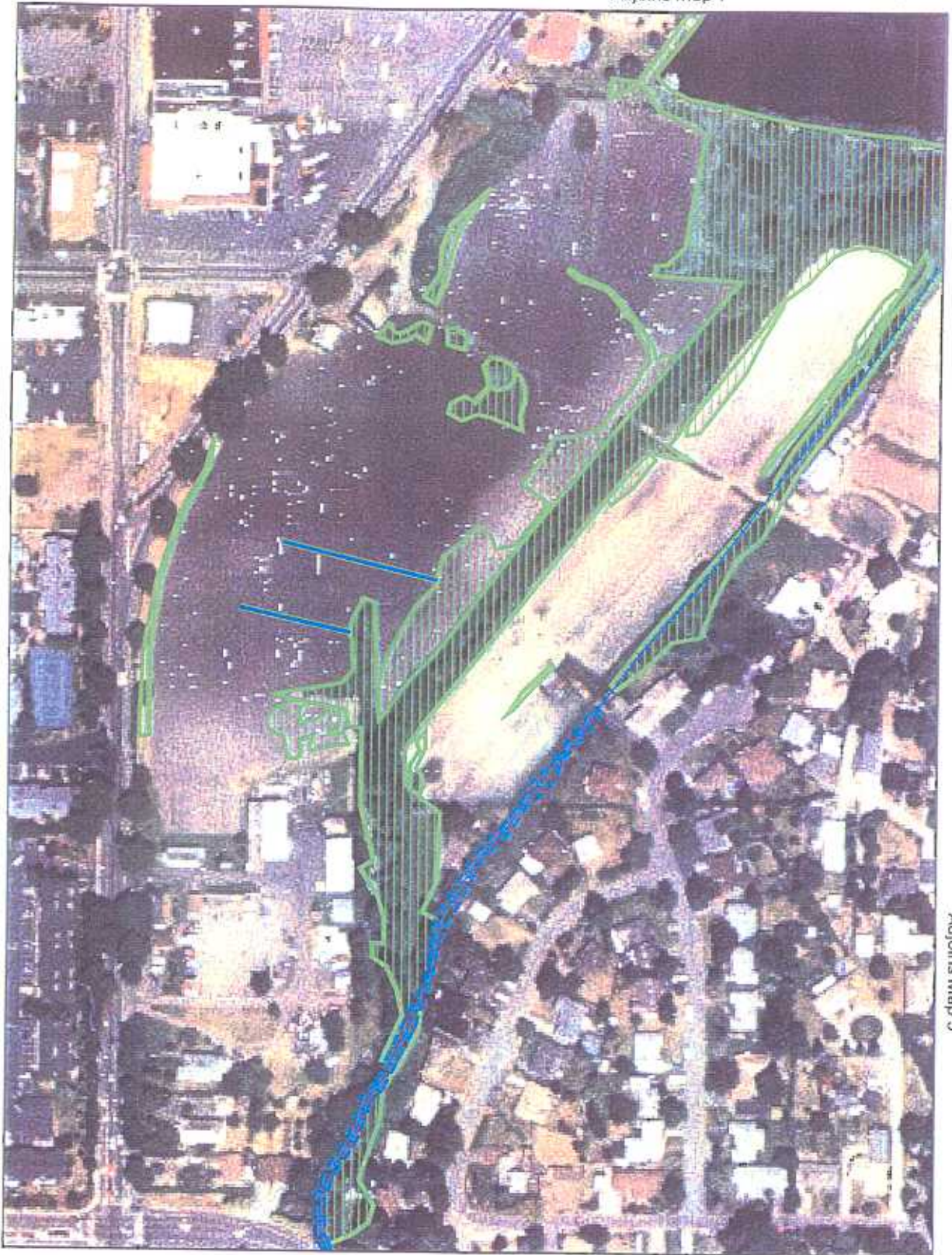
Adjoins Map 7



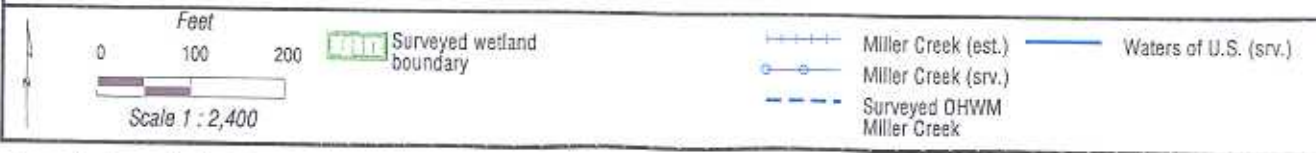
Adjoins Map 1

Adjoins Map 1

Adjoins Map 5



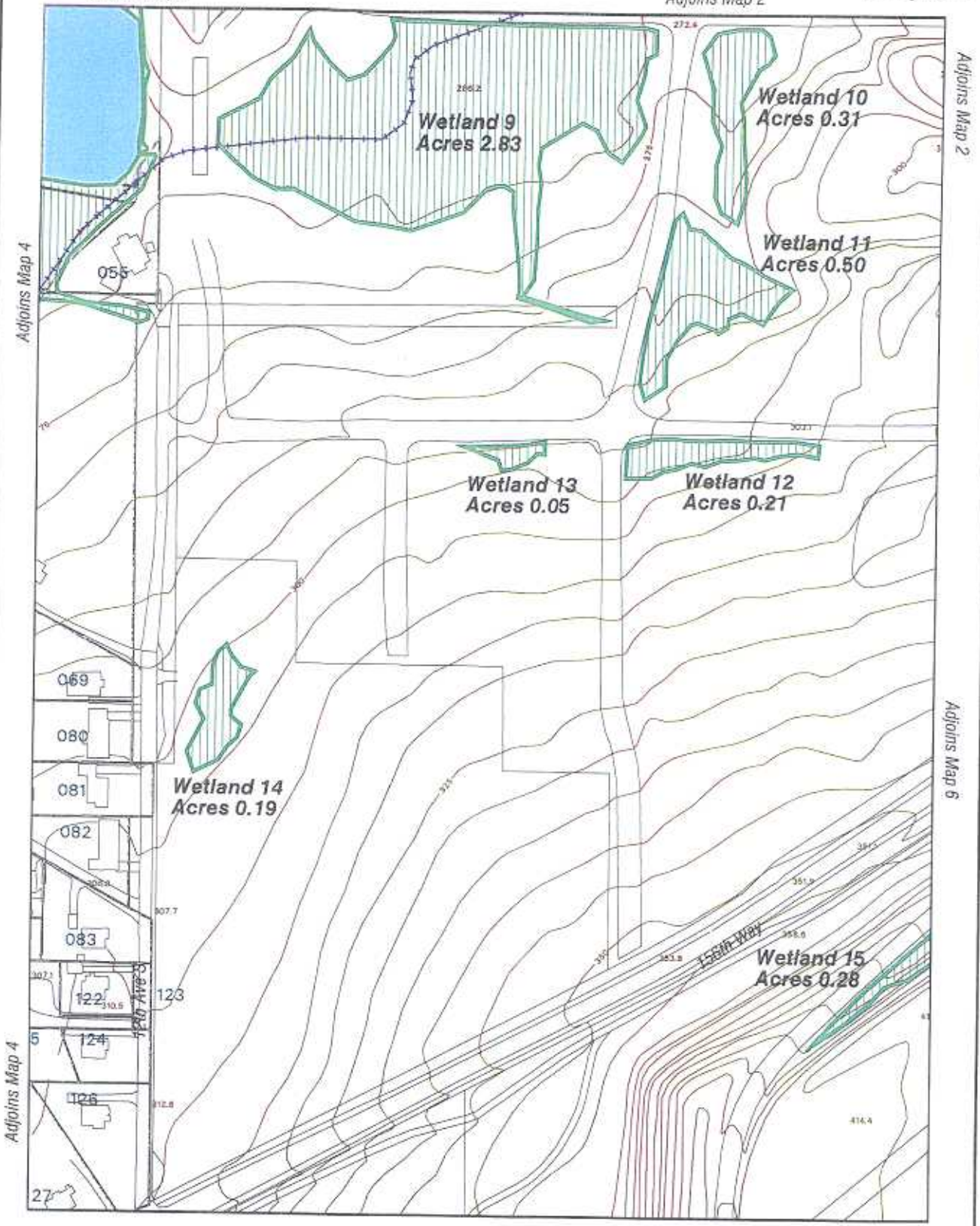
Adjoins Map 7



Adjoins Map 1

Adjoins Map 2

Map #5



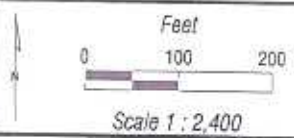
Adjoins Map 4


Adjoins Map 2




Adjoins Map 6

Adjoins Map 4

Adjoins Map 6



 Surveyed wetland boundary

-  Miller Creek (est.)
-  Contour Lines
-  Basemap general features

Adjoins Map 1

Adjoins Map 2

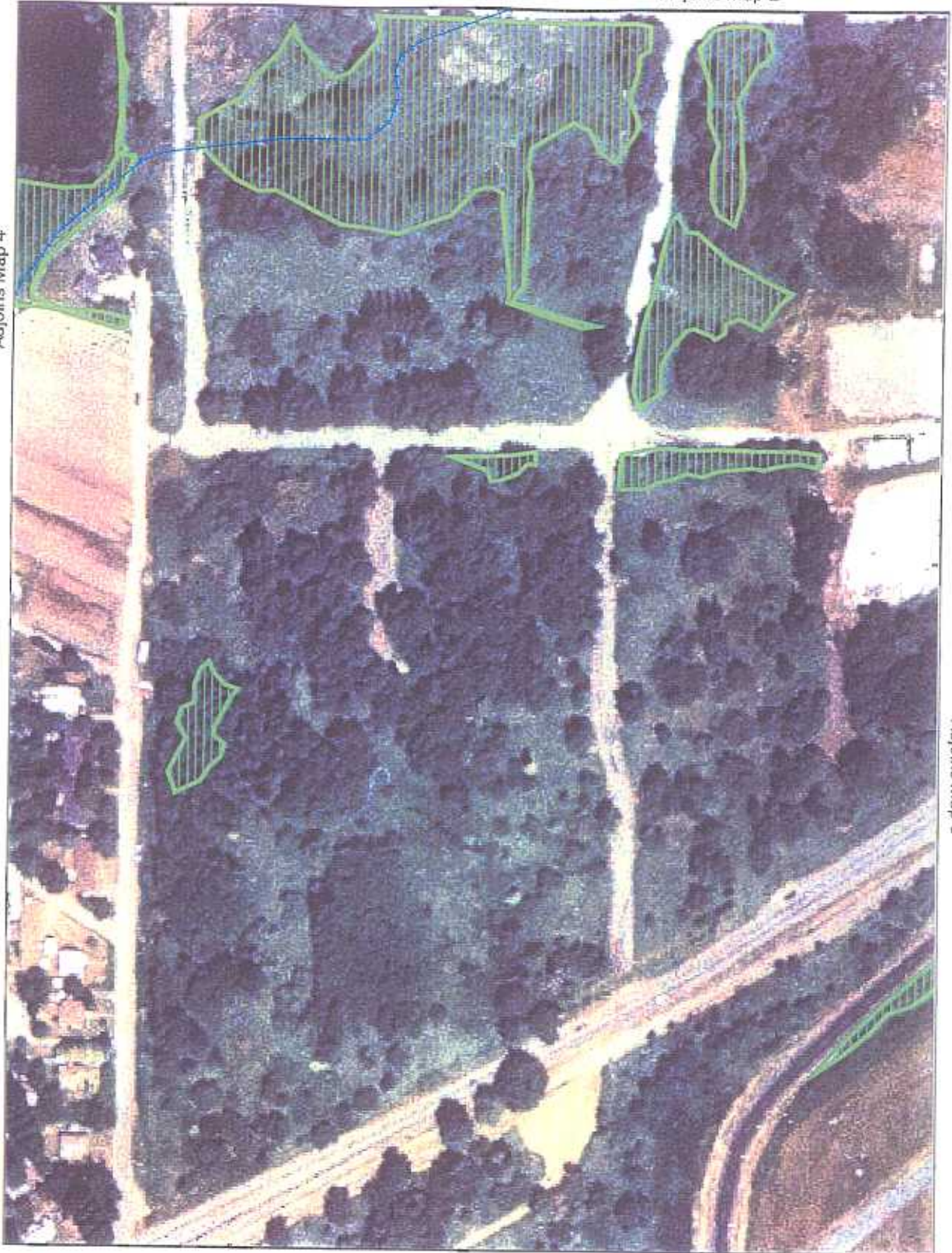
Image #5

Adjoins Map 4

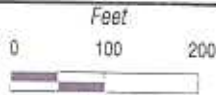
Adjoins Map 2

Adjoins Map 4


Adjoins Map 6



Adjoins Map 6



Scale 1 : 2,400

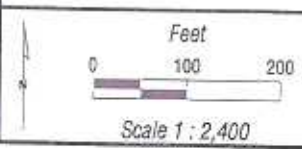
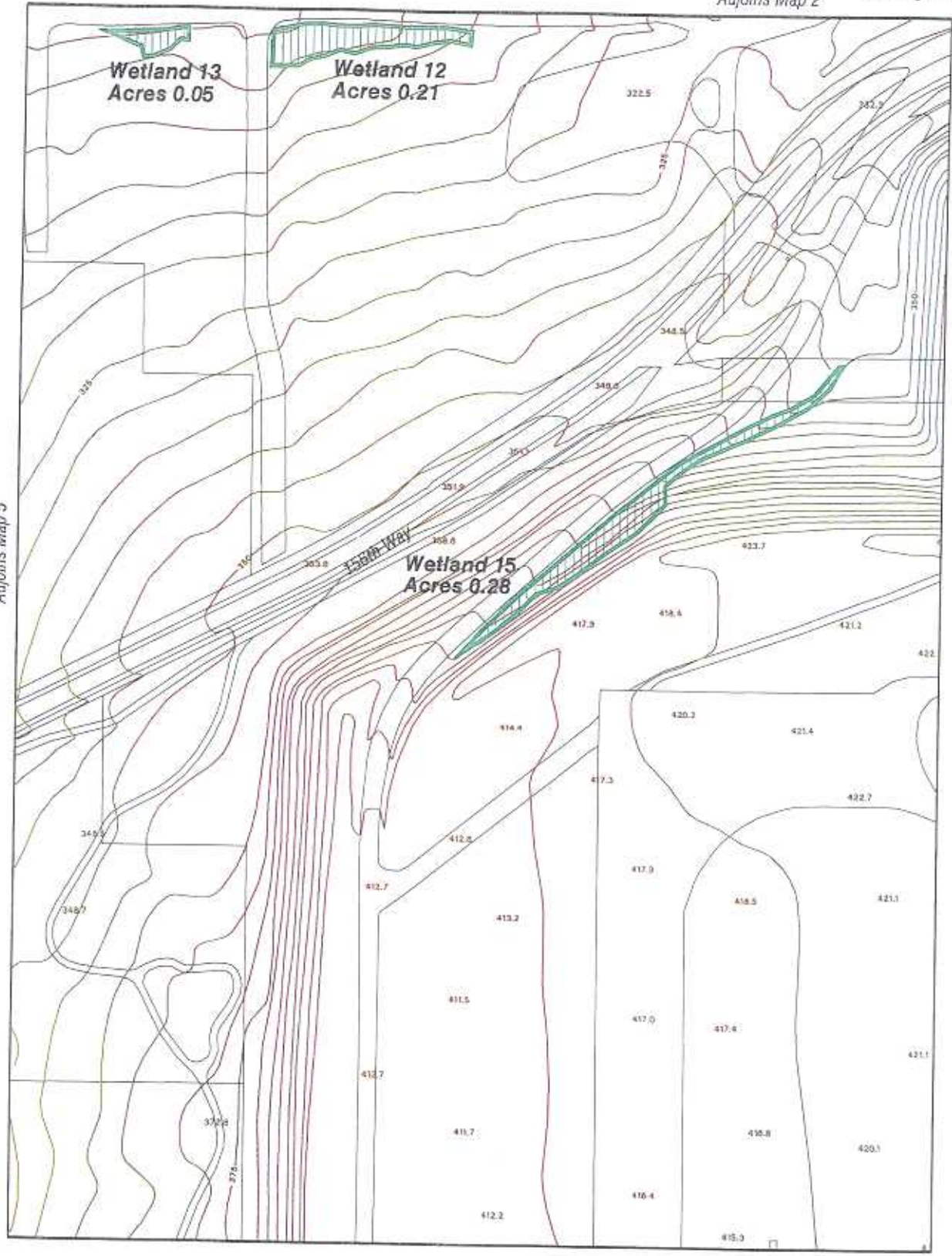
 Survejed wetland boundary


 Millier Creek (est.)



Adjoins Map 2

Map #6

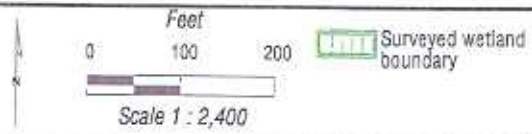
Adjoins Map 5



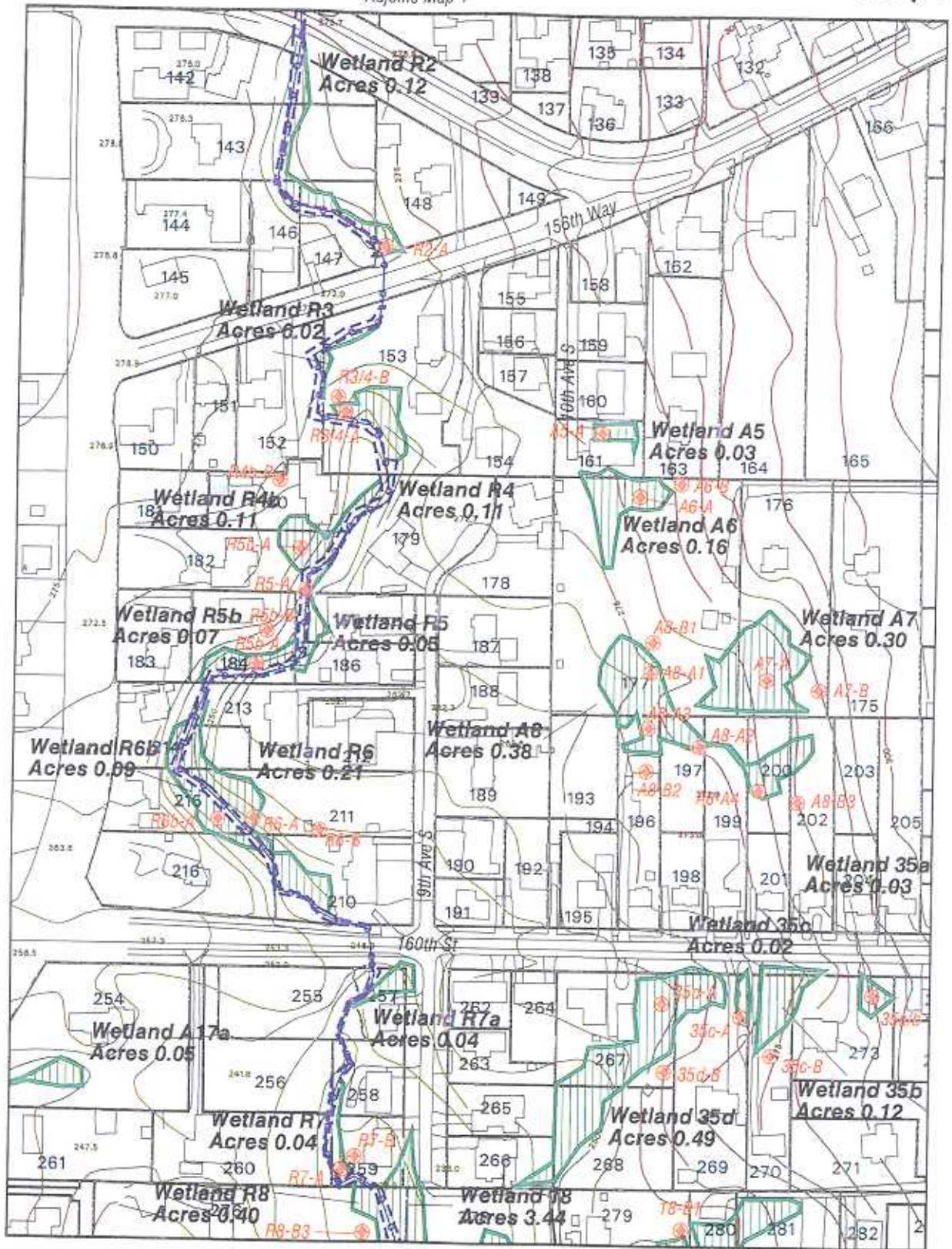
 Surveied wetland boundary

 Contour Lines
 Basemap general features

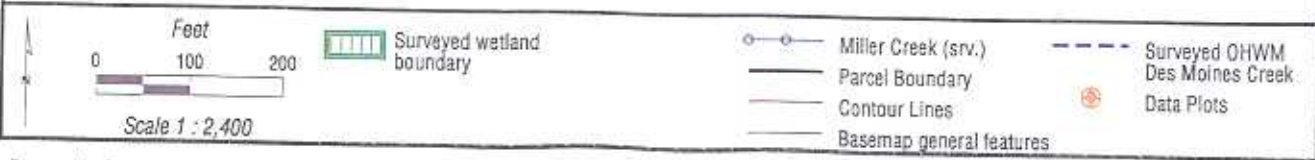
Adjoins Map 5

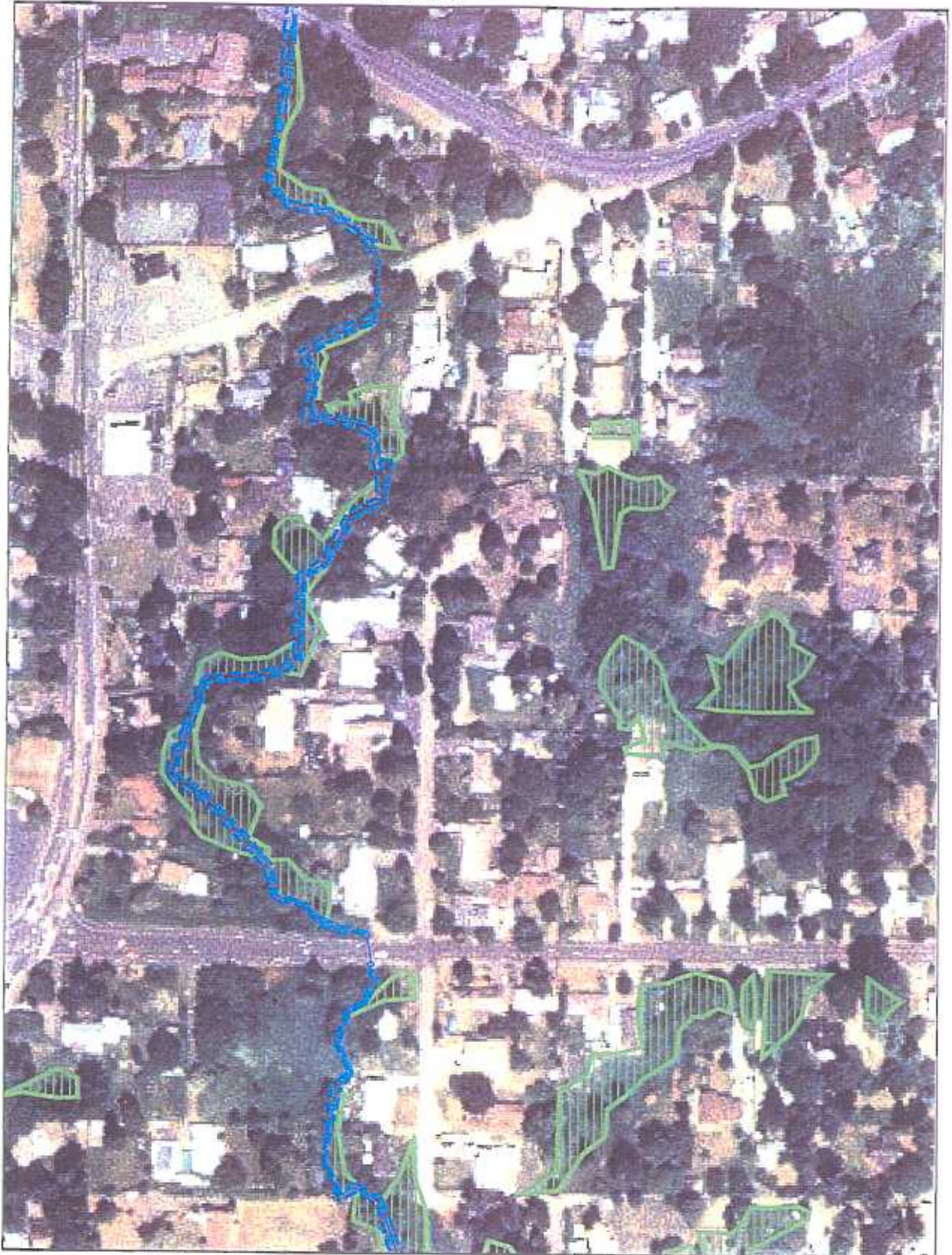


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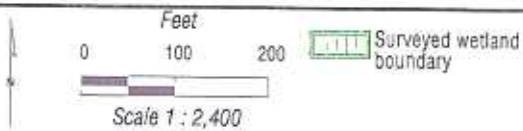


Adjoins Map 9



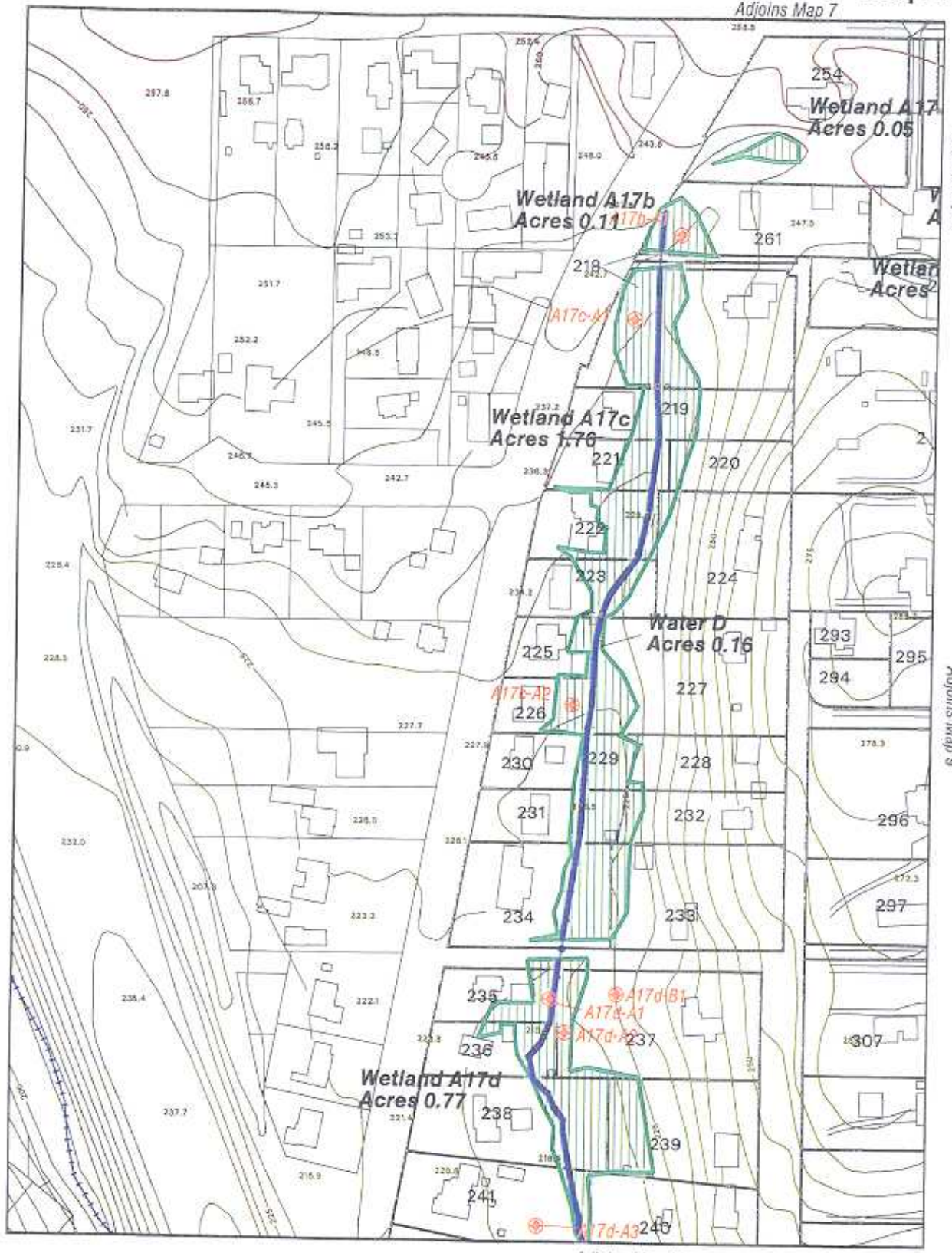


Adjoins Map 9



- Miller Creek (srv.)
- - - Surveyed OHWM Miller Creek

Map #8



Scale 1 : 2,400

0 100 200 Feet

Surveyed wetland boundary

Miller Creek (est.)

Miller Creek (srv.)

Parcel Boundary

Contour Lines

Basemap general features

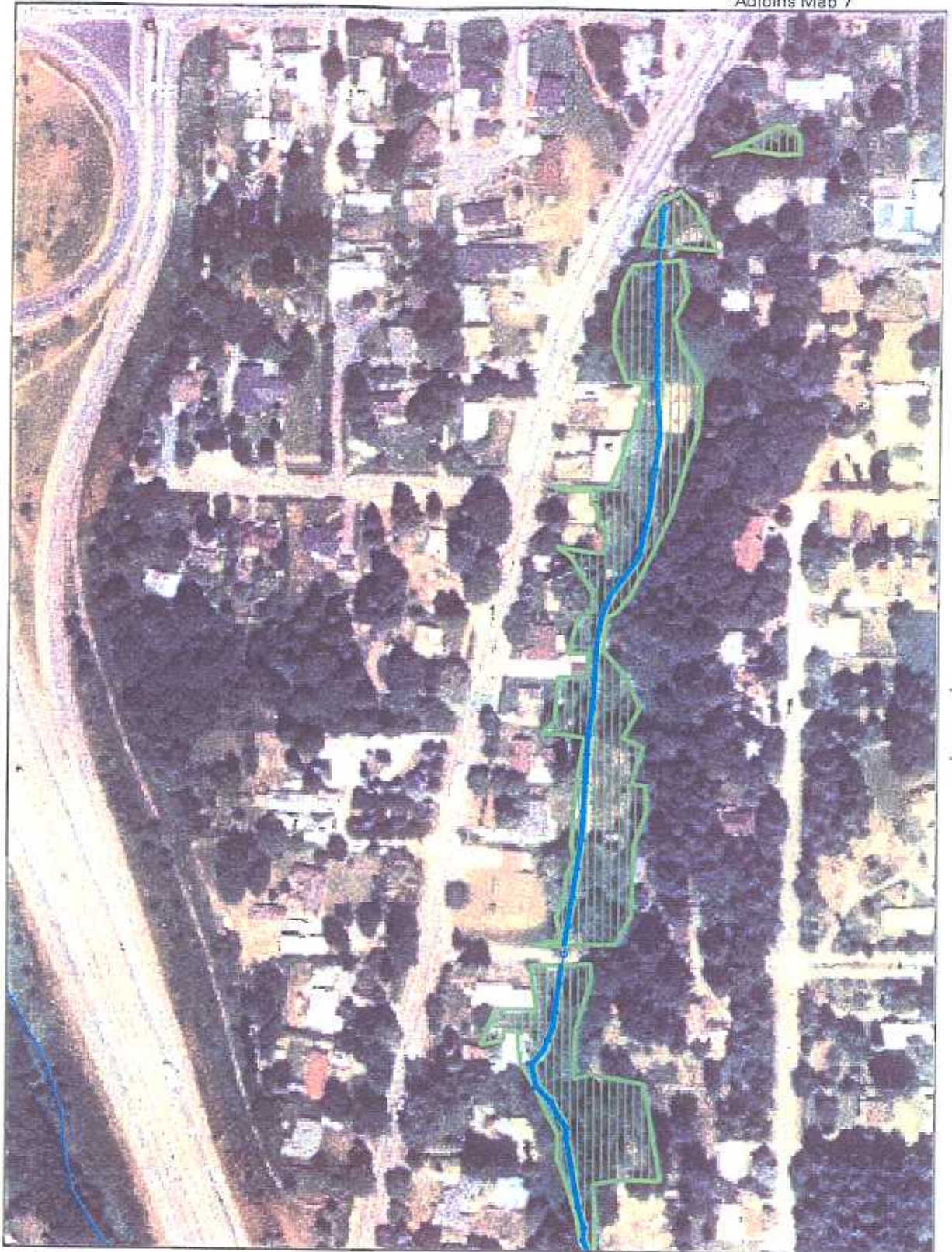
Waters of U.S. (srv.)

Data Plots

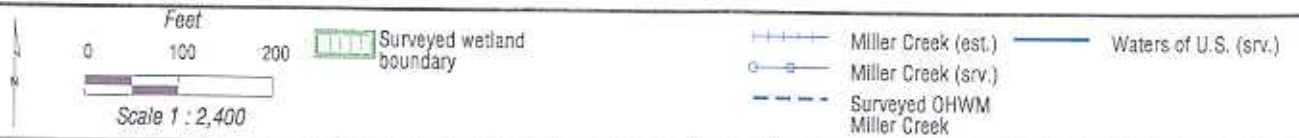
Adjoins Map 7

Adjoins Map 7

Adjoins Map 9



Adjoins Map 11

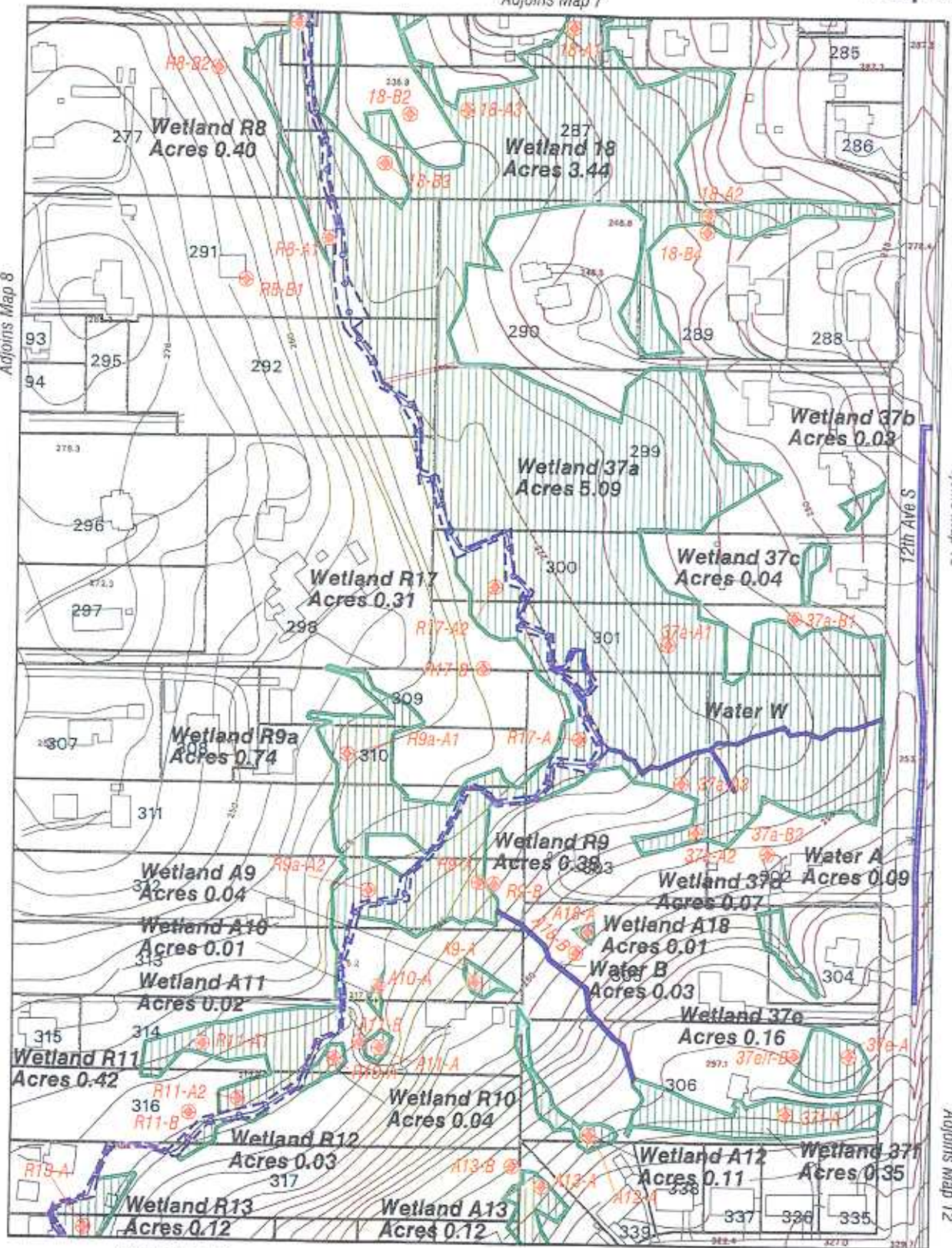


Adjoins Map 7

Adjoins Map 8

Adjoins Map 10

Adjoins Map 12

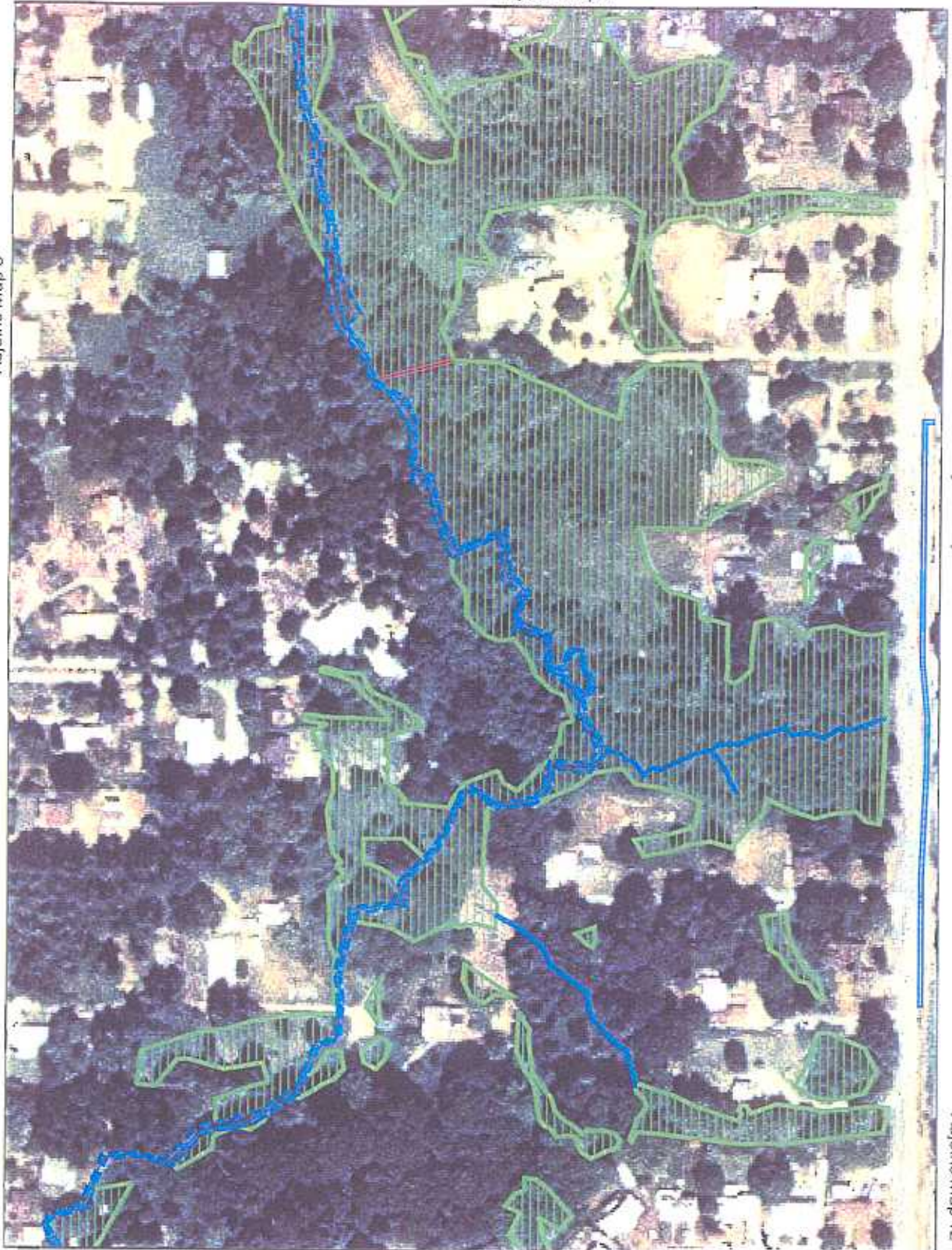


Adjoins Map 7

Adjoins Map 8

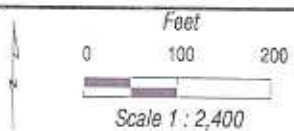
Adjoins Map 10



Adjoins Map 12


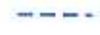



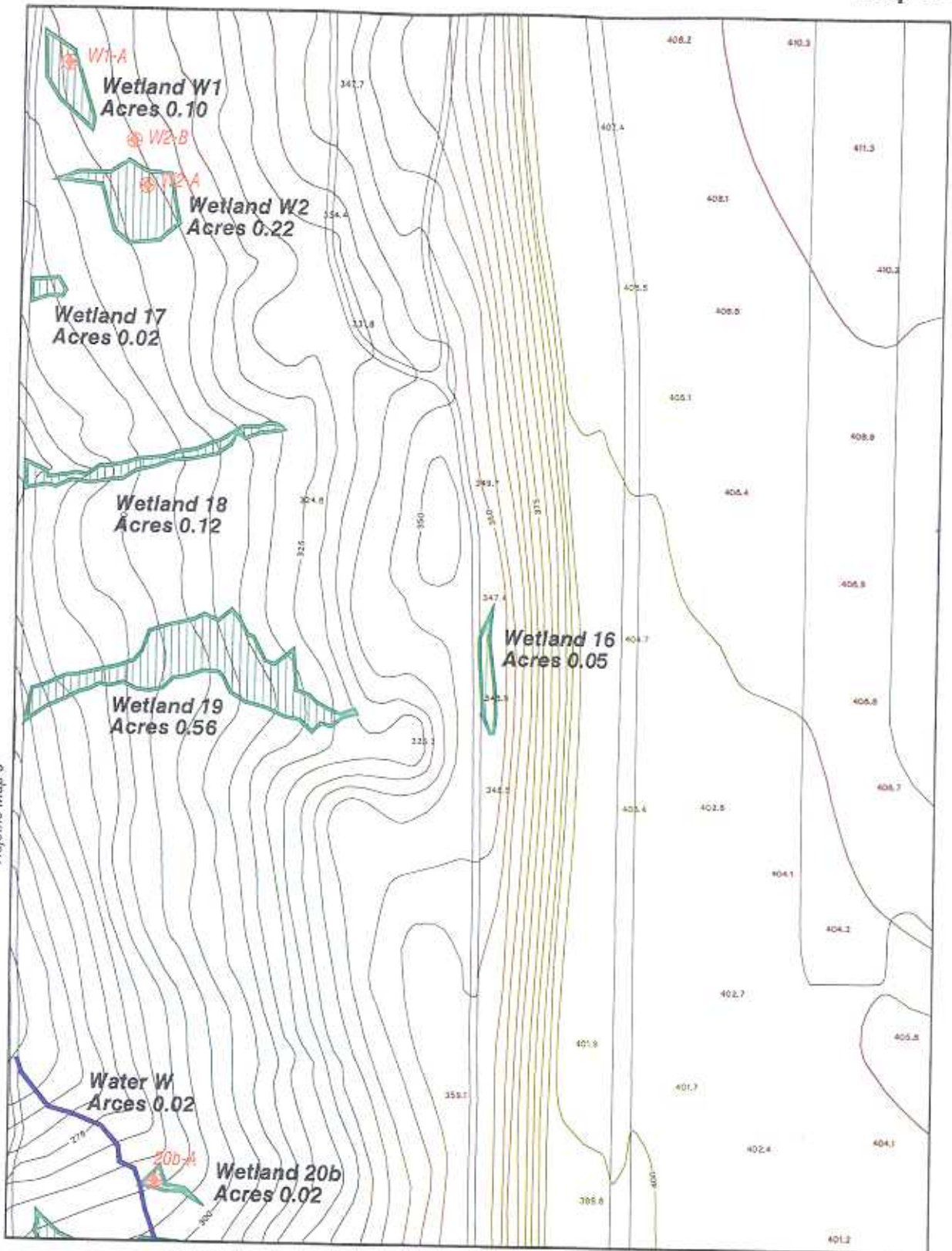
Adjoins Map 11

Adjoins Map 12



-  Surveed wetland boundary
-  Estimated wetland boundary.

-  Miller Creek (srv.)
-  Surveed OHWM Miller Creek
-  Waters of U.S. (srv.)



Adjoins Map 9

Adjoins Map 12

0 100 200 Feet

Scale 1 : 2,400

Surveyed wetland boundary

Contour Lines

Basemap general features

Waters of U.S. (srv.)

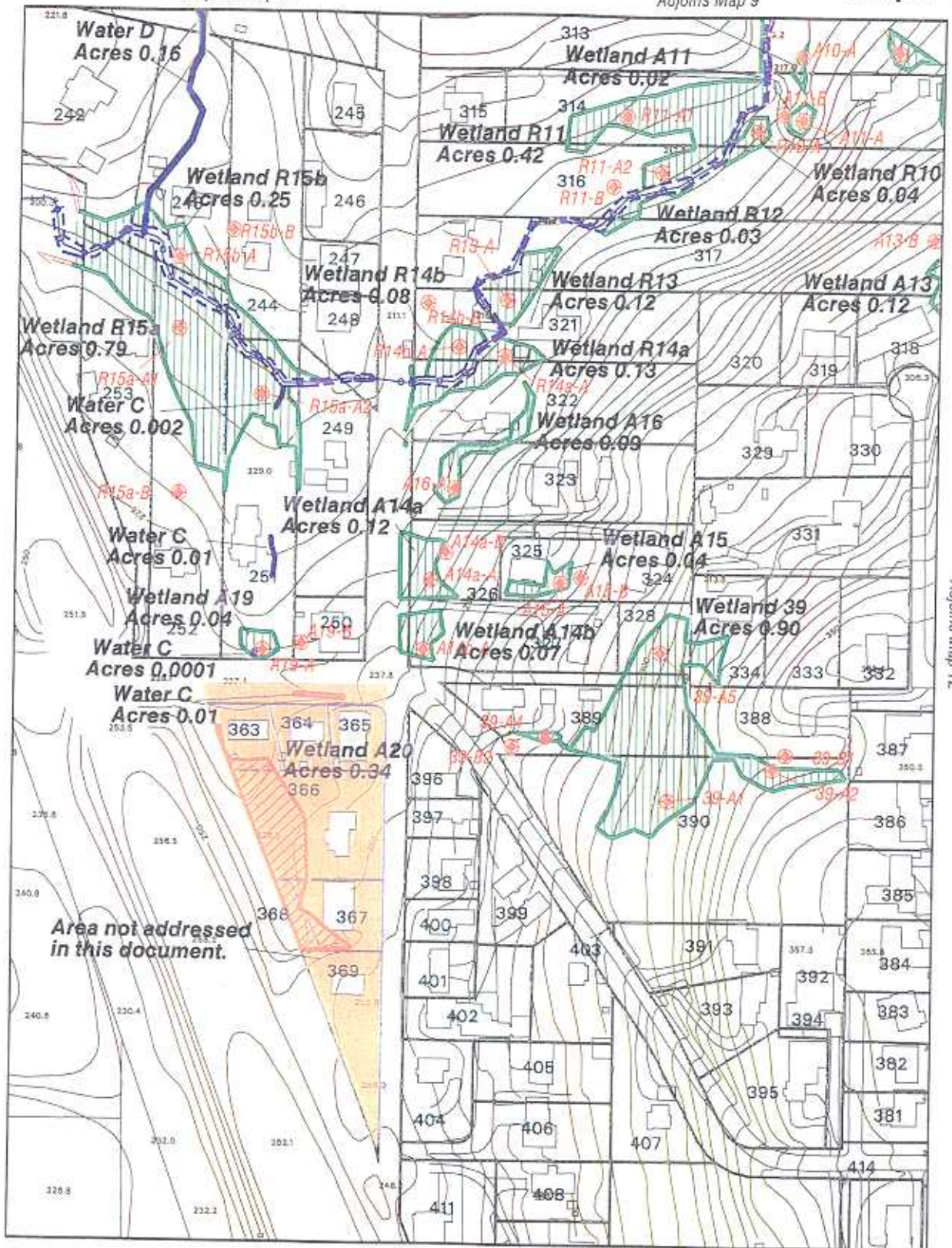
Data Plots



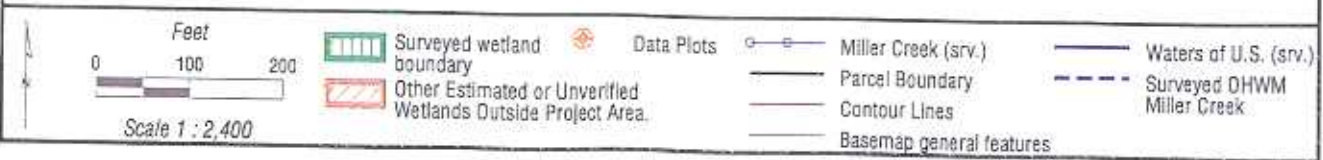
Adjoins Map 9

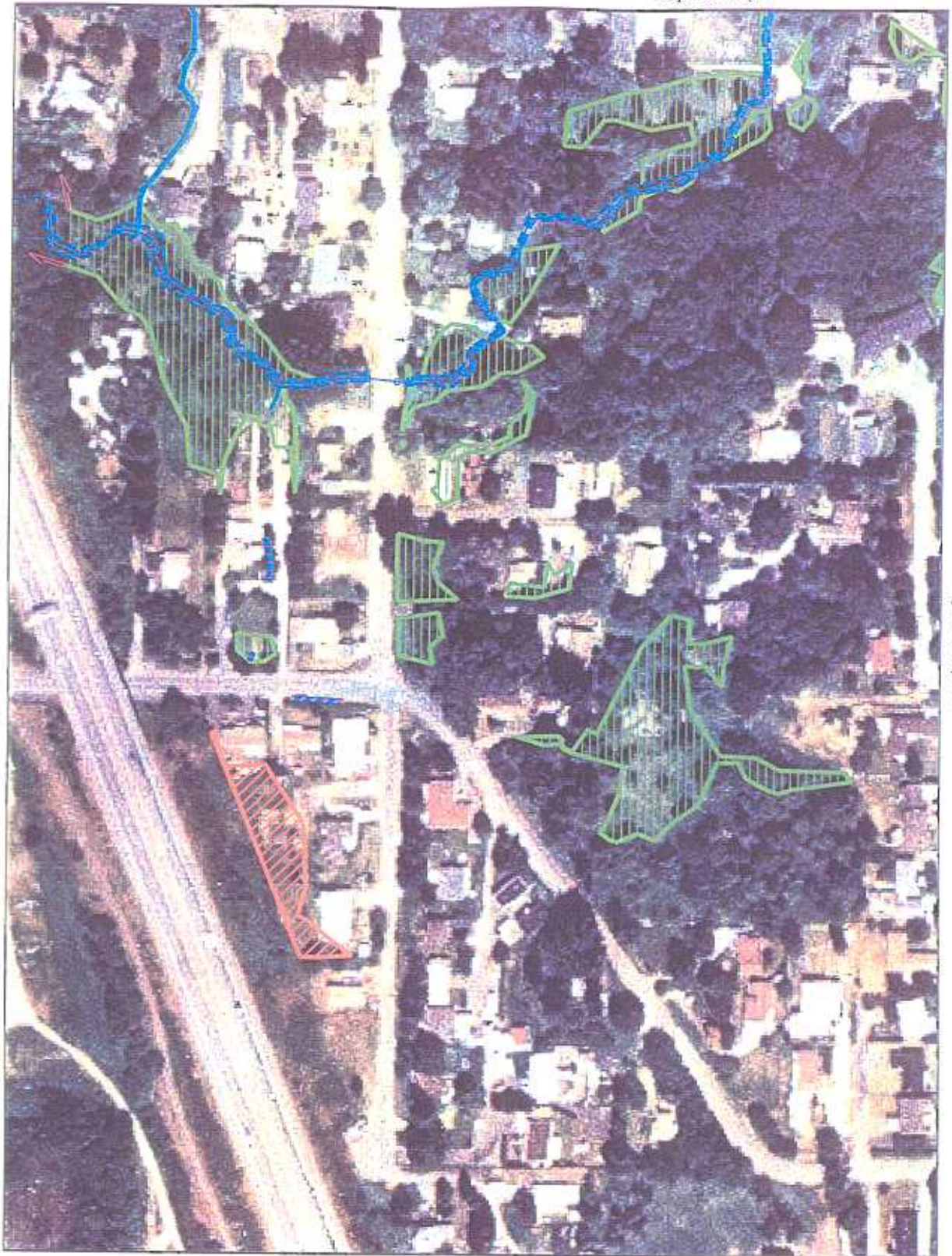
Adjoins Map 12



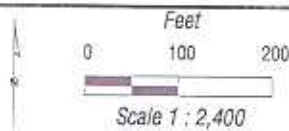




Area not addressed in this document.








Adjoins Map 12



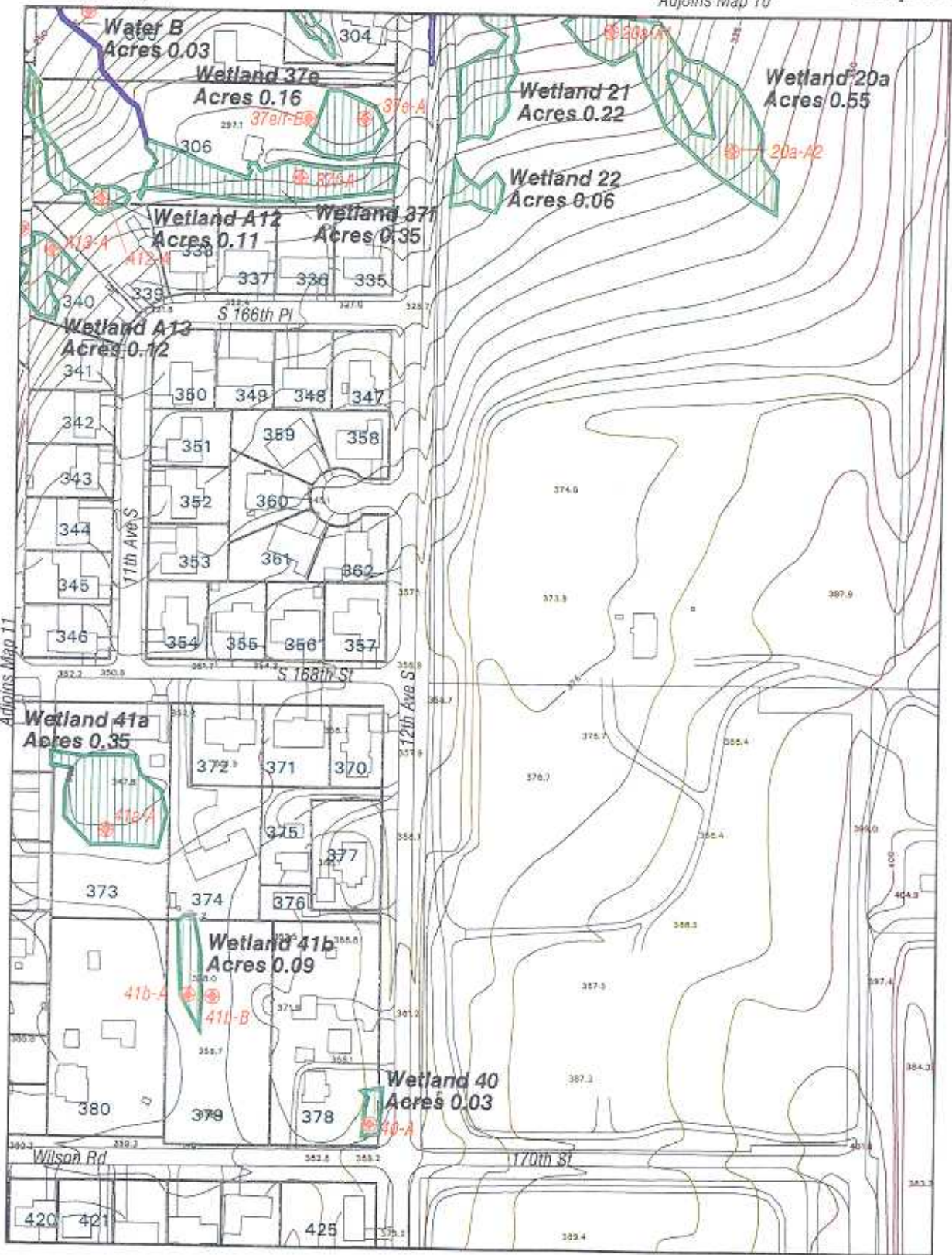
-  Surveyed wetland boundary
-  Other Estimated or Unverified Wetlands Outside Project Area.

-  Miller Creek (srv.)
-  Surveyed DHWM Miller Creek
-  Waters of U.S. (srv.)

Adjoins Map 9

Adjoins Map 10

Map #12



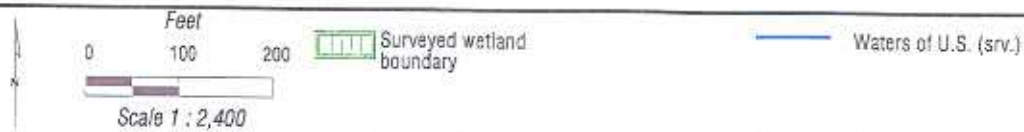
Adjoins Map 9

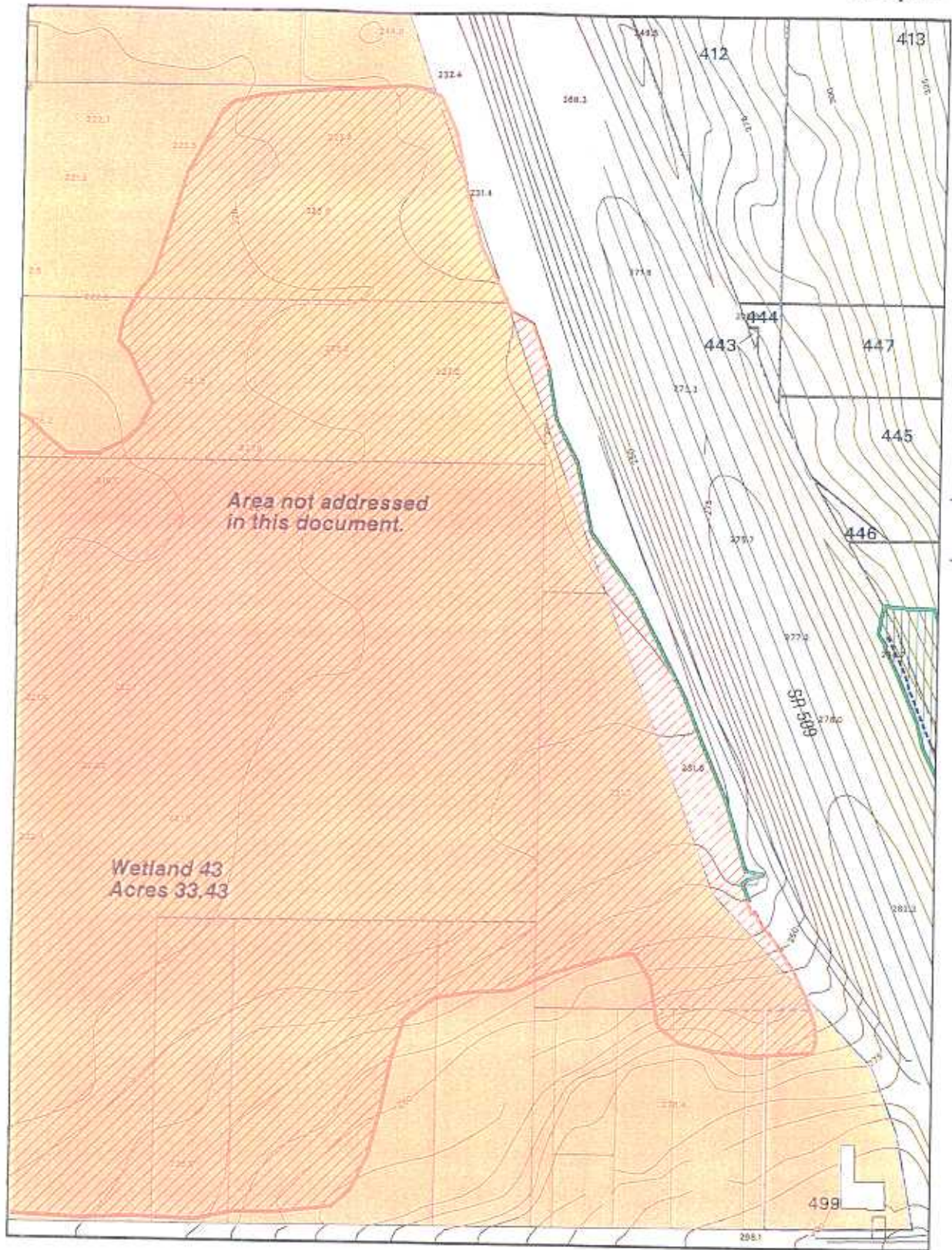
Adjoins Map 10

Image #12



Adjoins Map 11

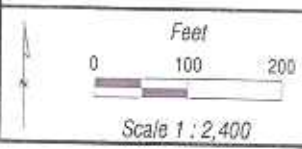










Adjoins Map 14

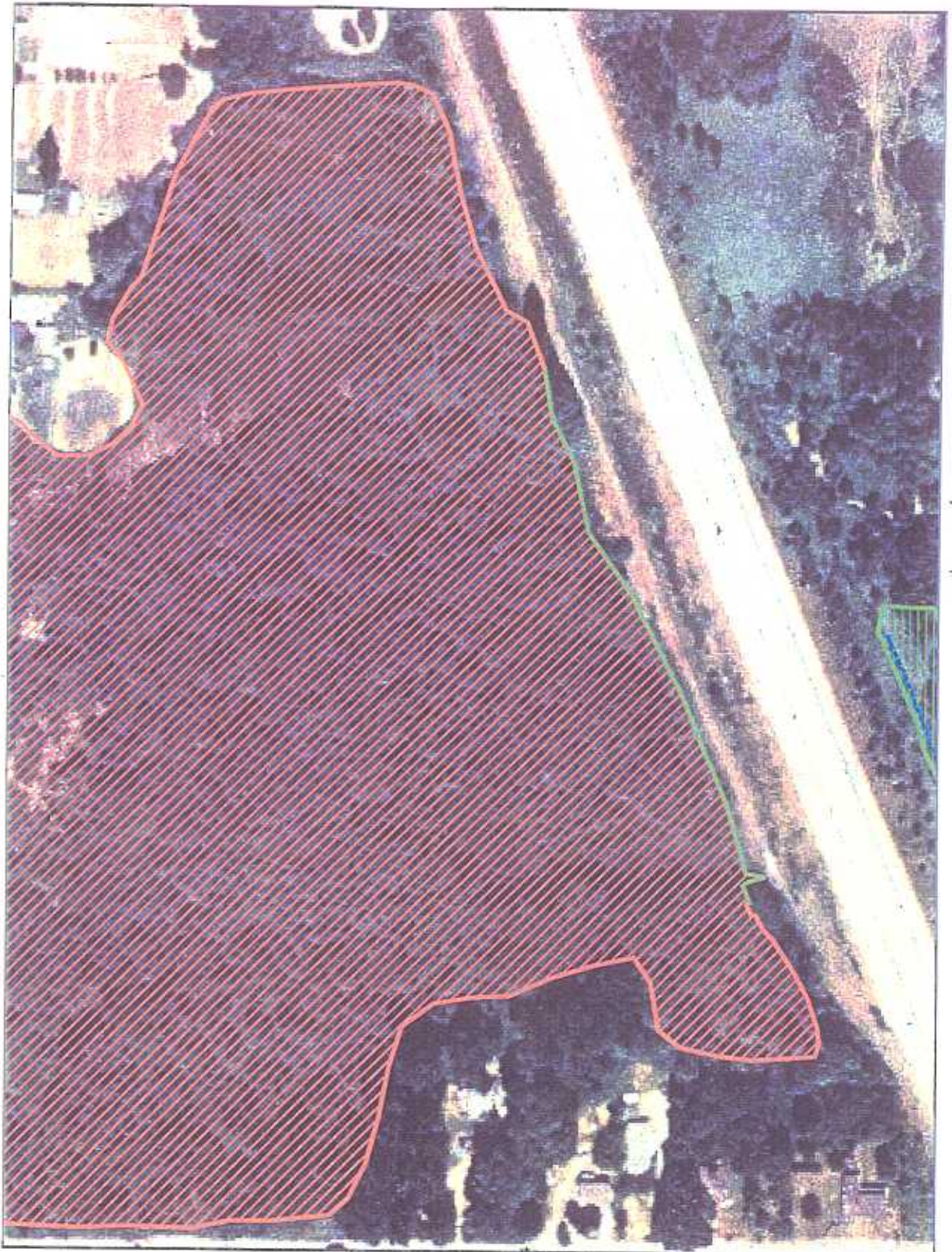
Area not addressed
in this document.

Wetland 43
Acres 33.43

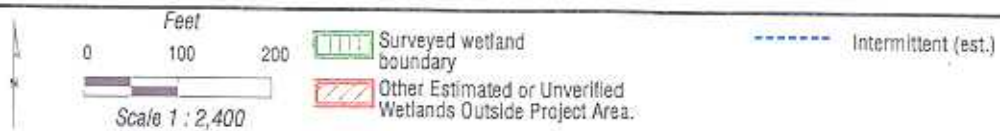


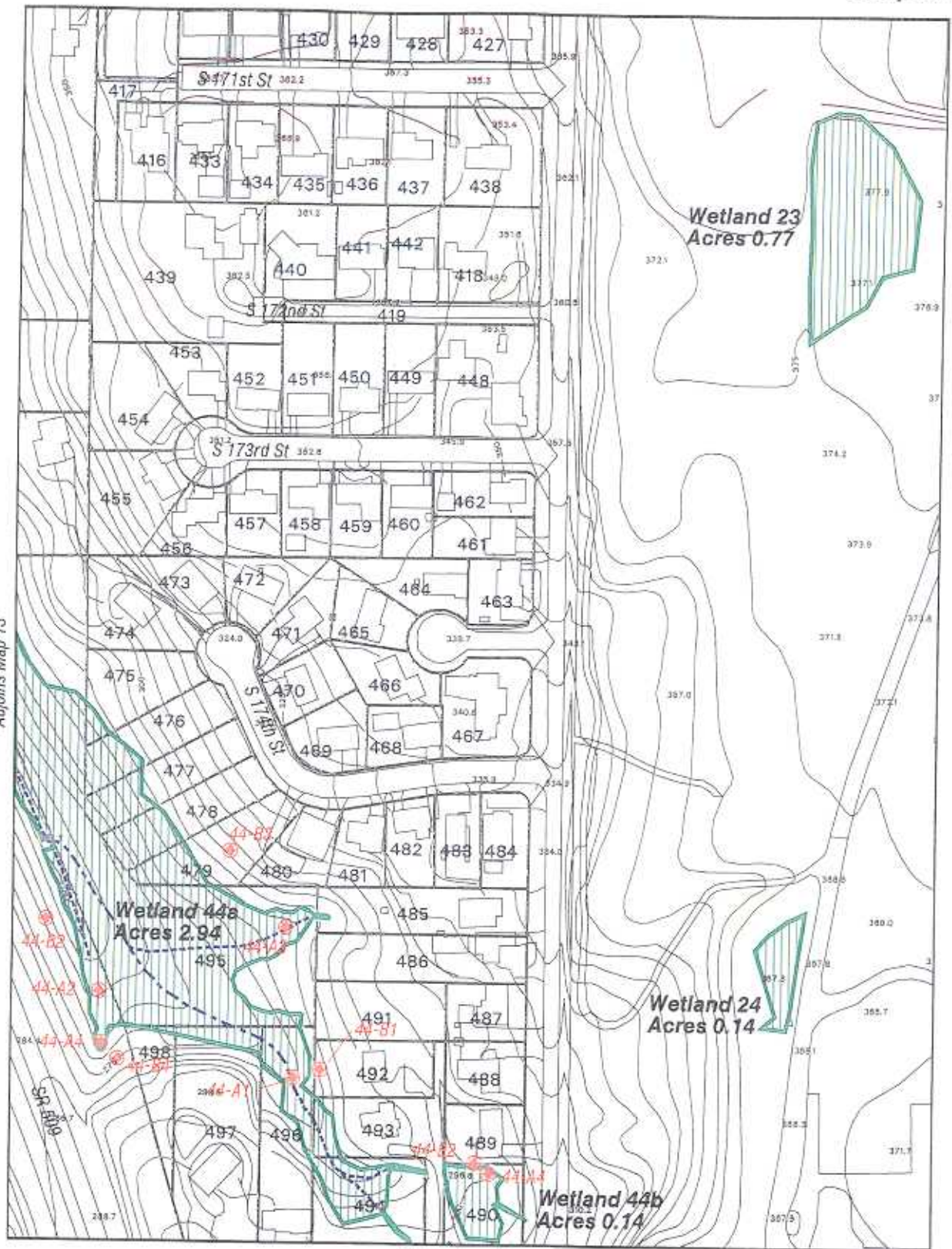
-  Surveied wetland boundary
-  Other Estimated or Unverified Wetlands Outside Project Area.

-  Parcel Boundary
-  Contour Lines
-  Basemap general features
-  Intermittent (est.)



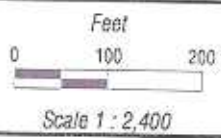
Adjoins Map 14





Adjoins Map 13

Adjoins Map 15

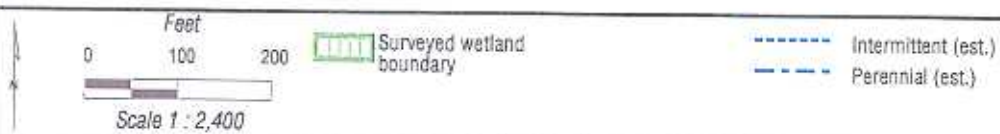


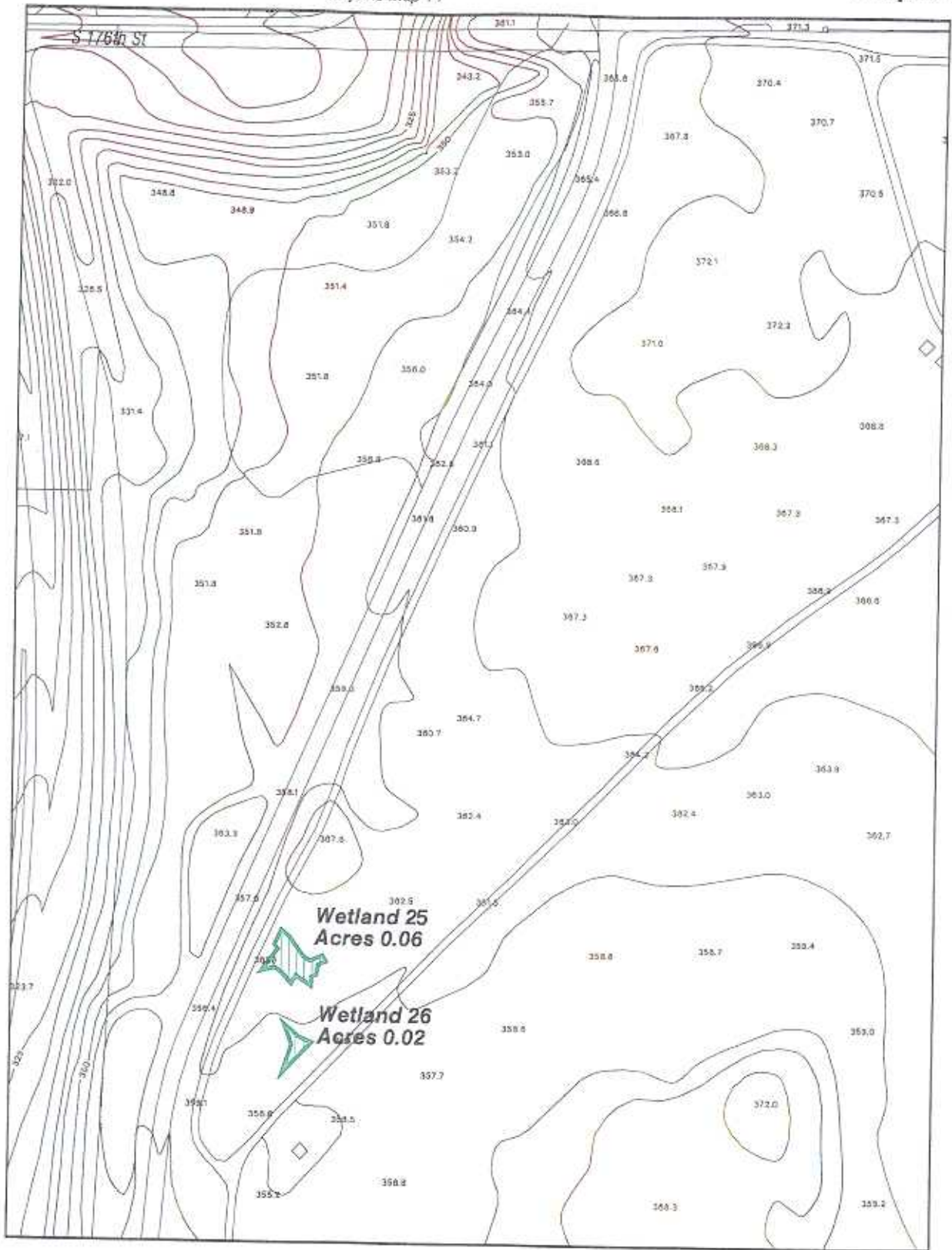
- Surveyed wetland boundary
- Parcel Boundary
- Contour Lines
- Basemap general features
- Intermittent (est.)
- Perennial (est.)
- Data Plots

Adjoins Map 13



Adjoins Map 15



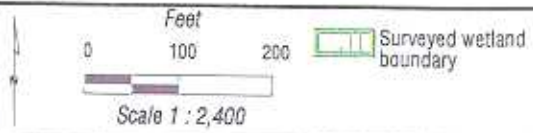


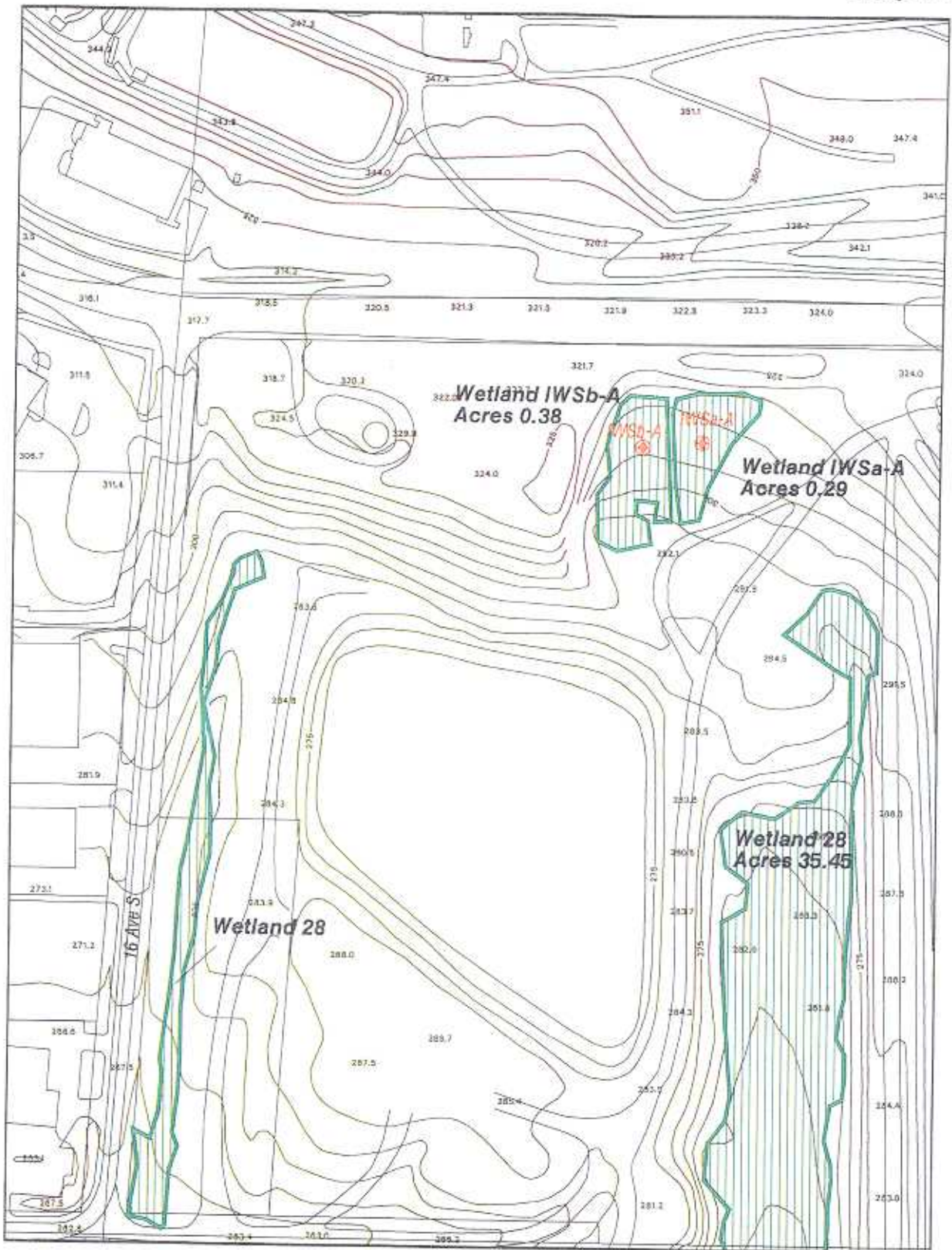






Feet
 0 100 200
 Scale 1 : 2,400
 Surveyed wetland boundary
 Contour Lines
 Basemap general features



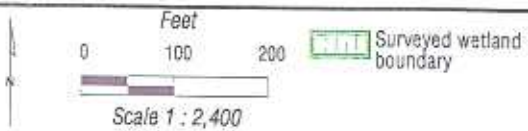


Adjoins Map 18

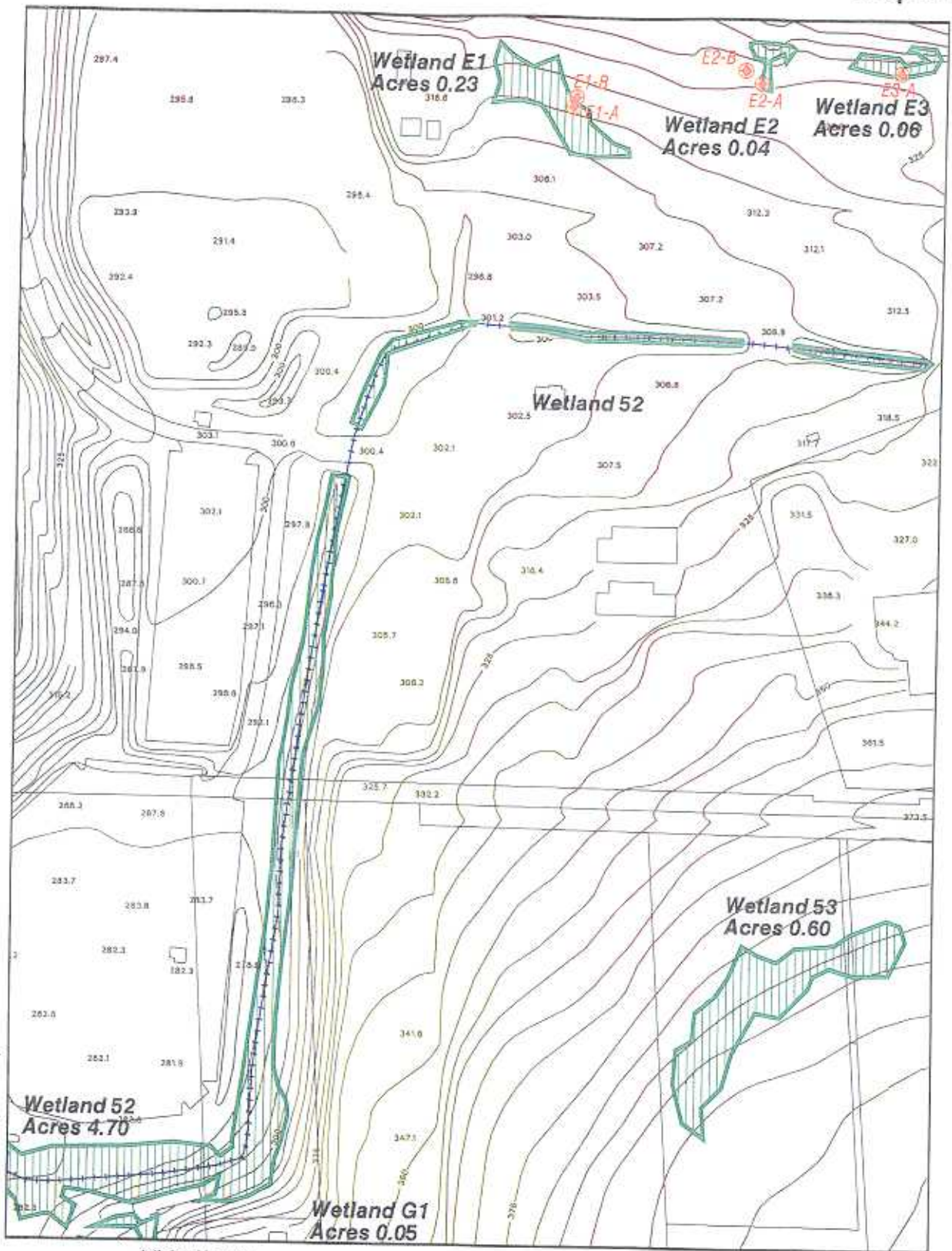




Adjoins Map 18

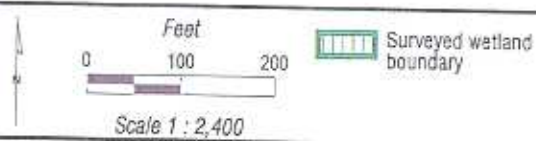


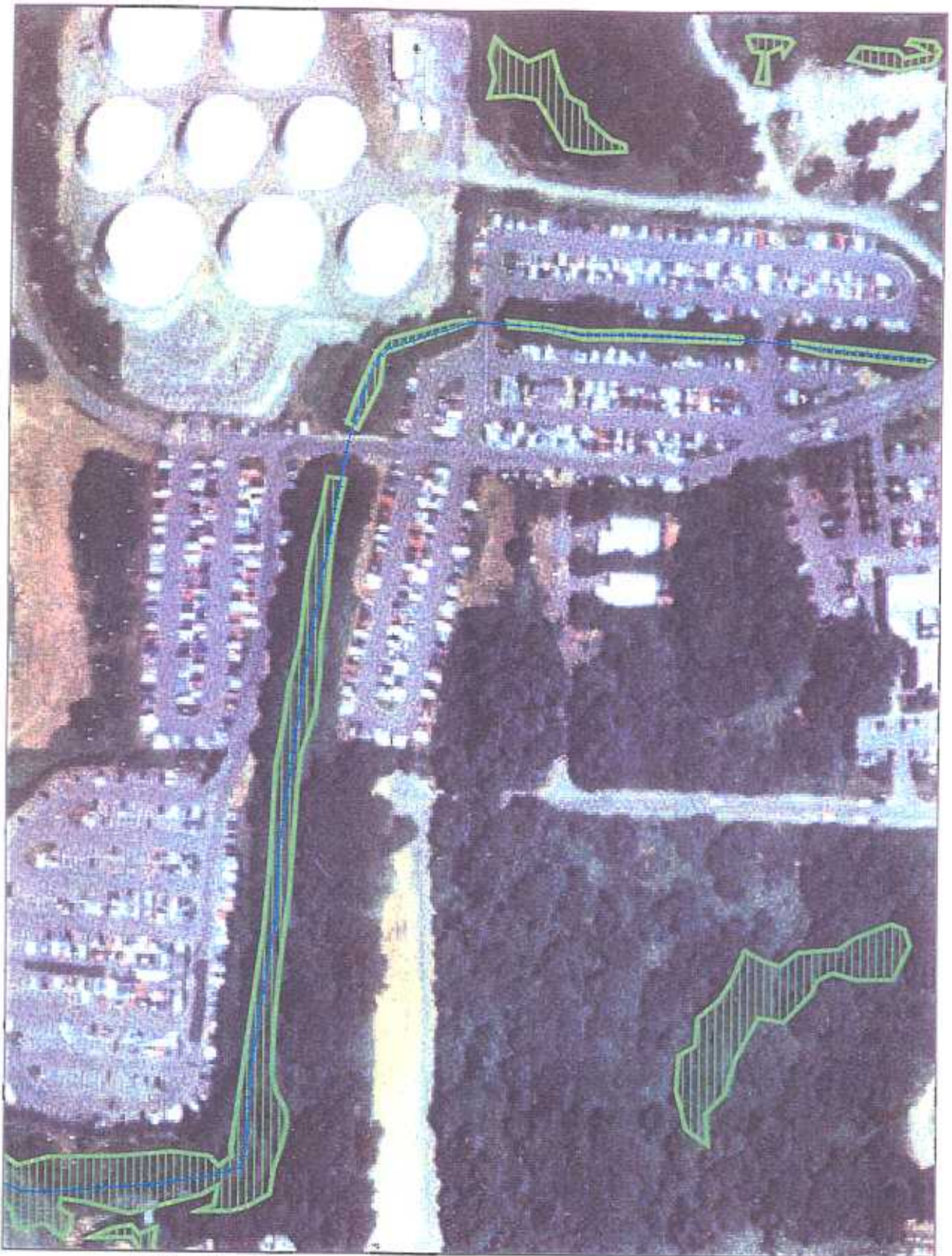
AR 047631



Adjoins Map 20

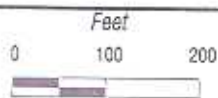
Adjoins Map 20





Adjoins Map 20

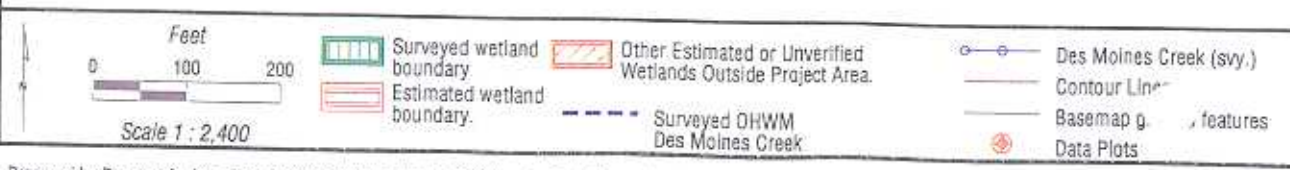
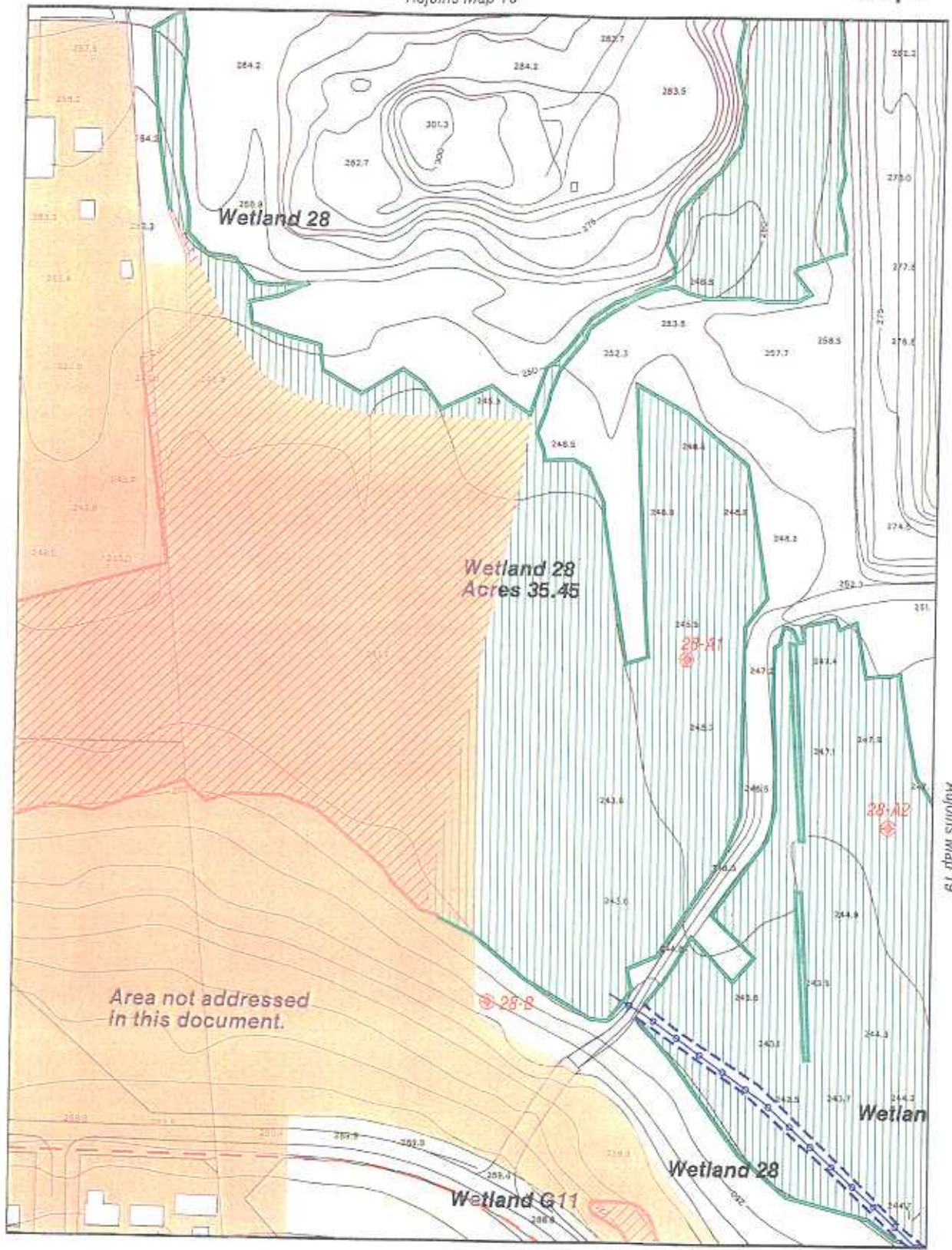
Adjoins Map 20

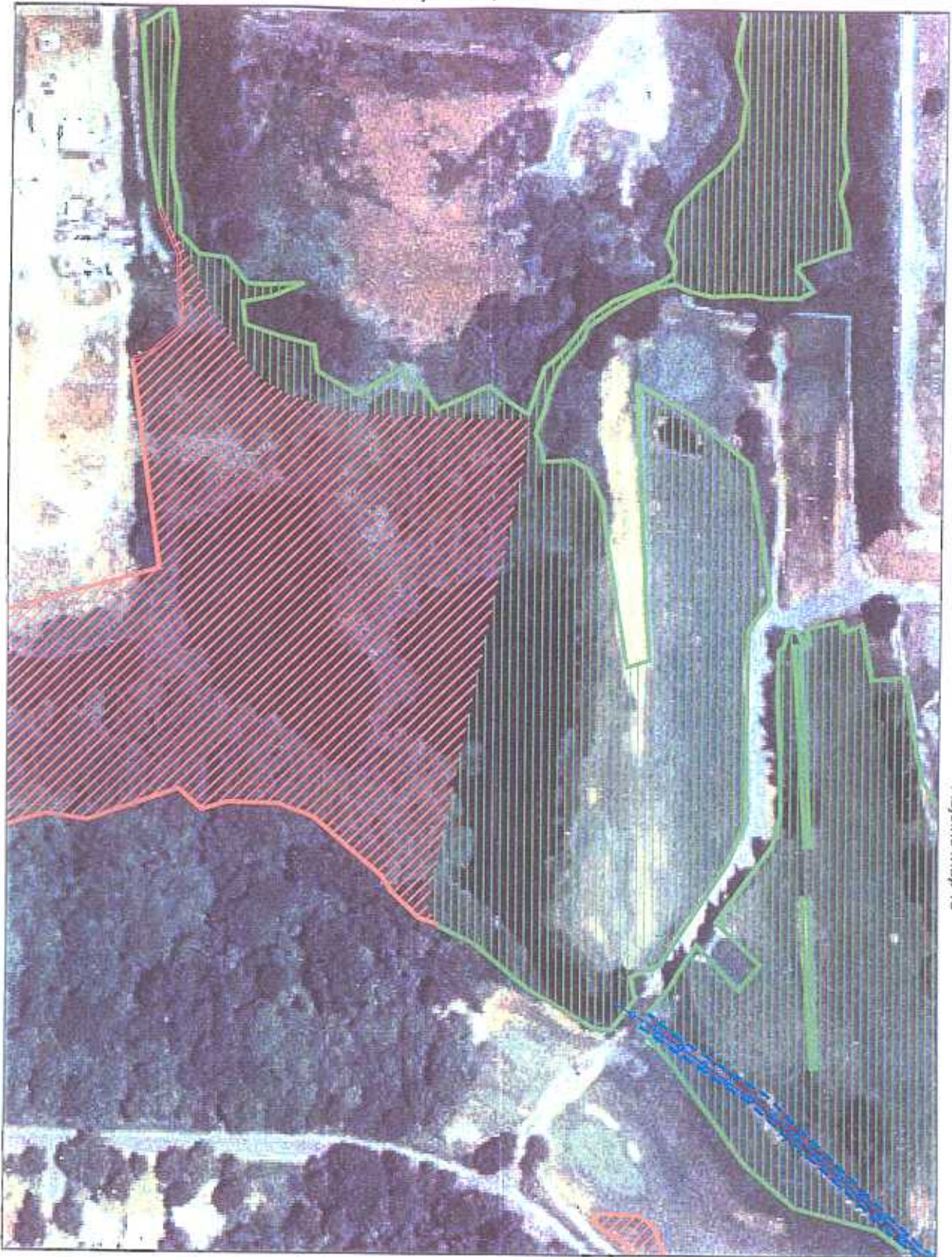


Scale 1 : 2,400

Surveyed wetland boundary

Des Moines Creek (est.)

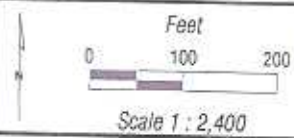
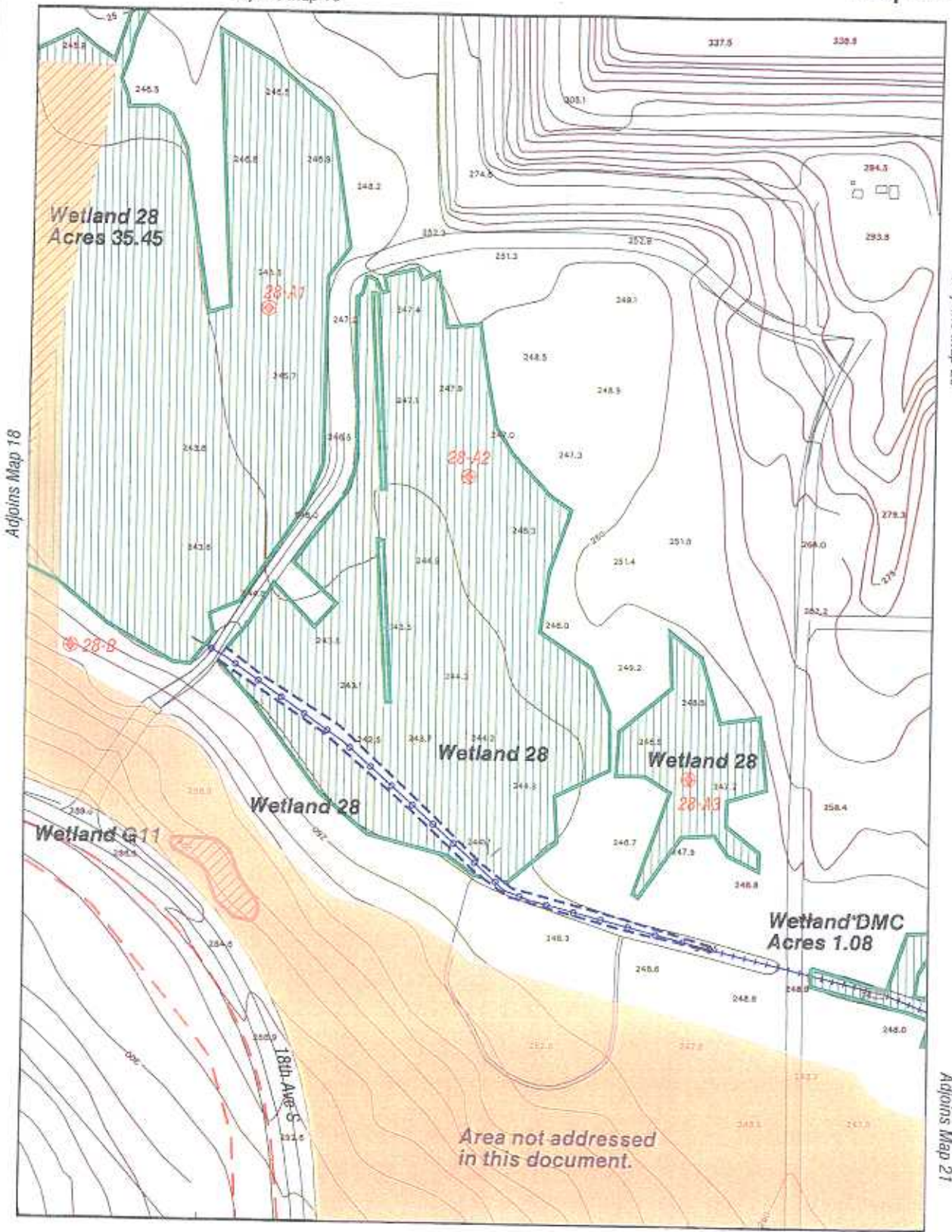




Adjoins Map 19

Adjoins Map 19



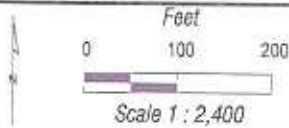


- Surveyed wetland boundary
- Other Estimated or Unverified Wetlands Outside Project Area.
- Des Moines Creek (est.)
- Des Moines Creek (svy.)
- Borrow Site Source
- Basemap general features
- Surveyed OHWM Des Moines Creek
- Contour Lines
- Data Plots

Adjoins Map 18

Adjoins Map 20

Adjoins Map 21



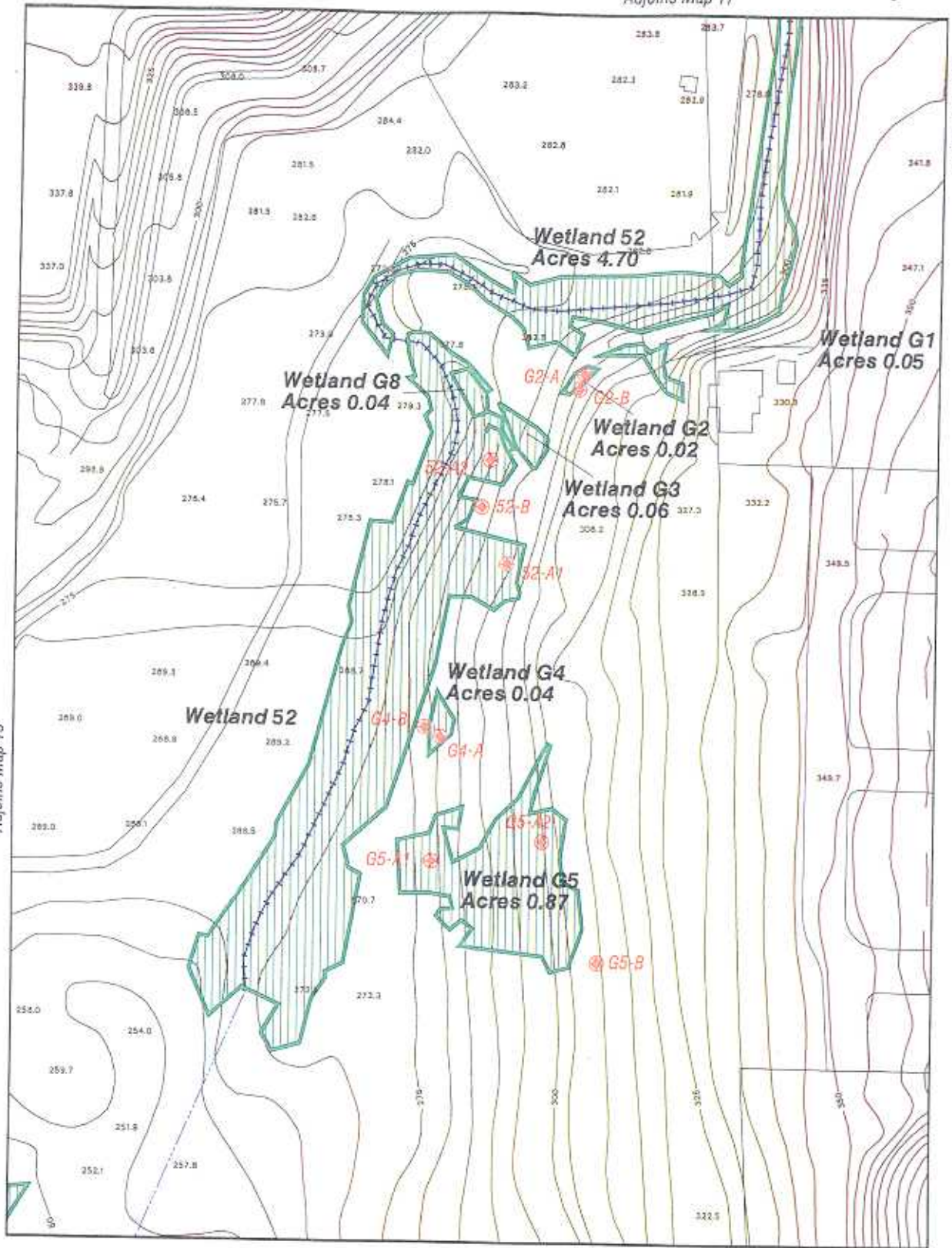
- Surveyed wetland boundary
- Estimated wetland boundary.
- Other Estimated or Unverified Wetlands Outside Project Area.

- Des Moines Creek (est.)
- Des Moines Creek (svy.)
- Surveyed DHWM Des Moines Creek

Adjoins Map 17

Adjoins Map 17

Adjoins Map 19

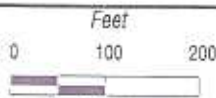


Adjoins Map 21






Adjoins Map 21



Scale 1 : 2,400

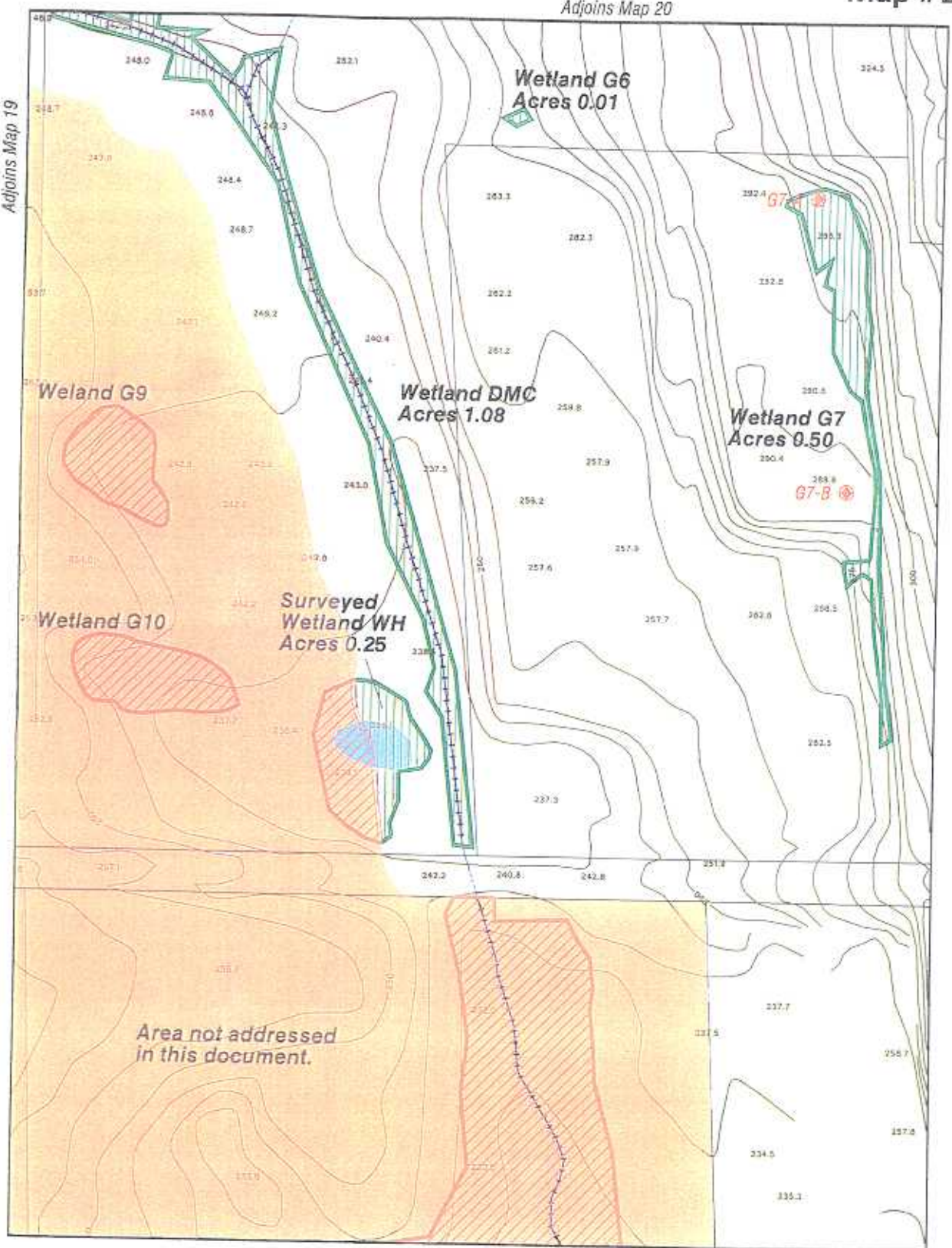

 Surveyed wetland boundary


 Des Moines Creek (est.)

 Des Moines Creek (culvert)

Adjoins Map 20

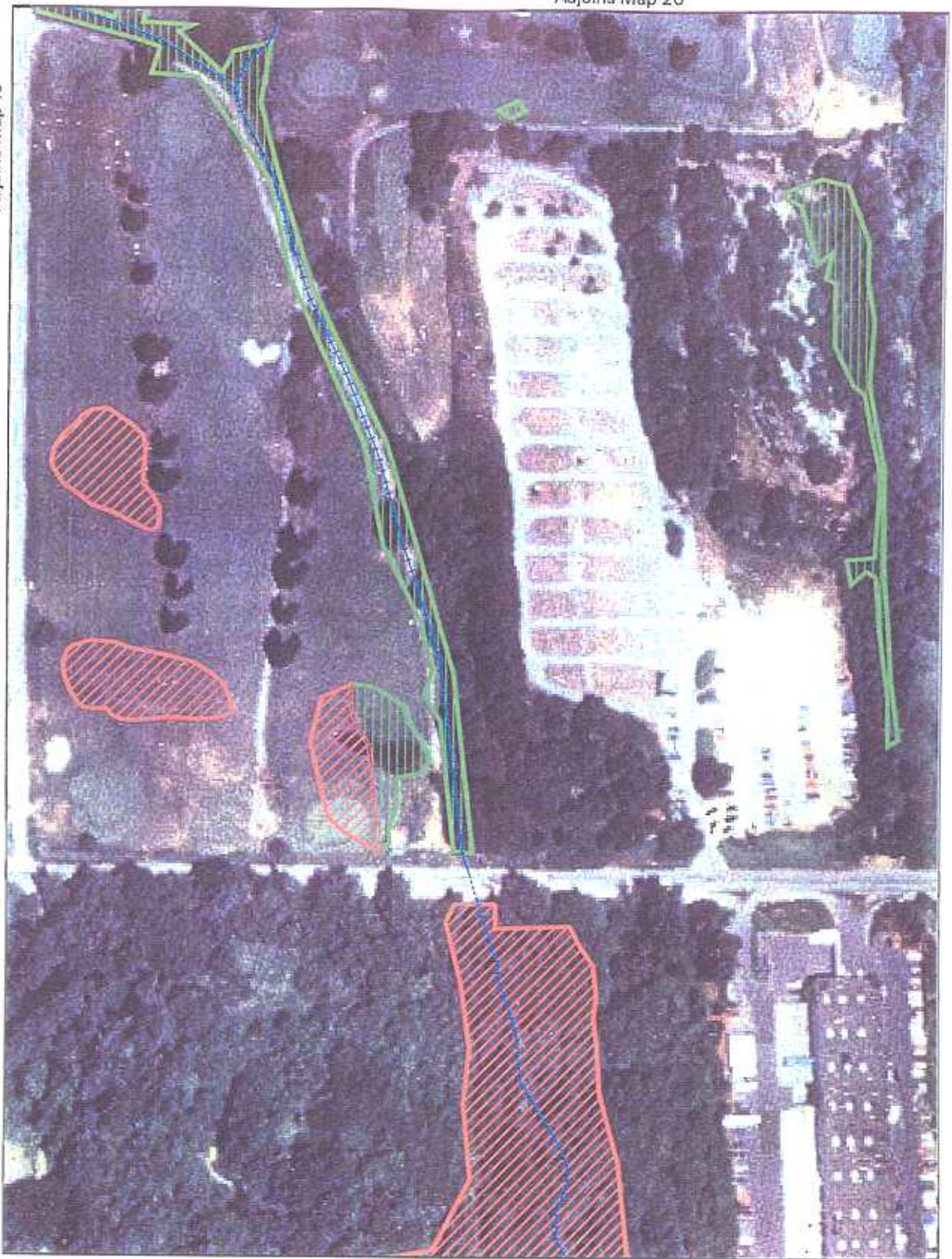
Adjoins Map 19



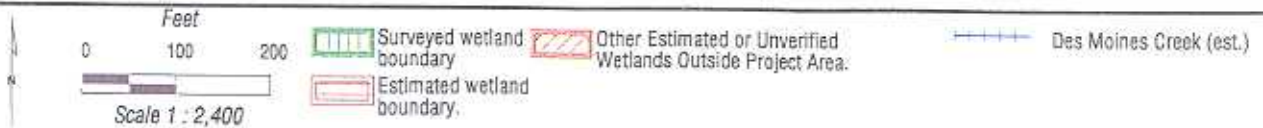
Adjoins Map 22

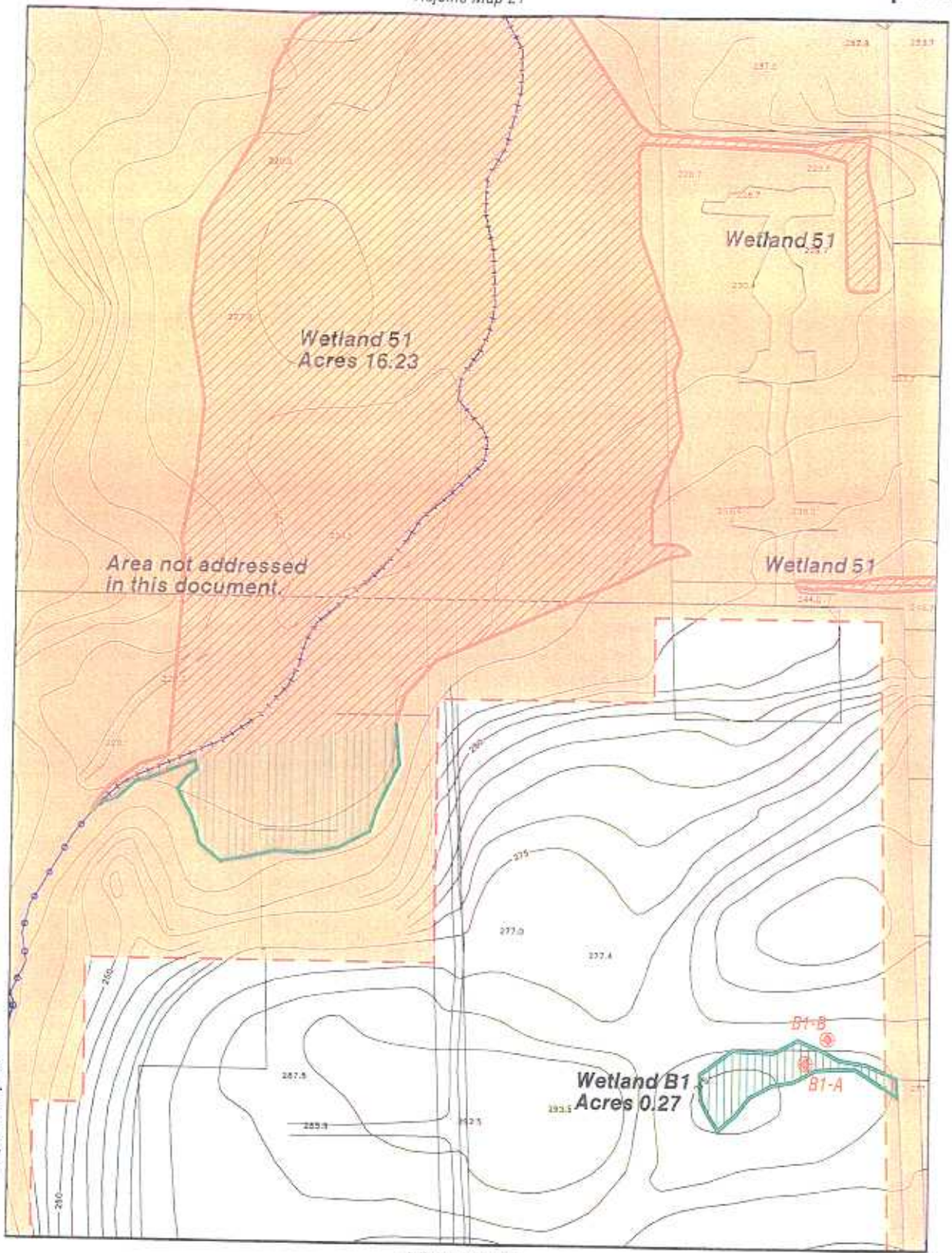


Adjoins Map 19



Adjoins Map 22





Area not addressed in this document.

Wetland 51
Acres 16.23

Wetland 51

Wetland 51

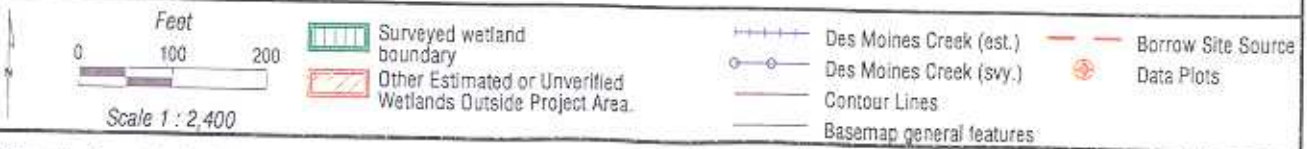
Wetland B1
Acres 0.27

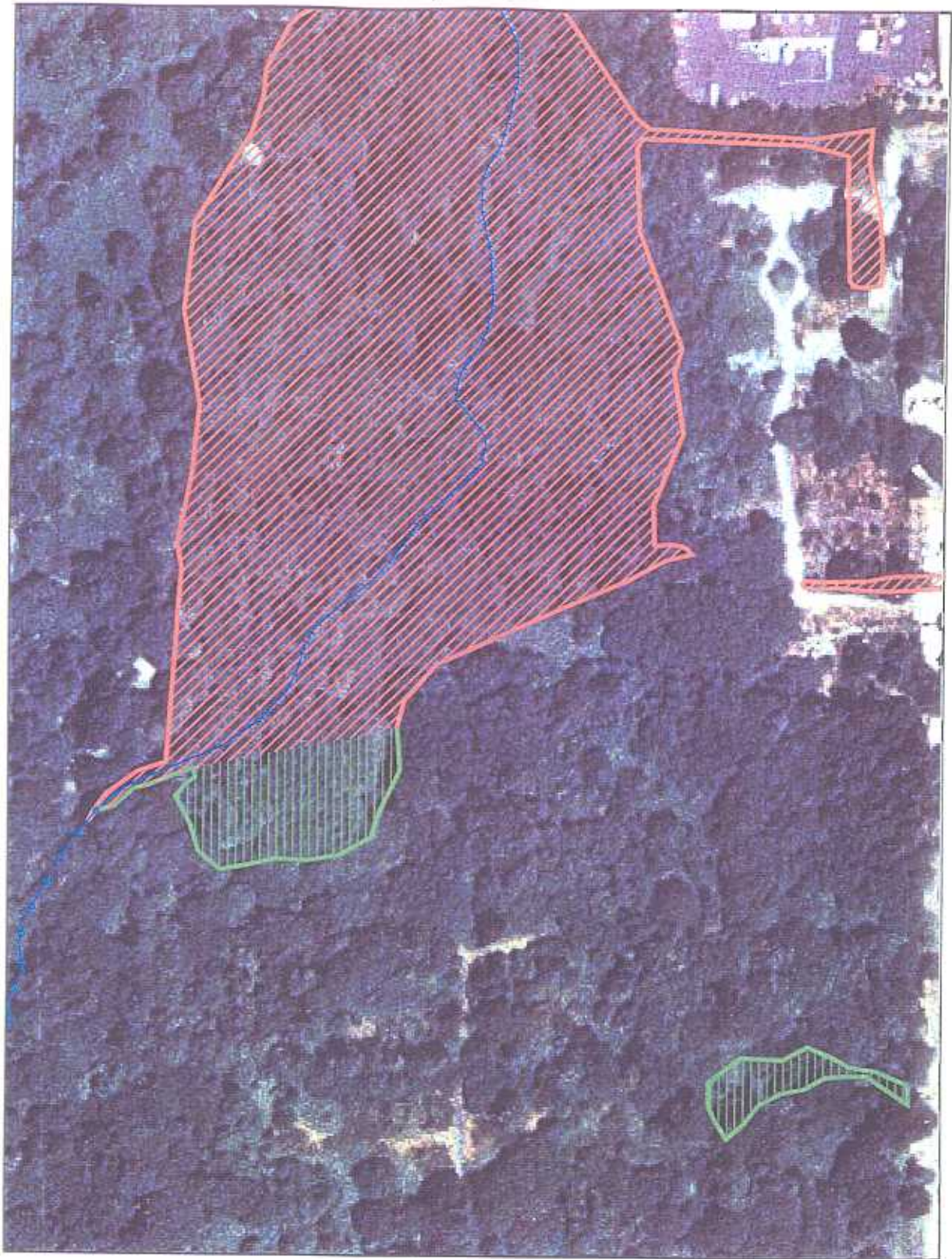
B1-B

B1-A

Adjoins Map 24

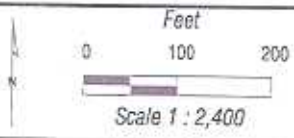
Adjoins Map 24









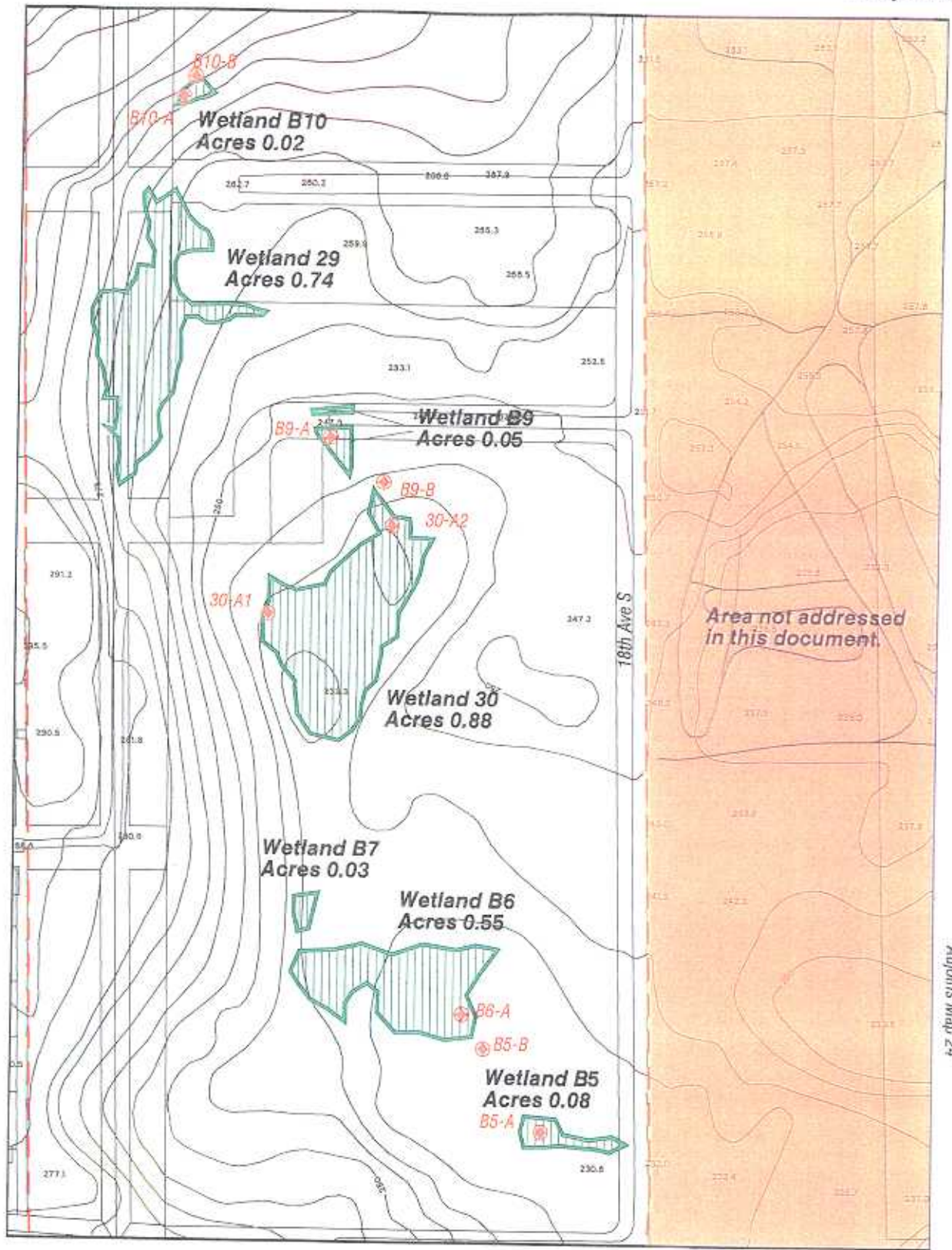
Adjoins Map 24

Adjoins Map 24

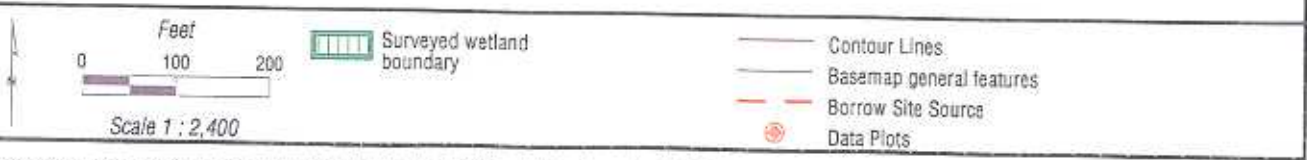


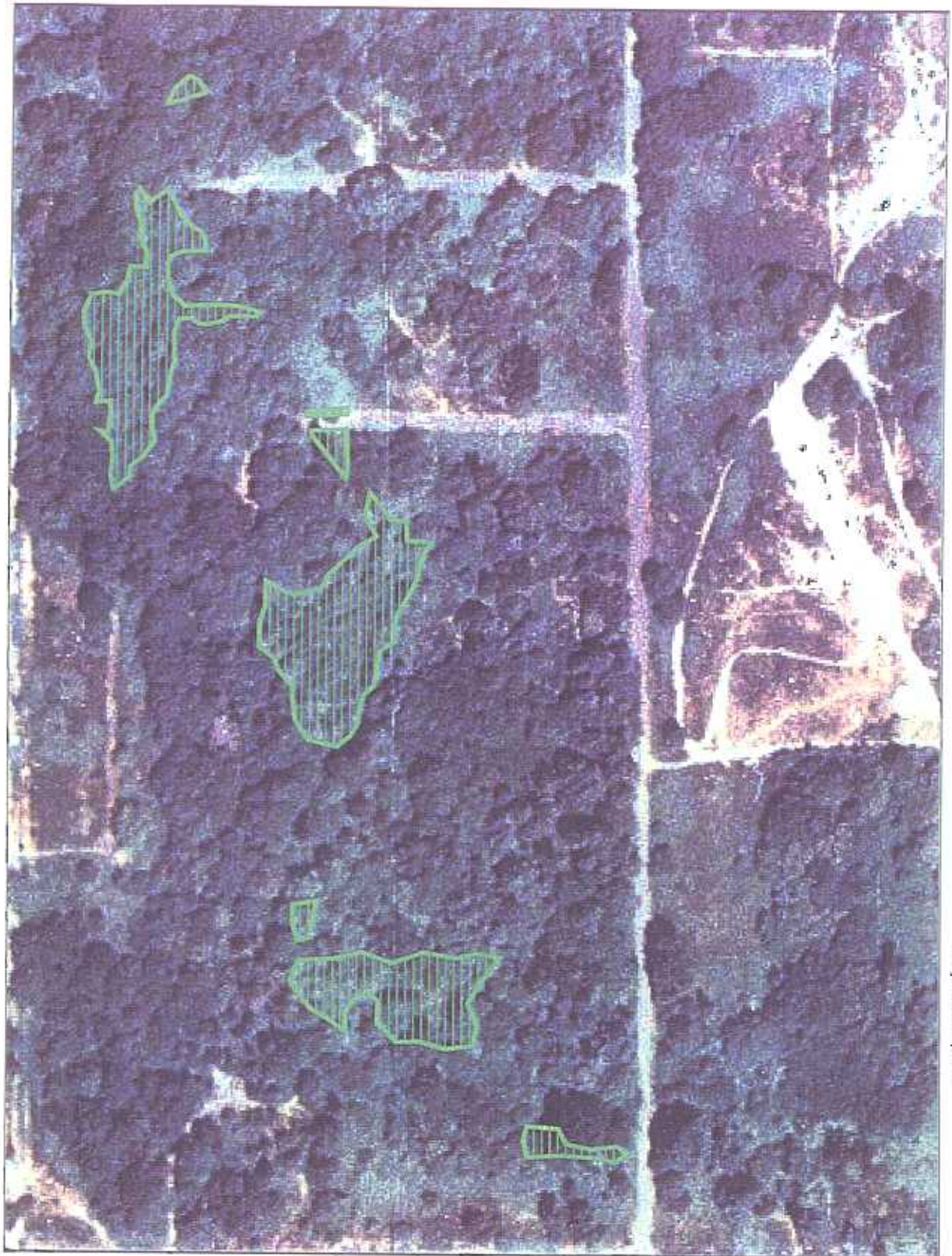
-  Surveyed wetland boundary
-  Other Estimated or Unverified Wetlands Outside Project Area.

-  Des Moines Creek (est.)
-  Des Moines Creek (svy.)

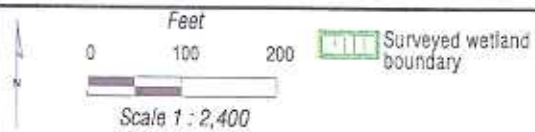


Adjoins Map 24

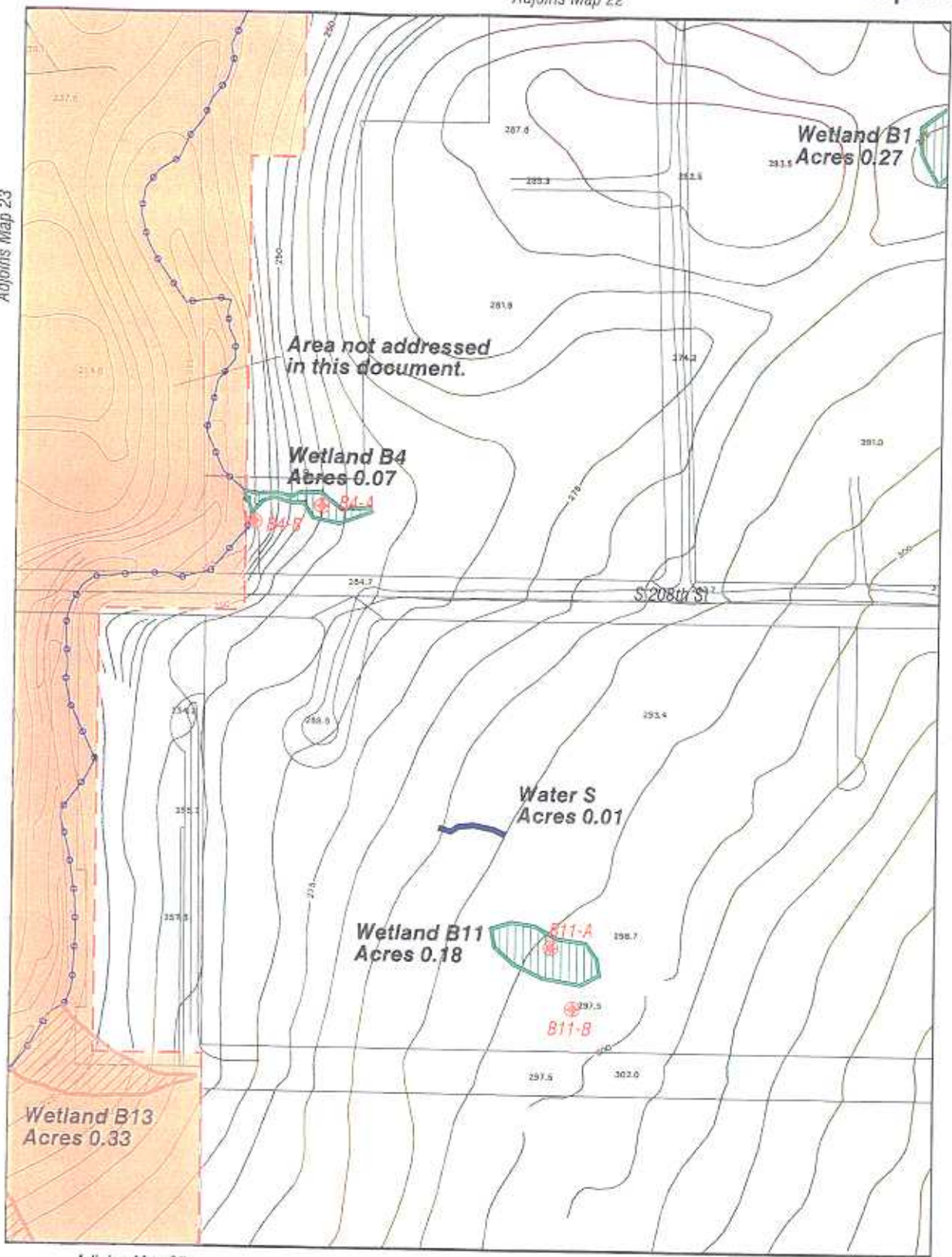




Adjoins Map 24



Adjoins Map 23



Scale 1 : 2,400

0 100 200 Feet

- Surveyed wetland boundary
- Other Estimated or Unverified Wetlands Outside Project Area.
- Des Moines Creek (svr.)
- Contour Lines
- Basemap general features
- Borrow Site Source
- Waters of U.S. (svr.)
- Data Plots

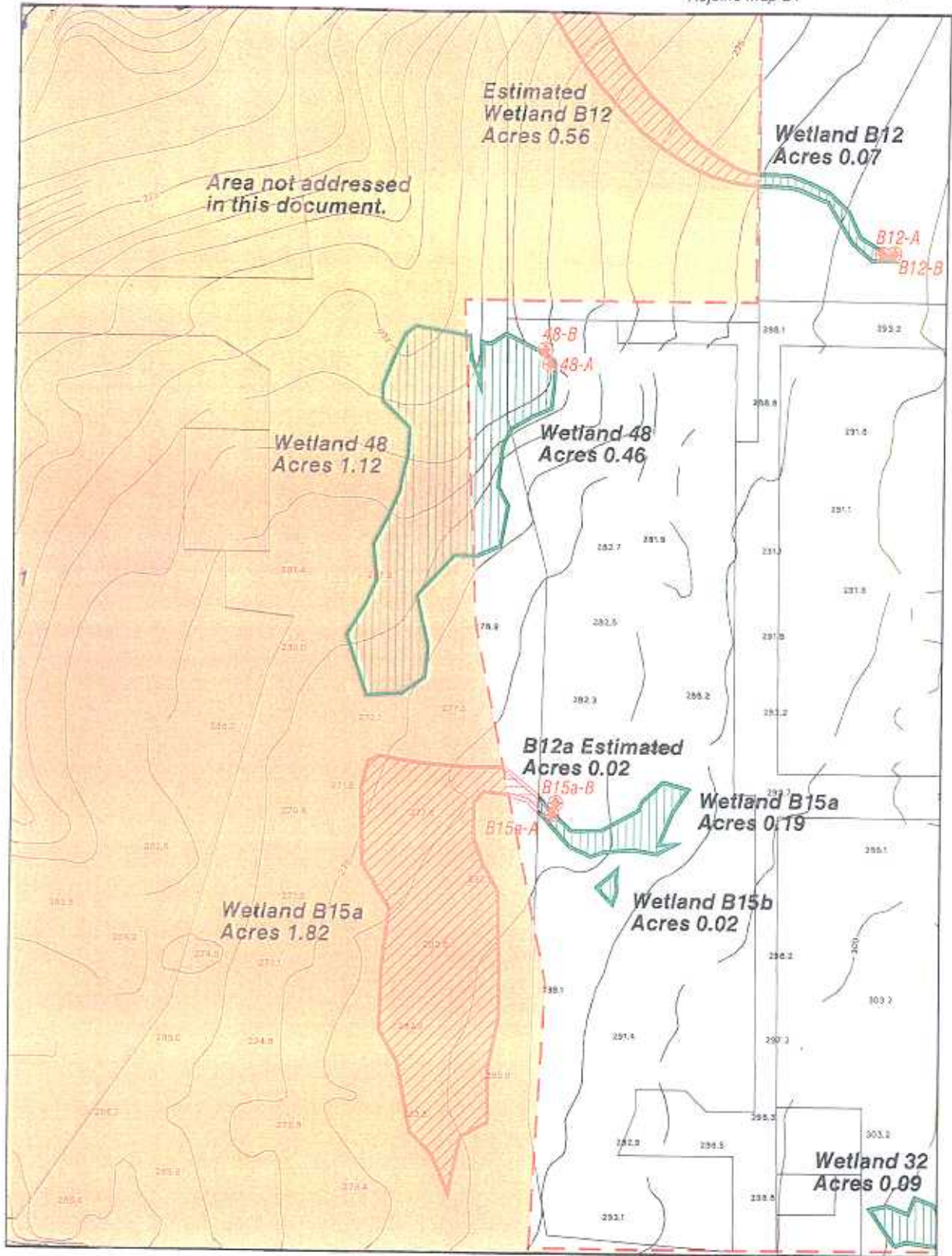
Adjoins Map 23



Adjoins Map 25

Adjoins Map 26





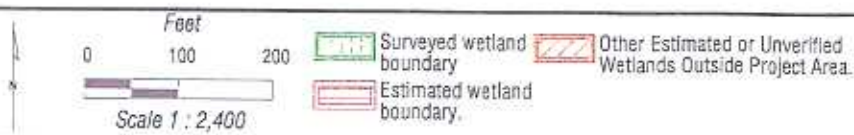
Adjoins Map 26

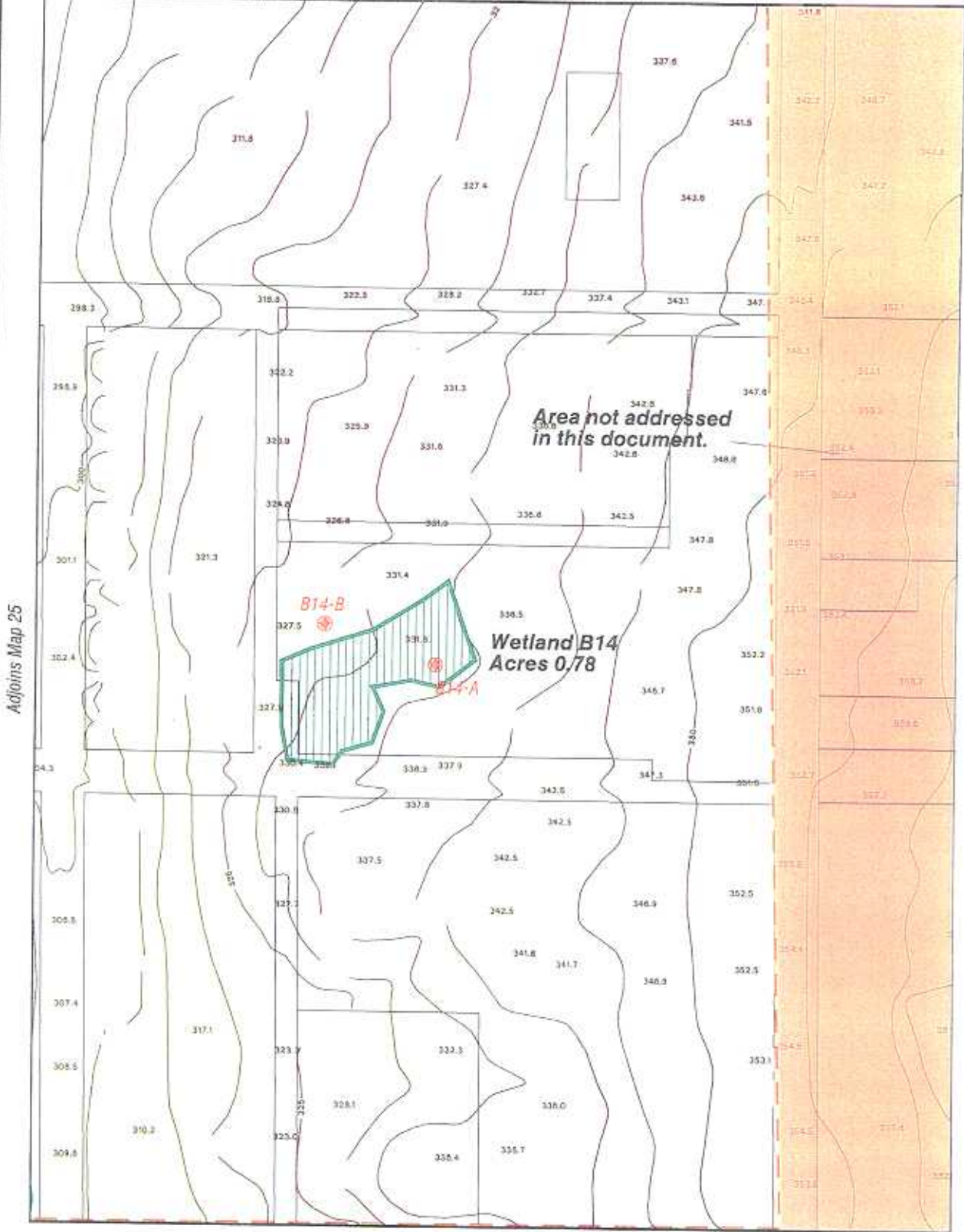
0 100 200 Feet
 Scale 1 : 2,400

Surveyed wetland boundary	Other Estimated or Unverified Wetlands Outside Project Area.	Contour Lines
Estimated wetland boundary.	Data Plots	Basemap general features
		Borrow Site Source



Adjoins Map 26

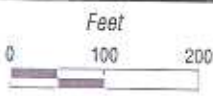





Adjoins Map 25





Area not addressed in this document.

Wetland B14 Acres 0.78

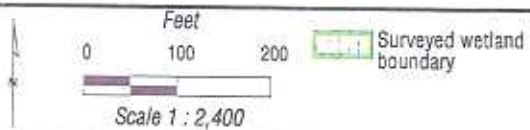


Scale 1 : 2,400

 Surveyed wetland boundary

-  Contour Lines
-  Basemap general features
-  Borrow Site Source
-  Data Plots

Adjoins Map 25



APPENDIX E
PREVIOUSLY DELINEATED WETLANDS

AR 047653

The following table summarizes surveyed wetlands and areas that were provided in the Final Environmental Impact Statement (FEIS) (FAA, 1996: Table IV.11-1). The associated descriptions of wetlands were prepared by Shapiro and Associates, Inc (Shapiro) in the 1995 Draft EIS document (FAA, 1995: Appendix H-A). These wetlands were delineated by Shapiro and confirmed by the U.S. Corps of Engineers in 1996. Except for a few rounding differences, these surveyed areas are the same as the areas provided in this, the Wetland Delineation Report Seattle-Tacoma International Airport Master Plan Update Improvements document.

Table D-1. FEIS wetland classification and area (FAA 1996)^a.

Wetland	Classification	Area (Acres) ^b
1	Forested	0.07
2	Forested, Emergent Marsh	0.74
3	Forested	0.56
4	Forested	5.02
5	Forested, Shrub/Scrub	4.58
6	Shrub/Scrub	0.87
7	Forested, Open Water, Emergent Marsh	6.70
8	Shrub/Scrub, Emergent Marsh	4.95
9	Emergent Marsh, Forested	2.85
10	Shrub/Scrub	0.31
11	Forested, Emergent Marsh	0.50
12	Emergent Marsh, Forested	0.21
13	Emergent Marsh	0.05
14	Forested	0.19
15	Emergent Marsh	0.28
16	Emergent Marsh	0.06
17	Emergent Marsh	0.03
18	Forested	0.12
19	Forested	0.57
21	Forested	0.22
22	Shrub/Scrub, Emergent Marsh	0.06
23	Emergent Marsh	0.78
24	Emergent Marsh	0.14
25	Forested	0.06
26	Emergent Marsh	0.02
29	Forested	0.74
32	Emergent Marsh	0.05
53	Forested	0.60

^a Format modified from Table IV.11-1 from the FEIS (FAA 1996).

^b Source: Parametrix, Inc. and Shapiro & Associates. Wetland area values for Wetlands 1 through 31 based on survey conducted by Port of Seattle (1995). Area values for Wetlands 32 through 48 based on GIS data provided by Gambrell-Urban.

Wetland descriptions from: *Jurisdictional Wetland Delineation Report, Sea-Tac Master Plan Update.* (FAA 1995)

Wetland 1 is located north of SR 518 in the west-central portion of the north borrow area. It is classified under the U.S. Fish and Wildlife Survey classification system (Coward et al. 1979) as palustrine forested and broad-leaved deciduous saturated. It is bounded on the south by a road and on the north by fill. The wetland is dominated by black cottonwood in the overstory. Red alder and willow are also present. The understory is dominated by blackberry and Douglas spirea. Reed canarygrass and soft rush grow in the forb layer. Soils consist of very dark brown (10YR 2/2) loam overlying very dark grayish brown (10YR 3/2) gravelly sandy loam. Dark brown (7.5YR 3/3) mottles are present in the subsoil. At the time of the field investigation (December 6, 1994), water was seeping into the soil pit along a cemented soil layer at 16 inches below the surface.

Wetland 2 occupies a depression north of SR 518 in the north borrow area. It would be classified as a palustrine forested, broad-leaved deciduous, emergent, saturated system. The forested portions of the wetland are dominated by a mixture of black cottonwood, red alder, and willow. The understory is dominated by patches of spirea, Himalayan blackberry, and willow shrubs. Bentgrass, Watson's willow-herb, soft rush, sword fern, and sedge grow in the forb layer. The emergent area of the wetland is dominated by reed canarygrass. Cattail grows in the lowest portions of the wetland and soft rush grows throughout. Himalayan blackberry hedges define the boundary of the emergent areas. Soils consist of dark brown (10YR 5/8) mottles, and oxidized rhizospheres occur in the subsoil. Soils in the lowest portions of the wetland were saturated to the surface at the time of the investigation (December 6, 1994).

Wetland 3 is located near the southeast corner of the north borrow area and is the easternmost wetland in the Lake Reba complex. This wetland would classify as palustrine forested and broad-leaved deciduous, seasonally flooded. It is bounded on its eastern side by a relatively steep embankment and on its west side by a service road. Willow dominates the overstory. Black cottonwood and red alder are additional components of the overstory. Himalayan blackberry, willow shrubs, red alder saplings, salmonberry, and Pacific blackberry grow in the overstory. The forb layer is dominated by horsetail. Associated species include reed canarygrass, bittersweet nightshade, creeping buttercup, lady fern, and sword fern. Soils consist of dark grayish brown (2.5Y 4/2) sand; which becomes gleyed at 32 inches below the ground surface. The sandy surface material apparently has washed down from a sand stockpile upslope to the east of the wetland. Soils in the lower area to the north consist of mucks and mineral soil. A 36-inch culvert conveys water from the hill (to the east) to the southeast corner of the wetland. A channel along the western side of the wetland at the base of the road carries water to two 5-foot outlet culverts, one of which is filled with sediment. The operational culvert conveys water to Wetland 4. At the time of the investigation (December 7, 1994), flows in the channel were about 4 inches wide and 1 inch deep. Soils in the southern half of the wetland were moist at the time of the investigation. Standing water was observed in the north half of the wetland.

Wetland 4 is a relatively large wetland in the east portion of the Lake Reba wetland complex. This wetland would classify as a palustrine, forested, broad-leaved deciduous, and seasonally flooded system. Wetland 4 is surrounded by service roads. Willow is the dominant overstory species. Black cottonwood and red alder occur as associated species. The understory is dominated by

willow shrubs. Salmonberry also grows in the wetland. Herbaceous species include horsetail, American speedwell, tall mannagrass, creeping buttercup, reed canarygrass, sedges, small-fruited bulrush, sword fern, soft rush, stinging nettle, and bentgrass. At the east end of the wetland, soils consist of dark greenish gray (5GY 4/1) sand. Organic soils, muck, and mucky peat increase in the western portion of the wetland. At the time of the investigation (December 7, 1994), soils were saturated to the surface and pools of standing water were present throughout the wetland. Water was observed flowing from the hillside in the southeast corner of the wetland. Culverts convey water to Wetland 4 from impervious surfaces associated with SR 518 to the north and the Airport Operations Area (AOA) to the south. Surface water generally flows to the west in several braided channels.

Wetland 5 is located in the north borrow area. This is a palustrine, forested, scrub-shrub, and broad-leaved deciduous wetland. Vegetation in its northern half is similar to that of Wetland 4. The southern half of the wetland is dominated by red alder and salmonberry. Arborescent willows and several large hemlock trees were also observed in the southern portion of this wetland. Indian plum, Himalayan blackberry, and willow shrubs are found in the understory. Herbaceous species growing in the wetland include lady fern, horsetail, tall mannagrass, creeping buttercup, and small-fruited bulrush. Soils in the wetland's northern half consist of dark gray (10YR 4/1) loam over very dark brown (10YR 2/2) mucky loam. Soils along the hillslope in the southern half of the wetland consist of layers of black (10YR 2/1) peaty muck and dark greenish gray (5GY 4/1) loamy sand. Soils were saturated to the surface at the time of the investigation (December 12, 1994). Small depressions and channels throughout the wetland were inundated with water. Seeps along the hillslope contribute water to this wetland. Two culverts discharge water to the wetland's south side and southwest corner. Water also enters this wetland via a culvert from Wetland 4. A culvert at the northwest end of Wetland 5 discharges water to Wetland 6.

Wetland 6 is located south of Lake Reba in the northern borrow area. It is bounded on the north and east sides by roads. Its southern edge is at the base of a fill. A silt fence is just upslope of the southern boundary. This wetland would classify as a palustrine, scrub-shrub, broad-leaved deciduous, and seasonally-flooded system. The vegetation composition is similar to that of Wetland 4. Soils consist of black (10YR 2/1) loam. At the time of the investigation (December 12, 1994), soils were saturated to the surface. A culvert conveys water to the southeast corner of this wetland, where it sheetflows to the northwest.

Wetland 7 is located in the north borrow area. Lake Reba lies within the wetland boundary. This is a palustrine, forested, broad-leaved deciduous, open-water, and emergent seasonally, permanently flooded wetland. The vegetative composition of the forested portion of this wetland is similar to that described for Wetland 4. The emergent vegetation community is dominated by reed canarygrass. Canadian thistle, bittersweet nightshade, and bentgrass also grow in emergent areas. Soils consist of black (10YR 2/1) loam over black (10YR 2.1) gravely sandy loam. At the time of the investigation (December 29, 1994), soils were saturated to the surface throughout most of the wetland. A culvert conveys water from Wetland 4, past the eastern portion of Wetland 7, to the east end of Lake Reba. Lake Reba outflow is conveyed past a water detention structure at the west end of the lake to Miller Creek. Lake Reba is used as a regional stormwater detention facility.

Wetland 8 is located west of Lake Reba and separated from Wetland 7 by fill that serves to dam Lake Reba. This wetland would be classified as palustrine scrub-shrub, broad-leaved deciduous, emergent, and semi-permanently and seasonally saturated. Forested portions of the wetland have a vegetation community very much like Wetland 4. A monotypic stand of reed canarygrass occurs along the northern side of the wetland. This wetland receives water from a variety of sources. Miller Creek enters the northeast corner, the outflow of Lake Reba is conveyed via a culvert to the east side, and runoff from SR 518 is conveyed to the north side of this wetland. Miller Creek flows southwest to the south side of the wetland, where it flows through a culvert to Wetland 9 and ultimately to Lora Lake. On December 29, 1994, soils throughout the wetland were saturated to the surface and, in many areas, inundated to varying depths.

Wetland 9 is located southwest of Lake Reba in the north borrow area. It is a palustrine, emergent, and forested broad-leaved deciduous, intermittently-exposed, saturated system. The eastern and northern portions of this wetland are dominated by cattail and reed canarygrass. The scrub-shrub portions are dominated by willow shrubs. Associated species include Himalayan blackberry, spirea, and red elderberry. Herbaceous species include reed canarygrass, horsetail, lady fern, and creeping buttercup. Red alder, paper birch, and black cottonwood grow in some areas. Watercress dominates a permanently inundated area that extends south and east of the main portion of the wetland. Soils consist of black (10YR 2/1) silt loam with strong brown (7.5 YR 4/6) mottles. Soils have a high organic content. At the time of the investigation (December 29, 1994), soils were saturated to the surface or inundated. Miller Creek enters the northern side of the wetland via several culverts and flows west toward Lora Lake.

Wetland 10 is located south of Lake Reba. This is a palustrine, scrub-shrub, and broad-leaved deciduous, seasonally flooded wetland. The dominant overstory species is willow. Himalayan blackberry, salmonberry, and red elderberry grow in association with the willow. Himalayan blackberry dominates the northwest corner of the wetland. Soils consist of black (10YR 2/0) loamy muck over very dark gray (10YR 3/1) and black (10YR 2/1) mucky loam and black (10YR 2/1) mucky peat. Soils were saturated to the surface and depressions were inundated at the time of the investigation. A newly installed polyvinyl chloride (PVC) pipe conveys stormwater from a recently constructed stormwater detention facility east of the wetland. A silt fence has been installed on fill material deposited to the east. Another culvert conveys water from Wetland 9 to the south side of Wetland 10. Water flows north to the lowest portion of the wetland. Soils throughout the wetland were saturated to the surface during the field investigation on December 12, 1994.

Wetland 11 is located west of, and approximately 20-feet higher than, Wetland 10 in the north borrow area. It is a palustrine, forested, broad-leaved deciduous, emergent, and intermittently exposed and saturated wetland. There are three distinct vegetation zones that occur in this wetland. The southern arm is dominated by red alder and has an understory dominated by reed canarygrass, horsetail, and small-fruited bulrush. The eastern portion of the wetland is dominated by lady fern and reed canarygrass. Associated species include small-fruited bulrush, horsetail, tall mannagrass, Watson's willow-herb, and soft rush. A large number of black cottonwood seedlings were also seen. The forested portion of the wetland, in the northwest corner, is dominated by black cottonwood. These trees overhang a semi-permanently flooded depression. Himalayan blackberry borders the north side of the wetland. Soils in the southern arm consist of very dark gray (10YR 3/1) mucky loam overlying black (5Y 2.5/1) sandy loam with dark red (2.5YR 4/6) mottles. Soils in

the emergent area consist of black (10YR 2/0) loam overlying dark greenish gray (10YR 4/1 and 5GY 4/1) loam with strong brown (7.5YR 4/6) mottles. At the time of the investigation (December 13, 1994), soils were saturated to the surface in most areas. Water in both the southern arm and the emergent area flows to the forested section. The depression under the canopy retains water throughout most years. Water flows out of this depression to the roadside ditch, where it enters a culvert. The culvert conveys water to Wetland 10 to the east.

Wetland 12 is a hillside seep located in the southwest portion of the north borrow area. This wetland would classify as a palustrine, emergent, and forested broad-leaved deciduous, saturated system. The wetland is located on a 10 percent slope. The north side borders a road and the south side borders a hedge of Himalayan blackberry and Scots broom. Willow and red alder are the dominant overstory species. The understory is dominated by a mixture of soft rush, cattail, small-fruited bulrush, Watson's willow-herb, and blackberry seedlings. Soils consist of very dark grayish brown (10YR 3/2) sandy loam overlying dark greenish gray (5GY 4/1 and 5GY 3/1) sandy loam with gravel. Brown (7.5YR 4/4) and strong brown (7.5YR 4/6) mottles occur in the subsoil. The hydrology source appears to be discharge of shallow groundwater along the hillside.

Wetland 13 is associated with a hillside seep located in the southwest portion of the north borrow area. This wetland would classify as a palustrine, emergent, and permanently saturated system. Wetland B is separated from Wetland 12 by a service road. It is located on a 10 percent slope. The vegetation is essentially the same as that of Wetland 12. Like Wetland 12, the source of hydrology appears to be discharge of shallow groundwater along the hillside.

Wetland 14 is located in a depression in the southwest corner of the north borrow area. This is a palustrine forested and broad-leaved deciduous, saturated wetland. Red alder and black cottonwood dominate the overstory. The herbaceous undergrowth is dominated by creeping buttercup. Soft rush, horsetail, bentgrass, and Himalayan blackberry were also observed. Soils consist of very dark gray (10YR 3/1) loam over dark gray (10YR 3/1) and gray (10YR 4/1) silt loam. The silt loam horizon has strong brown (7.5 YR 4/6) mottles. Soils were saturated at a depth of 18 inches at the time of investigation (December 13, 1994).

Wetland 15 is located north of, and below, the western existing runway at the north side of the AOA. It is associated with a seep that originates halfway up the 40-degree slope south of the perimeter road. Water flows downhill to a ditch along the road. This is a palustrine, emergent, and permanently saturated wetland. Horsetail, Watson's willow-herb, and Himalayan blackberry are the dominant plant species on the hill. The ditch along the road contains cattail, soft rush, bentgrass, and red alder, willow, and black cottonwood saplings. Soils are dark grayish brown (10YR 4/2) loam overlying gray (5Y 5/2) gravelly silty loam with yellowish brown (10YR 5/6) mottles. Soils were moist or saturated to the surface at the time of the investigation (September 1, 1994).

Wetland 16 is located in a narrow depression along the east side of a north-south oriented service road in the center of the AOA. This wetland is classified as a palustrine emergent, seasonally saturated system. This wetland is dominated by bentgrass and common velvet-grass. Associated species include soft rush, curly dock, Himalayan blackberry, Scots broom, and red alder. Soils consist of extremely compact dark grayish brown (2.5Y 4/2) loam with (7.5YR 4/3) rhizospheres and mottles overlying olive gray (5Y 5/2) silt loam. Soils were dry at the time of the investigation (August 19, 1994). Wetland hydrology was inferred based upon a predominance of hydrophytic

vegetation and presence of hydric soils. A stormwater drain located at the south end of the wetland conveys water from the wetland.

Wetland 17 is located in the west-central portion of the AOA. This is a palustrine, emergent, and permanently saturated wetland. Reed canarygrass is the dominant plant species. Associated species include horsetail and Himalayan blackberry. Red alder and weeping willow hang over the wetland. Soils were moist at the time of investigation (September 23, 1994). The wetland terminates at a culvert that conveys water west underneath a service road to a ditch on the east side of 12th Avenue South.

Wetland 18 is located in a narrow east-west oriented trough in the wet-central portion of the AOA. This wetland is a palustrine, forested, broad-leaved deciduous, and seasonally saturated system. A mixture of red alder, big-leaf maple, and redcedar dominates the overstory. The understory is dominated by salmonberry. Himalayan blackberry occurs along wetland's edge. Dominant forbs include lady fern and horsetail. Associated forbs include skunk cabbage, tall mannagrass, Watson's willow-herb, and bracken fern. Soils at the wetland's eastern end consist of dark gray (10YR 4/1) sandy loam. Muck soils occur in the wetland's central portion. The west end of the wetland contains gleyed loam soil. Soils were saturated at depths ranging from 8 inches to the surface at the time of the investigation (September 1, 1994). A small perennial stream flows west to a culvert at the west end of the wetland. The culvert conveys water to the ditch on the east side of 12th Avenue South.

Wetland 19 is a relatively large forested wetland located in the west-central portion of the AOA. This wetland would classify as a palustrine, forested, broad-leaved deciduous, and semi-permanently and seasonally saturated system. The wetland is confined by the side-slopes of a ravine. Red alder dominates the overstory. Black cottonwood, big-leaf maple, and redcedar also occur in the overstory. The understory is dominated by salmonberry. Indian plum, Himalayan blackberry, Pacific blackberry, and hazelnut occur as associated species. The forb layer is dominated by lady fern and horsetail. Associated species include reed canarygrass, skunk cabbage, and stinging nettle. Soils consist of very dark gray (10YR 3/1) silt loam overlying greenish gray (5Y 5/1) silt loam. High concentrations of organic matter occur throughout the soil profile. A perennial stream flows the length of the wetland. The stream originates as a seep at the base of fill in the wetland's eastern end. The stream enters a culvert at the wetland's west end and is discharged to the eastern side of 12th Avenue South. At the time of the investigation (August 25, 1994), water flowing in the stream was 3 inches wide and 2 inches deep at its western end. Soils throughout the wetland were moist or saturated to the surface.

Wetland 21 is located in the west-central portion of the AOA east of 12th Avenue South, and a service road. It is a palustrine, forested, broad-leaved deciduous, and semi-permanently and seasonally saturated wetland. Wetland 21 occurs on a 15 percent slope and is associated with a hillside seep. Precipitation likely infiltrates the soil in the AOA to the east and flows along relatively impervious soil layers, ultimately discharging to the surface at this location. Topography of the wetland is a series of hummocks and depressions. The dominant overstory species is red alder. The understory is dominated by salmonberry, horsetail, and Himalayan blackberry. Associated understory species include lady fern, ivy, and reed canarygrass. Soils consist of black (10YR 2/1) loam overlying gray (10YR 5/1) and dark gray (10YR 4/1) silt clay loam and dark gray

(10YR 4/1) and bluish gray (5B 5/1) silt loam. Lenses of sand occur below 14 inches. At the time of the investigation (August 23, 1994), soils were moist.

Wetland 22 is located south and uphill of Wetland 21 in the west-central portion of the site. It is located in a depression, and would classify as a palustrine, scrub-shrub, broad-leaved deciduous, and emergent, saturated system. Red alder saplings dominate the shrub layer. Sitka willow, Pacific willow, black cottonwood saplings, and Himalayan and Pacific blackberry are also found. The herbaceous layer is dominated by bentgrass and common velvet-grass. Associated herbaceous species include creeping buttercup, reed canarygrass, curly dock, and Watson's willow-herb. Soils consist of very dark grayish brown (10YR 3/2) gravelly sandy loam overlying dark grayish brown (2.5Y 4/2) and grayish brown (2.5Y 5/2) sandy loam. Strong brown (7.5Y 4/6) mottles are present in the subsoil. Soils were dry at the time of the investigation (August 25, 1994); wetland hydrology was assumed from vegetation and soils data.

Wetland 23 is located in the central portion of the AOA in the regularly mowed grassy fields. A public observation area is northeast of the wetland. The wetland would classify as a palustrine, emergent, and seasonally saturated system. Bentgrass and common velvet-grass are the dominant plant species. Associated species include soft rush, white clover, common plantain, Watson's willow-herb, and sweet vernalgrass. Regular mowing keeps trees and shrubs from growing in this wetland. Soils consist of dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) fine sandy loam overlying dark grayish brown (10YR 4/2) and dark brown (10YR 4/3) gravelly loam with brown (7.5YR 4.4) mottles. At the time of the investigation (August 30, 1994), soils were dry. Stormwater drains convey water from the center and south end of the wetland.

Wetland 24 is located in the southern portion of the AOA and northwest of the Weyerhaeuser hanger. It is located in a small depression and is bounded on the east by a service road and on the south by a fence. A small portable building is located in the southeast corner of the wetland. This is a palustrine emergent and seasonally flooded wetland. It is dominated by bentgrass and common velvet-grass. Associated species include white clover, common plantain, soft rush, cattail, and cudweed. Soils are compacted and were dry at the time of the investigation (September 1, 1994). Wetland hydrology was inferred from the presence of algal mats, predominance of hydrophytic vegetation, and presence of hydric soils.

Wetland 25 is located at the south end of the AOA and is bounded on its west side by a service road. This is a palustrine, forested, broad-leaved deciduous, and seasonally flooded wetland. It lies in a depression that is characterized by hummock and swale topography. The overstory is dominated by black cottonwood and willow. The understory is largely unvegetated due to inundation for much of the year. Spike-rush, cattail, bentgrass, and soft rush grow in some areas. Dried algal mats and water lines on tree trunks were present at the time of the investigation. Pacific madrone, Himalayan blackberry, and Scots broom occur on the hummocks. Soils consist of dark gray (10YR 4/1) loamy sand overlying dark gray (10YR 4/1) very gravelly loamy coarse sand. Soils were dry at the time of the investigation (August 19, 1994). Wetland hydrology was inferred from algal mats and water marks on tree trunks. The depression provides some stormwater storage.

Wetland 26 is located at the south end of the AOA southeast of Wetland 25. It is bounded on the east by the perimeter road. This wetland would classify as palustrine, emergent, and seasonally saturated. Bentgrass dominates this wetland. Associated species include tall fescue, common

velvet-grass, curly dock, soft rush, and Himalayan blackberry. Although soils were dry at the time of the investigation (August 19, 1994), the presence of wetland hydrology was inferred from dried algal mats located in the center of the wetland.

Wetland 29 is located in the northwest portion of the south borrow area. This wetland would classify as palustrine, forested, broad-leaved deciduous, and seasonally flooded. The overstory is dominated by red alder. Salmonberry dominates the understory. Himalayan blackberry and Pacific blackberry occur as associated species. Lady fern, horsetail, tall mannagrass, reed canarygrass, and sword fern grow below the shrub layer. Soils consist of black (10YR 2/0) loam over very dark gray (10YR 3/1) gravelly sandy loam. The western boundary of this wetland occurs along the upper edge of a hillside seep. Water generally flows downhill to the east, where it collects in a depression. During wetter times of the year, water likely flows southeast from the depression via an intermittent stream. Soils were saturated and standing water was observed at a depth of 10 inches at the time of the investigation (December 1, 1994). Old building foundations are located at the wetland's north end, near the road.

Wetland 32 is located in the south borrow area at the northwest quadrant of the intersection of South 216th Street and 20th Avenue South. This wetland would classify as palustrine, emergent, and temporarily flooded. Bentgrass is the dominant species. Associated species include common velvet-grass, soft rush, dandelion, horsetail, Watson's willow-herb, and black cottonwood saplings. A weeping willow overhangs the north arm of this L-shaped wetland. Soils consist of dark brown (10YR 3/3) loam overlying olive brown (2.5Y 4/3) sandy loam with dark yellowish brown (10YR 3/6 and 4/6) rhizospheres. At the time of the investigation (December 1, 1994), soils were saturated to the surface and water was seeping into the observation hole at 5 inches below the surface. The source of hydrology for this wetland appears to be runoff from a road.

Wetland 53 is located in depression between the southern tip of the southernmost runway and Highway 99, between South 192nd Street and South 194th Street. This wetland was delineated by Parametrix, Inc. during November 1991 and is described in the *Port of Seattle South Aviation Support Area Final EIS, Technical Appendices* (1991). It is a palustrine, forested, broad-leaved, and deciduous wetland. Red alder dominates the overstory. Douglas spirea, Indian plum, and Himalayan and Pacific blackberry form a sparse shrub layer. Herbaceous vegetation includes dense horsetail, slough sedge, and bracken fern. Very dark gray (10YR 3/1) silt loam with brown mottles was observed. Wetland hydrology was not present at the time of the investigation.

Wetland Delineation Report

Master Plan Update Improvements Seattle-Tacoma International Airport



Port of Seattle

Appendix B

Parametrix, Inc.
December 2000

AR 047662

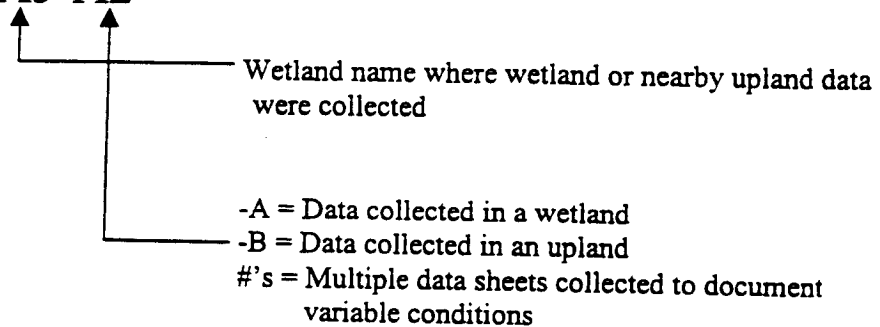
This Appendix contains field data sheets supporting wetland determinations made in support of the Seattle-Tacoma International Airport Master Plan Update Improvements. The wetland data sheets are organized by project study area as discussed in the wetland delineation report.

Data sheets are organized as follows:

- **Runway Safety Area Extension**
- **Third Runway**
- **Miller Creek Riparian**
- **Borrow Area 1**
- **Borrow Area 3**
- **Tyee Valley Golf Course/TWS**
- **South Aviation Support Area**
- **South Aviation Support Area Detention Pond**
- **Shapiro and Associates, Inc. Data Sheets**

Data plot numbers indicated on data sheets are unique and designate the following:

Data Plot A5-A2



Parametrix, Inc.



Data Plot #: 5-A
 Wetland: 5

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/2/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Louther and Dunkin State: WA

1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Community ID: PFO
 Field Plot ID: 154-1A

Remarks (Explain sample location, disturbances, problem areas):
Adjustment EIS wetland number 5, located within the 154th right of way.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Equisetum arvense</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Lysichiton americanum</u>	<u>30</u>	<u>Herb</u>	<u>OBL</u>
✓ 3. <u>Rubus spectabilis</u>	<u>25</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 4. <u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Many trees in this area have been cut, likely because of flight path above. This has been delineated by Shapiro. Parametrix increased the size because the area of fill has standing water, soils and vegetation. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: 0.25 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: surface (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Surface water is flowing, likely derived from groundwater. Also, portions of wetland to the west associated with drainage. Inundation and soil saturation indicates the presence of wetland hydrology

Parametrix, Inc.



Data Plot #: 5-A
 Wetland: 5

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-1	O	-	-	-	Muck
1-6	A	10YR 2/1	-	-	Sandy loam
6-12+	B	10YR 2/1	-	-	Gravelly sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil very saturated, difficult to dig deeper than 12 inches. Soil has a high organic content. Soil Colors and indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047666

Parametrix, Inc.



Data Plot #: 18-A1
Wetland: 18

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM
Field Plot ID: 16-A

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Sample plot is located at the bottom of a steep slope in the residential yard of Parcel 279.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis gigantea</u>	<u>50</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Carex stipata</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Equisetum telmateia</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Holcus lanatus</u>	<u>5C</u>	<u>Herb</u>	<u>FAC</u>
5. <u>Lolium perenne</u>	<u>5</u>	<u>Herb</u>	<u>FACU</u>
6. <u>Ranunculus repens</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
7. <u>Scirpus microcarpus</u>	<u>5</u>	<u>Herb</u>	<u>OBL</u>
8. <u>Rubus discolor</u>	<u>5</u>	<u>Shrub</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
X Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology was present in July and observed as saturation to the soils surface and oxidized root channels in upper 12 inches of the soil.

AR 047668

Parametrix, Inc.



Data Plot #: 18-A1
 Wetland: 18

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A/C	10YR 2/1	-	-	Clay Loam
4-8	A	10YR 2/1	5YR 3/3	Common, Medium, Distinct	Clay Loam
8-16	B	10YR 2/2	-	-	Clay Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

Parametrix, Inc.



Data Plot #: 18-A2
 Wetland: 18

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/28/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kleindl and Rozenbaum State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 61-A

Remarks (Explain sample location, disturbances, problem areas):

Sampled plot established at the bottom of a steep fill slope on the north side of Parcel # 289.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1	<u>Athvnum filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2	<u>Equisetum telmateia</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
3	<u>Lysichiton americanum</u>	<u>10</u>	<u>Herb</u>	<u>OBL</u>
✓ 4	<u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5	<u>Alnus rubra</u>	<u>90</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
X Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
X Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 13 (in.)
 Depth to Saturated Soil: 8 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology was present in September and observed as saturation within 8 inches of the soil surface and water table at 13 inches from the soil surface.

AR 047670

Parametrix, Inc.



Data Plot #: 18-A2
 Wetland: 18

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/28/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A1	10YR 2/1	-	-	Loam
8-17	A2	10YR 2/1	-	-	Loam with lenses of peat
17+	B	5Y 5/1	-	-	Loamy sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meets the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047671

Parametrix, Inc.



Data Plot #: 18-A3
 Wetland: 18

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindi and Marti Louther State: WA

1987 Method 1989 Method

Community ID: PFO/PSS

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: 18-a3

Remarks (Explain sample location, disturbances, problem areas):

Sample plots established on parcel 287. This is a PSS/PFO wetland is located in a topographic low. Significant fill material has been placed to the north, east, and west of the wetland.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1	<u>Athyrium filix-femina</u>	<u>25</u>	<u>Herb</u>	<u>FAC</u>
2	<u>Juncus effusus</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
✓ 3	<u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 4	<u>Ranunculus repens</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
✓ 5	<u>Rubus discolor</u>	<u>70</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6	<u>Ainus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: Surface (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

This wetland is associated with Miller Creek located in a topographic low. Over land flows and restricted by fill located to the west. Wetland hydrology was present in July and observed as saturation to the soils surface, oxidized root channels in upper 12 inches of the soil and a shallow water table.

AR 047672

Parametrix, Inc.



Data Plot #: 18-A3
 Wetland: 18

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 3/1	-	-	Loam
12-15	C	10YR 4/2	10YR 4/3	Common, Medium, Faint	Sandy loam

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

High organic matter in the A horizon. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047673

Parametrix, Inc.



Data Plot #: 18-B1
 Wetland: 18 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Field Plot ID: 16-B

Remarks (Explain sample location, disturbances, problem areas):
Upland plot located on Parcel 279.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Hypochaeris radicata</u>	<u>5</u>	<u>Herb</u>	<u>FACU</u>
3. <u>Prunus sp</u>	<u>5</u>	<u>Shrub</u>	<u>NL</u>
4. <u>Rubus discolor</u>	<u>5</u>	<u>Shrub</u>	<u>FACU</u>
5. <u>Acer macrophyllum</u>	<u>5</u>	<u>Tree</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since more than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present

Parametrix, Inc.



Data Plot #: 18-B1
 Wetland: 18 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	O/A	10YR 3/2	-	-	Silt loam
4-10	B	10YR 3/4	-	-	Silt loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland vegetation is present, however both wetland hydrology and hydric soils are absent. Therefore, the area is not a wetland.

AR 047675

Parametrix, Inc.



Data Plot #: 18-B2
 Wetland: 18 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louther State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: 16-C

Remarks (Explain sample location, disturbances, problem areas):

This data plot is located on fill on Parcel # 287. The sample location is 1.5 to 3 feet higher than native upland soil sampled in plot 18B3.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>25</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Dactyloctenium aegyptium</u>	<u>5</u>	<u>Herb</u>	<u>FACU</u>
3. <u>Lotus corniculatus</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
✓ 4. <u>Phalaris arundinacea</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
5. <u>Plantago lanceolata</u>	<u>10</u>	<u>Herb</u>	<u>FACU+</u>
✓ 6. <u>Poa sp</u>	<u>25</u>	<u>Herb</u>	<u>NL</u>
7. <u>Rubus discolor</u>	<u>5</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present

Parametrix, Inc.



Data Plot #: 18-B2
 Wetland: 18 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	Fill	10YR 3/2	10YR 4/6, 10YR 5/2	Common, Coarse, Distinct	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil is fill material; contains gravel, asphalt, and buried organic matter. Hydric soil colors are presumed to be a result of fill parent material, and do not reflect environmental conditions present on the site.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland vegetation is present, however both wetland hydrology and hydric soils are absent. Therefore, the area is not a wetland.

AR 047677

Parametrix, Inc.



Data Plot #: 18-B3

Wetland: 18 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/10/99
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindi and Marti Louthier State: WA
 1987 Method 1989 Method Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 18-B3

Remarks (Explain sample location, disturbances, problem areas):

The sample is located on Parcel 287 in an upland area with undisturbed soils. The location is 2- 3 feet lower than plot 18B2.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Agrostis capillans (tenuis)</u>	<u>15</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Dactylis glomerata</u>	<u>5</u>	<u>Herb</u>	<u>FACU</u>
3. <u>Polytrichum munitum</u>	<u>5</u>	<u>Herb</u>	<u>FACU</u>
4. <u>Crataegus douglasii</u>	<u>5</u>	<u>Shrub</u>	<u>FAC</u>
✓ 5. <u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
6. <u>Rubus laciniatus</u>	<u>10</u>	<u>Shrub</u>	<u>FACU+</u>
✓ 7. <u>Alnus rubra</u>	<u>75</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Vegetation consists of species typical of disturbed areas. The wetland vegetation criteria are not met because only 50% of the dominant species are adapted to wetlands.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
_____ Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present

AR 047678

Parametrix, Inc.



Data Plot #: 18-B3
 Wetland: 18 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/10/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 3/3	-	-	Loam
4-11	B	10YR 4/4	-	-	Loam
11+	C	10YR 4/6	7.5 YR 4/4	Common, Coarse, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent

AR 047679

Parametrix, Inc.



Data Plot #: 18-B4
Wetland: 18

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 18-B4
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

The sample is located on Parcel 289 in a mowed upland area with undisturbed soils. The location is 2- 3 feet high than plot 18-A2.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis sp</u>	<u>30</u>	<u>Herb</u>	<u>NL</u>
✓ 2. <u>Fescue sp.</u>	<u>30</u>	<u>Herb</u>	<u>NL</u>
✓ 3. <u>Poa sp</u>	<u>30</u>	<u>Herb</u>	<u>NL</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met. Grasses were unidentifiable to species.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047680

Parametrix, Inc.



Data Plot #: 18-B4

Wetland: 18

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 11/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 2/1	-	-	Sandy loam (fill)
3-9	C	10YR 3/2	-	-	Gravelly sand loam (fill)

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes ___ No X

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes ___ No X

Yes ___ No X

Wetland Hydrology Present?

Yes ___ No X

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047681

Parametrix, Inc.



Data Plot #: 20a-A1
 Wetland: 20a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Community ID: PEM
 Field Plot ID: W3a-A

Remarks (Explain sample location, disturbances, problem areas):
Wetland 20a is a western extension to FEIS Wetland 20.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Agrostis gigantea</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 2.	<u>Epiobium ciliatum</u>	<u>40</u>	<u>Herb</u>	<u>FACW-</u>
<input checked="" type="checkbox"/> 3.	<u>Equisetum arvense</u>	<u>30</u>	<u>Herb</u>	<u>FAC</u>
4.	<u>Hiciscus lanatus</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 5.	<u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
6.	<u>Scirpus microcarpus</u>	<u>15</u>	<u>Herb</u>	<u>OBL</u>
7.	<u>Veronica americana</u>	<u>15</u>	<u>Herb</u>	<u>OBL</u>
<input checked="" type="checkbox"/> 8.	<u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 9.	<u>Rubus spectabilis</u>	<u>20</u>	<u>Shrub</u>	<u>FAC-</u>
10.	<u>Populus balsamifera ssp. trichocarpa</u>	<u>5</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
X Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0.5 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Inundation present and wetland hydrology criteria satisfied

AR 047682

Parametrix, Inc.



Data Plot #: 20a-A1
 Wetland: 20a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0 - 9	A	10YR 2/2	10YR 5/2	Few, Medium, Distinct	Loam
9-18+	C	2.5Y 6/2	2.5Y 5/3	Many, Coarse, Distinct	Loamy sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland

AR 047683

Parametrix, Inc.



Data Plot #: 20a-A2
 Wetland: 20a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PFO/PSS

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: W3b-A

Remarks (Explain sample location, disturbances, problem areas):

Wetland 20b is an eastern extension to FEIS Wetland 20.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Equisetum arvense</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Lysichiton americanum</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
4. <u>Scirpus microcarpus</u>	<u>15</u>	<u>Herb</u>	<u>OBL</u>
✓ 5. <u>Rubus discolor</u>	<u>50</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Rubus spectabilis</u>	<u>50</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 7. <u>Alnus rubra</u>	<u>85</u>	<u>Tree</u>	<u>FAC</u>
8. <u>Populus balsamifera ssp. Inchoarpa</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC+). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Dnft Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation present and wetland hydrology criteria satisfied

AR 047684

Parametrix, Inc.



Data Plot #: 20a-A2
 Wetland: 20a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-24	O	10YR 2/1			Muck

Hydric Soil Indicators:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Histosol | _____ Listed on Local Hydric Soils List |
| _____ Histic Epipedon | _____ Listed on State Hydric Soils List |
| <input checked="" type="checkbox"/> Sulfidic Odor | _____ Listed on National Hydric Soils List |
| _____ Probable Aquic Moisture Regime | _____ Aquic Moisture Regime |
| _____ Reducing Conditions | _____ Organic Streaking in Sandy Soils |
| _____ Gleyed or Low-Chroma Colors | _____ Mottles |
| _____ High Organic Content in Surface Layer | _____ Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland. Wetland delineated on changes in hydrology.

AR 047685

Parametrix, Inc.



Date Plot #: 20b-A
 Wetland: 20b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Community ID: PFO/PSS
 Field Plot ID: W3c-A

Remarks (Explain sample location, disturbances, problem areas):
Wetland 20c is a northern extension to FEIS Wetland 20.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Polystichum munitum</u>	<u>T</u>	<u>Herb</u>	<u>FACU</u>
2. <u>Ranunculus repens</u>	<u>T</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Rubus discolor</u>	<u>50</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Rubus spectabilis</u>	<u>50</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 5. <u>Alnus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>
✓ 6. <u>Populus balsamifera ssp. trichocarpa</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 2 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Inundation present and wetland hydrology criteria satisfied. Draining north and west from hillslope

AR 047686

Parametrix, Inc.



Data Plot #: 20b-A
Wetland: 20b

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 1/5/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/2	-	-	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Compacted layer at 10 inches. Soil color does not satisfy wetland soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
Hydric Soils Present? Yes No Yes No
Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Hydric soil is not present at site, however inundation was observed over several site visits in the spring of 1998. Therefore, hydric soils assumed and the area was delineated as a wetland.

AR 047687

Parametrix, Inc.



Data Plot #: 35a/b-A
 Wetland: 35a/b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PEM & PFO
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: 12/13-A
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Sample taken on parcel 273. Wetland 35 is a discontinuous wetland consisting mostly of residential yards. In the eastern portion it is supported by shallow subsurface groundwater. Culverts under driveways connect portions of the wetland.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Galium trifidum</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
2.	<u>Ilex aquifolium</u>	<u>15</u>	<u>Shrub</u>	<u>UPL</u>
✓ 3.	<u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4.	<u>Ainus rubra</u>	<u>35</u>	<u>Tree</u>	<u>FAC</u>
✓ 5.	<u>Populus trichocarpa</u>	<u>35</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present

AR 047688

Parametrix, Inc.



Data Plot #: 35a/b-A
 Wetland: 35a/b

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	Disturbed	10YR 2/1	-	-	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Delineation of Wetland 35 sections a and b were based on sharp changes on soil color, changes in plant species composition and topography.

AR 047689

Parametrix, Inc.



Data Plot #: 35c-A
Wetland: 35c

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 14-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sample established on parcel 269 near the edge of the wetland. Wetland 35 is a discontinuous wetland consisting of 4 sections. 35c is in the middle of the sections.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Agrostis gigantea</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
✓ 2 <u>Convolvulus arvensis</u>	<u>60</u>	<u>Herb</u>	<u>NL</u>
✓ 3 <u>Equisetum telmateia</u>	<u>100</u>	<u>Herb</u>	<u>FACW</u>
✓ 4 <u>Solanum dulcamara</u>	<u>60</u>	<u>Herb</u>	<u>FAC+</u>
✓ 5 <u>Rubus discolor</u>	<u>70</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6 <u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil, the wetland hydrology criteria is assumed to be present. The center of the wetland has flowing and standing water on 07/02/1998

AR 047690

Parametrix, Inc.



Data Plot #: 35c-A
Wetland: 35c

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A1	10YR 2/1	-	-	Silt loam
4-16	A2	10YR 3/1	10YR 3/6	Common, Medium, Distinct	Silt loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Delineation of the middle section of wetland 35 was based on sharp changes on soil color, changes in plant species composition and hydrology.

AR 047691

Parametrix, Inc.



Data Plot #: 35c-B
 Wetland: 35c Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 14-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Upland plot sampled on parcel 270 and corresponds to plots 35a/b-A, and 35c-A.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. Moss	100	h	NL
2. Agrostis sp	5	Herb	NL
3. Hypochaeris radicata	5	Herb	FACU
4. Ranunculus repens	5	Herb	FACW
<input checked="" type="checkbox"/> 5. Prunus laurocerasus	20	Shrub	UPL
<input checked="" type="checkbox"/> 6. Thuja plicata	20	Tree	FAC

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047692

Parametrix, Inc.



Data Plot #: 35c-B
 Wetland: 35c Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 3/2	-	-	Sandy loam
4-6	B	10YR 4/3	10YR 5/6	Few, Fine, Distinct	Sandy loam
>6	C	10YR 4/3	10YR 5/6 & 10YR 5/3	Common, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047693



Data Plot #: 35d-A
 Wetland: 35d

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 15-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sample established on parcel 267. For the purpose of plant identification the sample was taken in a non-mowed area within a debris pile in yard.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1 <u>Agrostis capillans (tenuis)</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
2 <u>Athyrium filix-femina</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
3 <u>Epilobium ciliatum</u>	<u>5</u>	<u>Herb</u>	<u>FACW-</u>
✓ 4 <u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
5 <u>Glyceria elata</u>	<u>10</u>	<u>Herb</u>	<u>FACW+</u>
6 <u>Hiciscus lanatus</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
7 <u>Alnus rubra</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soils are saturated to the surface. Down-slope topography from the sample point has a defined season drainage channel

Parametrix, Inc.



Data Plot #: 35d-A
Wetland: 35d

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 7/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	Fill	10YR 2/2	-	-	Sandy loam
5-8	C	2.5Y 4/2	10YR 3/6	Common, Medium, Distinct	Sand
8-16	Ab	10YR 2/1	-	-	Silt with organics

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes X No _____ Is this Sampling Point Within a Wetland?
Hydric Soils Present? Yes X No _____ Yes X No _____
Wetland Hydrology Present? Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Delineation of the upper reach of Wetland 35 was based on distinct changes on soil color, changes in plant species composition, and topography.

AR 047695

Parametrix, Inc.



Data Plot #: 35d-B
 Wetland: 35d Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method
 Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 15-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Upland comparison located on a hobby farm on Parcel 268.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Agrostis sp</u>	<u>100</u>	<u>Herb</u>	<u>NL</u>
2. <u>Unknown grass</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The wetland vegetation criteria are not met since the area is dominated by non-wetland plants.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047696

Parametrix, Inc.



Data Plot #: 35d-B
 Wetland: 35d Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/2/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	O/A	10YR 2/2	-	-	Silt
2-10+	A/E	10YR 4/4	-	-	Silt

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
This area is an upland since all wetland parameters are absent.

AR 047697

Parametrix, Inc.



Data Plot #: 37a-A1
 Wetland: 37a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 17-a

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sample established on parcel 301 in northern portion of wetland 37a. This portion of the wetland is a disturbed pasture.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>100</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Holcus lanatus</u>	<u>80</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Ranunculus repens</u>	<u>100</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the vegetation is hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):

 X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of saturation to the soil surface in July and oxidized root channels in the upper 12 inches of the soil indicates that wetland hydrology criteria is satisfied.

AR 047698

Parametrix, Inc.



Data Plot #: 37a-A1
Wetland: 37a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/1	-	-	Sandy silt
10-18+	B	2.5Y 2/1	-	-	Sandy silt

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Delineation was based on sharp changes on soil color and hydrology as it corresponds in changes in topography.

AR 047699



Data Plot #: 37a-A2
 Wetland: 37a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/16/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Louther and Gnalou State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Community ID: PEM
 Field Plot ID: 66-A

Remarks (Explain sample location, disturbances, problem areas):
Plot established on Parcel 302 near wetland edge. The vegetation is disturbed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Cirsium sp.</u>	<u>T</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2. <u>Equisetum arvense</u>	<u>25</u>	<u>Herb</u>	<u>FAC</u>
3. <u>Phalans arundinacea</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Ranunculus repens</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
5. <u>Rumex crispus</u>	<u>T</u>	<u>Herb</u>	<u>FAC</u>
6. <u>Urtica dioica</u>	<u>2</u>	<u>Herb</u>	<u>FAC+</u>
7. <u>Acer macrophyllum</u>	<u>T</u>	<u>Tree</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: 0 (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil, the wetland hydrology criteria is assumed to be present. The center of the wetland has flowing and standing water on 10/16/1998.

Parametrix, Inc.



Data Plot #: 37a-A2
Wetland: 37a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/16/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A	10YR 4/2	10YR 4/6	Few. Fine, Faint	Sandy loam (fill)
8-18	B	10YR 2/2	10YR 3/4	Few. Coarse, Distinct	Sandy clay loam (fill)

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Area is disturbed, however, the presence of all three parameters indicate this area is a wetland.

AR 047701

Parametrix, Inc.



Data Plot #: 37a-A3
Wetland: 37a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindi State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 65-a

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sample established on parcel 302 in south portion of Wetland 37a.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Equisetum arvense</u>	<u>40</u>	<u>Herb</u>	<u>FAC</u>
3. <u>Glycerhiza grandis</u>	<u>5</u>	<u>Herb</u>	<u>OBL</u>
✓ 4. <u>Rubus discolor</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
5. <u>Rubus spectabilis</u>	<u>10</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 6. <u>Alnus rubra</u>	<u>75</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
X Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 16 (in.)
Depth to Saturated Soil: 5 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of saturated soil within 12 inches of the surface in July indicates that wetland hydrology criteria is satisfied.

AR 047702

Parametrix, Inc.



Data Plot #: 37a-A3
 Wetland: 37a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 2/2	-	-	Clay Loam
12-17+	B	10YR 3/1	10YR 2/3	Common, Medium, Distinct	Clay Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Delineation was based on sharp changes in soil color and hydrology as it corresponds to changes in topography.

AR 047703

Parametrix, Inc.



Data Plot #: 37a-B1
Wetland: 37a Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 17-b

Remarks (Explain sample location, disturbances, problem areas):
Upland comparison plot established in a disturbed pasture on Parcel 300.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>100</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Festuca rubra</u>	<u>15</u>	<u>Herb</u>	<u>FAC+</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
_____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
_____ Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >13 (in.)
Depth to Saturated Soil: >13 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047704

Parametrix, Inc.



Data Plot #: 37a-B1
 Wetland: 37a Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-13+	Fill	10YR 3/3	-	-	Cobbly loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Compacted fill prevented digging below 13 inches. No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland vegetation is present, however wetland hydrology and hydric soils are not present. The vegetation in this area is a disturbed pasture.

AR 047705

Parametrix, Inc.



Data Plot #: 37a-B2
 Wetland: 37a Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/16/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Louther and Gnalou State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 66-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Upland plot established on Parcel 303.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Equisetum arvense</u>	<u>T</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Phalaris arundinacea</u>	<u>98</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Rubus discolor</u>	<u>30</u>	<u>Srsub</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The wetland vegetation criteria are not met since only 50% dominant plants are hydrophytic.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0 (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is absent.

AR 047706

Parametrix, Inc.



Data Plot #: 37a-B2
 Wetland: 37a Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/16/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-13	A	10YR 3/2	-	-	Loamy sand
>13	B	10YR 3/2	-	-	Sandy clay loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047707

Parametrix, Inc.



WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Data Plot #: 37e-A

Wetland: 37e

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PFO/PSS

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 23/24-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland located on a slope on Parcel 306. Wetland is separated from Section 37f to 37d by driveway fill.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1.	<u>Equisetum telmateia</u>	<u>85</u>	<u>Herb</u>	<u>FACW</u>
✓ 2.	<u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 3.	<u>Salix sitchensis</u>	<u>50</u>	<u>Shrub</u>	<u>FACW</u>
✓ 4.	<u>Ainus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturation within 12 inches of the soil surface on 07/09/1998 indicate that wetland hydrology is present. Flowing water is in the lowest section of the wetland.

AR 047708

Parametrix, Inc.



Data Plot #: 37e-A
 Wetland: 37e

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/1	-	-	Loam
10-18	B	10YR 2/1	10YR 3/4	Many, Medium Distinct	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047709

Parametrix, Inc.



Data Plot #: 37e/f-B
 Wetland: 37e/f Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kieindi State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: 23/19-B

Remarks (Explain sample location, disturbances, problem areas):

Data plot is located in mowed lawn on Parcel 306.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1 <u>Agrostis gigantea</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 2 <u>Holcus lanatus</u>	<u>60</u>	<u>Herb</u>	<u>FAC</u>
3 <u>Hypochaeris radicata</u>	<u>5</u>	<u>Herb</u>	<u>FACU</u>
4 <u>Moss spp</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>
5 <u>Ranunculus repens</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

According to the Washington State Delineation Manual (Page 68, Step 13 (a)) areas that are dominated by FAC plants but lack wetland hydrology and hydric soils do not satisfy the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047710

Parametrix, Inc.



Data Plot #: 37e/f-B
 Wetland: 37e/f Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	2.5Y 4/3	7.5YR 3/4	Few, Medium, Faint	Silt loam
6-18	B	5Y 5/3	5Y 5/6	Many, Coarse, Distinct	Silt

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047711



Data Plot #: 371-A
 Wetland: 371

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PFO/PSS

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 19-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Data Plot established on Parcel 306. Wetland located on a slope along the south edge of the parcel.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Lyxichitum amercanum</u>	<u>40</u>	<u>Herb</u>	<u>OBL</u>
✓ 2. <u>Oenanthe sarmentosa</u>	<u>35</u>	<u>Herb</u>	<u>OBL</u>
✓ 3. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Rubus spectabilis</u>	<u>80</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 5. <u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>
✓ 6. <u>Salix lucida</u>	<u>40</u>	<u>Tree</u>	<u>FACW+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

83

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 4 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation and soil saturation on 07/09/1998 indicates wetland hydrology

AR 047712

Parametrix, Inc.



Data Plot #: 371-A
Wetland: 37f

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-24	Oa	10YR 2/1	-	-	Muck

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol	_____ Listed on Local Hydric Soils List
_____ Histic Epipedon	_____ Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	_____ Listed on National Hydric Soils List
_____ Probable Aquic Moisture Regime	_____ Aquic Moisture Regime
_____ Reducing Conditions	_____ Organic Streaking in Sandy Soils
_____ Gleyed or Low-Chroma Colors	_____ Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	_____ Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No _____	Yes <input checked="" type="checkbox"/> No _____
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047713

Parametrix, Inc.



Data Plot #: 39:A1
 Wetland: 39

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/26/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Linda Ellis State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 39:A1

Remarks (Explain sample location, disturbances, problem areas):

The area was historically a pasture and forest. Currently the area is dominated by blackberry.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Epilobium angustifolium</u>	<u>10</u>	<u>Herb</u>	<u>FACU+</u>
✓ 2.	<u>Equisetum telmateia</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
✓ 3.	<u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 4.	<u>Rubus discolor</u>	<u>85</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5.	<u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>
6.	<u>Thuja plicata</u>	<u>5</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
 _____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present. Buttressed roots of the Alders was observed.

AR 047714

Parametrix, Inc.



Data Plot #: 39:A1
 Wetland: 39

Project/Site: Seattle Tacoma Airport - Master-Plan Update Date: 8/26/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 2/1	10YR 3/3	Few. Fine. Distinct	Loam
9-15	B	2.5Y 5/2	10YR 3/3	Common. Medium. Distinct	Gravelly Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047715



Data Plot #: 39:A2
 Wetland: 39

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/26/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Linda Elis State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 39:A2

Remarks (Explain sample location, disturbances, problem areas):

The area was historically a pasture and forest. Plot located in a forested portion of Parcel 390.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Athyrium filix-femina</u>	<u>1</u>	<u>Herb</u>	<u>FAC+</u>
2. <u>Equisetum telmateia</u>	<u>1</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Rubus discolor</u>	<u>100</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Ainus rubra</u>	<u>65</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met. Wetland hydrology is present on 8/26/99. Rubus discolor is found in disturbed wetlands with prolonged saturation. Also satisfies vegetation criteria stated in the DOE manual 34.b.(1) (page 16-17) and ACOE manual 35, b (1) (page 23).

HYDROLOGY

Recorded Data (Describe in Remarks):

- _____ Stream, Lake, or Tide Gage
- _____ Aerial Photograph
- _____ Other
- _____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Saturated in Upper 18 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: Surface (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The wetland hydrology criteria is met by the presence of soil saturation during the growing season.

Parametrix, Inc.



Data Plot #: 39:A2
 Wetland: 39

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/26/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 4/1	10YR 3/3	Few, Medium, Distinct	Loam
10-15	B	10YR 4/1	10YR 5/4	Common, Coarse, Distinct	Clay Loam
15-18+	C	2.5Y 6/3	2.5Y 5/6	Common, Medium, Distinct	Clay

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047717

Parametrix, Inc.



Data Plot #: 39:A3
 Wetland: 39

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Field Plot ID: 39:A3

Remarks (Explain sample location, disturbances, problem areas):

The sampling plot is located on undeveloped land on Parcel 328. Wetland 39 is located on Parcels 334, 328, 389, and 390.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Ranunculus repens</u>	<u>15</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Rumex obtusifolius</u>	<u>2</u>	<u>Herb</u>	<u>FAC</u>
✓ 4. <u>Rubus discolor</u>	<u>90</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5. <u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation, hydric soil, and hydrological indicators, the wetland hydrology criteria is assumed to be present.

AR 047718

Parametrix, Inc.



Data Plot #: 39:A3
 Wetland: 39

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 3/1	-	-	Loam
6-15	B	10YR 3/1	10YR 5/1	Common, Medium, Distinct	Loam
15-18+	C	2.5Y 5/3	2.5Y 4/4	Common, Medium, Distinct	Sandy Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047719

Parametrix, Inc.



Data Plot #: 39:A4
 Wetland: 39

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl and Marti Louther State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No Community ID: PEM
 Is the site significantly disturbed (Atypical Situation)? Yes No X Field Plot ID: 39:A4
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

The sampling plot was located on Parcel 389. Wetland 39 is located on Parcels 334, 328, 389, and 390.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Galium trifidum</u>	<u>t</u>	<u>Herb</u>	<u>FACW+</u>
✓ 3. <u>Polystichum munitum</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Ranunculus repens</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 X Inundated
 X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 X Sediment Deposits
 X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The soil is saturated to the surface therefore, the wetland hydrology criteria are met.

AR 047720

Parametrix, Inc.



Data Plot #: 39:A4
 Wetland: 39

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/2	10YR 3/4	Common. Coarse. Distinct	Fine sandy loam
10-18+	B	2.5YR 4/2	-	-	Loamy Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047721

Parametrix, Inc.



Data Plot #: 39:B1
Wetland: 39 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/26/99
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl, Linda Ellis State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 39:B1

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Historically, the area was pasture with evidence of logging history, remnant roads, and burn piles. Currently the area is dominated by blackberry.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Rubus discolor</u>	<u>99</u>	<u>Shrub</u>	<u>FACU</u>
2. <u>Alnus rubra</u>	<u>tr</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since none of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >15 (in.)
Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047722

Parametrix, Inc.



Data Plot #: 39:B1
 Wetland: 39 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/26/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/2	-	-	Sandy Loam
0-18	B	10YR 3/2	-	-	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

No wetland indicators are present.

AR 047723

Parametrix, Inc.



Data Plot #: 39:B2
Wetland: 39 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/99
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland Forest

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 39:B2
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The sampling plot was located on Parcel 328 in uplands adjacent to Wetland 39.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Epilobium angustifolium</u>	<u>20</u>	<u>Herb</u>	<u>FACU+</u>
✓ 2. <u>Equisetum arvense</u>	<u>45</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Corylus comuta</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
4. <u>Rubus discolor</u>	<u>15</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5. <u>Acer macrophyllum</u>	<u>20</u>	<u>Tree</u>	<u>FACU</u>
✓ 6. <u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 40

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >15 (in.)
Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present

AR 047724

Parametrix, Inc.



Data Plot #: 39:B2
Wetland: 39 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	5Y 3/2	-	-	Clay Loam
4-15+	C	5Y 4/3	5Y5/4	Few, Medium, Faint	Clay

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Although mottles are present in the B horizon, the matrix color does not meet the criteria for hydric soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
Hydric Soils Present? Yes No
Wetland Hydrology Present? Yes No Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
No wetland indicators are present.

AR 047725

Parametrix, Inc.



Data Plot #: 40-A
Wetland: 40

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/20/98
Applicant/Owner: Port of Seattle County: King
Investigator: Louther and Gnaiou State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 66-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sample established on Parcel 378. This wetland is a depression that receives stormwater from 12th Ave. South. A culvert is located in the southern portion of the wetland.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Ins pseudacorus</u>	<u>35</u>	<u>Herb</u>	<u>OBL</u>
2. <u>Rubus discolor</u>	<u>15</u>	<u>Shrub</u>	<u>FACU</u>
✓ 3. <u>Salix lucida ssp. Lasianдра</u>	<u>20</u>	<u>Shrub</u>	<u>FACW+</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
X Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology was not observed in October 1998 during dry season sampling. However, it was assumed to be present by the observation of primary and secondary wetland hydrologic indicators.

AR 047726

Parametrix, Inc.



Data Plot #: 40-A
Wetland: 40

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/20/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	C	-	-	-	Roots and shoots
3-10+	A/B	10YR 3/2	7.5Y 5/6	Many, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047727



Data Plot #: 41a-A
 Wetland: 41a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/20/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Louther, Kleindl, Grialou State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 67-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

This data plot is located in an emergent wetland approximately 25 to 30 feet south of an open water pond on Parcel 373.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Festuca arundinacea</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Matricaria matricanoides</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Plantago major</u>	<u>5</u>	<u>Herb</u>	<u>FAC+</u>
✓ 4. <u>Poa sp</u>	<u>70</u>	<u>Herb</u>	<u>FAC</u>
5. <u>Trifolium sp</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
✓ 6. <u>Salix lucida ssp. Lasiantra</u>	<u>20</u>	<u>Shrub</u>	<u>FACW+</u>
✓ 7. <u>Ainus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>
✓ 8. <u>Populus Inhocarpa</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >13 (in.)
 Depth to Saturated Soil: >13 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present. Additionally, an open water pond is present within the center of the wetland.

Parametrix, Inc.



Data Plot #: 41a-A
Wetland: 41a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/20/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-13	A	10YR 3/2	7.5YR 5/6	Common, Medium, Distinct	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria. Upper horizon compacted due to active cattle grazing.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047729

Parametrix, Inc.



Data Plot #: 41b-A

Wetland: 41b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/21/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Marti Louthier State: WA
 1987 Method 1989 Method Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 68-A

Remarks (Explain sample location, disturbances, problem areas):

Sampled established on Parcel 379. The wetland is an active pasture and has compacted soil and disturbed vegetation.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis gigantea</u>	<u>30</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Hypochaeris radicata</u>	<u>3</u>	<u>Herb</u>	<u>FACU</u>
3. <u>Juncus effusus</u>	<u>T</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Piantago major</u>	<u>5</u>	<u>Herb</u>	<u>FAC+</u>
✓ 5. <u>Poa sp</u>	<u>60</u>	<u>Herb</u>	<u>NL</u>
6. <u>Ranunculus repens</u>	<u>T</u>	<u>Herb</u>	<u>FACW</u>
7. <u>Rumex crispus</u>	<u>T</u>	<u>Herb</u>	<u>FAC</u>
8. <u>Trifolium repens</u>	<u>T</u>	<u>Herb</u>	<u>FACU+</u>
✓ 9. <u>Populus balsamifera</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Two black cottonwoods are rooted in the center of the wetland, but do not make up a forested class. The wetland is a cow pasture with compacted soils and disturbed vegetation. However, if the unknown Poa species is FAC or wetter than greater than 50% of the dominant hydrophytic species present and therefore the wetland vegetation criteria is satisfied.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

This wetland is in a topographical depression. Evidence of standing water by the presence of tussocks, shallowly rooted trees, thus hydrology is present.

AR 047730

Parametrix, Inc.



Data Plot #: 41b-A
 Wetland: 41b

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/21/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/2	10YR 4/6	Few. Fine. Distinct	Silt loam
10-12	B	2.5Y 3/2	10YR4/6	Few. Fine. Distinct	Silt loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047731

Parametrix, Inc.



Data Plot #: 41b-B
Wetland: 41b Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/21/98
Applicant/Owner: Port of Seattle County: King
Investigator: Marti Louthier State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 68-B

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

This data plot is located east of Wetland 41b. Data plot 41-B also represents upland conditions present around Loop 41a (duck pond), 41b and 40. Sampled established on Parcel 379.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Agrostis gigantea</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Hypochaeris radicata</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 3. <u>Trifolium repens</u>	<u>20</u>	<u>Herb</u>	<u>FACU+</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The wetland vegetation criteria are not met since the area is dominated by non-wetland plants.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

This data plot is located on a topographic bench at a higher elevation than the wetland and no evidence of hydrology is present.

AR 047732

Parametrix, Inc.



Data Plot #: 41b-B
Wetland: 41b Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/21/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 3/3	10YR 4/6	Few, Fine, Distinct	Sandy loam
12-16+	B	10YR 3/4	-	-	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
This area is an upland since all wetland parameters are absent.

AR 047733

Parametrix, Inc.



Data Plot #: 44-A1

Wetland: 44

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/7/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 20-A

Remarks (Explain sample location, disturbances, problem areas):

The wetland sample plot is located in a ravine with steep slopes. The plot is located on Parcel 496.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>40</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Equisetum telmateia</u>	<u>75</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Glycena elata</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
✓ 4. <u>Acer circinatum</u>	<u>20</u>	<u>Shrub</u>	<u>FAC-</u>
✓ 5. <u>Rubus discolor</u>	<u>75</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Rubus spectabilis</u>	<u>25</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 7. <u>Acer macrophyllum</u>	<u>25</u>	<u>Tree</u>	<u>FACU</u>
✓ 8. <u>Alnus rubra</u>	<u>75</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

____ Stream, Lake, or Tide Gage
 ____ Aerial Photograph
 ____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

____ Inundated
X Saturated in Upper 12 inches
 ____ Saturated in Upper 18 inches
 ____ Water Marks
 ____ Drift Lines
 ____ Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 7 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

____ Oxidized Root Channels in Upper 12 inches
 ____ Water-Stained Leaves
 ____ Local Soil Survey Data
 ____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The wetland hydrology criteria are met. Flowing water is located approximately 20 feet east of the plot.

AR 047734

Parametrix, Inc.



Data Plot #: 44-A1

Wetland: 44

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 7/7/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 2/1	-	-	Loam
5-7	Cg	5BG 5/1	-	-	Coarse sand
>7	Ob	10YR 2/1	-	-	Peat fibrc

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters indicate the area is a wetland.

AR 047735

Parametrix, Inc.



Date Plot #: 44-A2

Wetland: 44

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/16/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: 44-A

Remarks (Explain sample location, disturbances, problem areas):

Plot is located at the base of road fill, within the SR 509 right of way.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum arvense</u>	<u>60</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Holcus lanatus</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
3. <u>Cytisus scoparius</u>	<u>T</u>	<u>Shrub</u>	<u>UPL</u>
✓ 4. <u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5. <u>Rubus spectabilis</u>	<u>20</u>	<u>Shrub</u>	<u>FAC+</u>
6. <u>Alnus rubra</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The area is dominated by blackberry. The wetland at base of fill contains a small channel. Other vegetation included Scirpus macrocarpa, Juncus and Carex. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
X Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: 12 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Based on the presence of primary hydrologic indicators the wetland hydrology criteria is present.

AR 047736

Parametrix, Inc.



Data Plot #: 44-A2
 Wetland: 44

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/16/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	Al	10YR 2/2	-	-	Sandy loam
2-6	All	10YR 2/2	10YR 5/2	Few. Fine. Distinct	Sandy loam
6-16+	C	10YR 5/2	-	-	Coarse sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Delineation determined on changes in three parameters related to the base of fill for SR 509.

AR 047737



Date Plot #: 44-A3
Wetland: 44

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/23/98
Applicant/Owner: Port of Seattle County: King
Investigator: K. Dunkin, S. Rozenbaum State: WA
 1987 Method 1989 Method Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X
Field Plot ID: 59-A

Remarks (Explain sample location, disturbances, problem areas):
Sampled established on southeastern corner of Parcel # 495.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	<u>Equisetum telmateia</u>	<u>4</u>	<u>Herb</u>	<u>FACW</u>
✓ 2	<u>Phaians arundinacea</u>	<u>99</u>	<u>Herb</u>	<u>FACW</u>
3	<u>Solanum dulcamara</u>	<u>15</u>	<u>Herb</u>	<u>FAC+</u>
4	<u>Urtica dioica</u>	<u>3</u>	<u>Herb</u>	<u>FAC+</u>
5	<u>Rubus discolor</u>	<u>15</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6	<u>Salix lucida ssp. Lasianora</u>	<u>20</u>	<u>Shrub</u>	<u>FACW+</u>
✓ 7	<u>Salix sitchensis</u>	<u>20</u>	<u>Tree</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
____ Stream, Lake, or Tide Gage
____ Aerial Photograph
____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
Primary Indicators:
____ Inundated
X Saturated in Upper 12 inches
____ Saturated in Upper 18 inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands

Field Observations:
Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 8 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology criteria is met. The portion of the wetland surrounding the data plot is a drainage corridor. The channel was braided and not well defined.

Parametrix, Inc.



Data Plot #: 44-A3
 Wetland: 44

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/23/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	O _i	7.5YR 3/2	-	-	Fibric material
2-8	O _a	7.5YR 2.5/2	-	-	Sapric material
8-12+	C	N 4/1 & N 3/1	7.5YR 3/4	Fine, Medium, Prominent	Gravelly silt loam

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol	_____ Listed on Local Hydric Soils List
_____ Histic Epipedon	_____ Listed on State Hydric Soils List
_____ Sulfidic Odor	_____ Listed on National Hydric Soils List
_____ Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	_____ Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
_____ High Organic Content in Surface Layer	_____ Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047739



WETLAND DETERMINATION
(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/19/98
Applicant/Owner: Port of Seattle County: King
Investigator: Kristie Dunkin State: WA

1987 Method 1989 Method

Community ID: PFO
Field Plot ID: 44B-A

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
Plot is located south of home which is on fill pad on parcel 490.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Glycyca elata</u>	<u>20</u>	<u>Herb</u>	<u>FACW+</u>
✓ 3. <u>Lysichiton americanum</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
4. <u>Polystichum munitum</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
✓ 5. <u>Rubus discolor</u>	<u>60</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Prunus emarginata</u>	<u>60</u>	<u>Tree</u>	<u>FACU</u>
7. <u>Salix spp.</u>	<u>10</u>	<u>Tree</u>	<u>FACW</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
____ Stream, Lake, or Tide Gage
____ Aerial Photograph
____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 inches
____ Saturated in Upper 18 inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:
Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
X Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Soils moist to the surface in August and no recent precipitation events. Wetland hydrology is frequently absent from wetlands in the Puget Sound during the dry summer months. Hydrology is assumed based on the presence of wetland vegetation and hydric soil.

Parametrix, Inc.



Data Plot #: 44-A4
 Wetland: 44

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/19/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16	A	10YR 2/2	10YR 4/3	Common, Medium, Faint	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Hydrology assumed due to late in summer and no recent precipitation events. However, wetland vegetation and hydric soils are present and therefore, the area is a wetland.

AR 047741



WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/17/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID 20-B

Remarks (Explain sample location, disturbances, problem areas):

Sample plot was established near wetland edge on Parcel # 491.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Polystichum munitum</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 2. <u>Acer circinatum</u>	<u>30</u>	<u>Shrub</u>	<u>FAC-</u>
✓ 3. <u>Alnus rubra (s)</u>	<u>20</u>	<u>Shrub</u>	<u>FAC</u>
✓ 4. <u>Hedera helix</u>	<u>90</u>	<u>Shrub</u>	<u>NL</u>
5. <u>Ilex aquifolium</u>	<u>10</u>	<u>Shrub</u>	<u>UPL</u>
✓ 6. <u>Oemlena cerasiformis</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
7. <u>Rubus spectabilis</u>	<u>10</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 8. <u>Acer macrophyllum</u>	<u>80</u>	<u>Tree</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The wetland vegetation criteria are not met since the area is dominated by non-wetland plants.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >12 (in.)
 Depth to Saturated Soil: 14 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is absent.

Parametrix, Inc.



Data Plot #: 44-B1
 Wetland: 44 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/17/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	Oi	10YR 3/3	-	-	Hemic
>10	A	10YR 2/1	-	-	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Although hydric soils are present, the area is not a wetland. The sample was taken very close to the wetland edge and wetland vegetation and hydrology was absent.

AR 047743



Data Plot #: 44-B2
 Wetland: 44 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/19/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kristie Dunkin State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Field Plot ID: 44-B

Remarks (Explain sample location, disturbances, problem areas):

Upland plot on SR509.

VEGETATION (Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Equisetum telmateia</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 2. <u>Ainus rubra</u>	<u>80</u>	<u>Tree</u>	<u>FAC</u>
3. <u>Corylus cornuta</u>	<u>7</u>	<u>Tree</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 4. <u>Populus trichocarpa</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>
5. <u>Salix scoulenana</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Vegetation is from a location on the edge of the wetland, since other areas are roadways or landscaped yards. Dominant vegetation is facultative. According to the Washington State Delineation Manual (Page 68, Step 13 (a)) areas that are dominated by FAC plants but lack wetland hydrology and hydric soils do not satisfy the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: 44-B2
Wetland: 44 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/19/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	Fill	7.5YR 2/1	-	-	Loamy sanc

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Fill from house pad.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are absent, therefore, the area is not a wetland.

AR 047745

Parametrix, Inc.



Data Plot #: 44-B3
Wetland: 44 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/19/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Field Plot ID: 44-B3

Remarks (Explain sample location, disturbances, problem areas):

Upland plot on Parcel 479.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/>	1. <u>Oemlena cerasiformis</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/>	2. <u>Rubus discolor</u>	<u>50</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/>	3. <u>Acer macrophyllum</u>	<u>40</u>	<u>Tree</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Upland plant community, no hydrophytic vegetation is present.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present

AR 047746

Parametrix, Inc.



Data Plot #: 44-B3
 Wetland: 44 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/19/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/2	-	-	Sandy loam
4-16+	B	10YR 4/4	-	-	Sandy Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047747

Parametrix, Inc.



Data Plot #: 44-B4
 Wetland: Upland

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kieindl, Marti Loutner State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: 44-B4
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Data plot 7 is approximately 19 feet north of rock lined swale and approximately 30 feet east of confirmed edge of Wetland 44.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum arvense</u>	<u>30</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Festuca arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>
✓ 3. <u>Rubus discolor</u>	<u>100</u>	<u>Shrub</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047748

Parametrix, Inc.



Data Plot #: 44-B4
 Wetland: Upland

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/2/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	Fill	10YR 3/2	-	-	Loam
4-14	Fill	2.5Y 4/3	-	-	Sand Loam with silt inclusions
14-18+	Fill	2.5Y 4/3	10YR 4/3	Common, Coarse, Faint	Sand Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present. Crushed gravel (~1in. dia.) occurs throughout the fill. No hydric soil criteria are met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047749



Data Plot #: A1-A1

Wetland: A1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 1-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland A1 is mostly surrounded by farmed or prior converted wetland area. Plot sampled in un-farmed area next to a drainage ditch.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Phalaris arundinacea</u>	<u>90</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Rubus discolor</u>	<u>10</u>	<u>Shrub</u>	<u>FACU</u>
3. <u>Salix sp</u>	<u>10</u>	<u>Shrub</u>	<u>FACW</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Wetland plant criteria satisfied since dominant species greater than 50 percent hydrophytic.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
X Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 6 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturation to the surface and free water to six inches of the soil surface during April satisfies the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: A1-A1
 Wetland: A1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-13	A	10YR 2/1	-	-	Silt loam/organic
>14	B	10YR 2/1	10YR 4/3 & 10YR 4/4	Common, Medium, Distinct	Silt loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland. Wetland edge delineated between vegetation and tilled area.

AR 047751

Parametrix, Inc.



Data Plot #: A1-A2
Wetland: A1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 2-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland A1 is mostly surrounded by farmed or prior converted wetland area. Plot sampled in un-farmed area south of Lara Lake.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Solanum dulcamara</u>	<u>80</u>	<u>Herb</u>	<u>FAC+</u>
✓ 2. <u>Urtica dioica</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
✓ 3. <u>Rubus discolor</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
X Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 10 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Observation of saturation to the surface and free water 10 inches from the surface in April satisfies the wetland hydrology criteria.

AR 047752

Parametrix, Inc.



Data Plot #: A1-A2
Wetland: A1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	O1	10YR 2/1	-	-	Muck
>9	O2	10YR 4/4	-	-	Peat

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol	_____ Listed on Local Hydric Soils List
_____ Histic Epipedon	_____ Listed on State Hydric Soils List
_____ Sulfidic Odor	_____ Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Probable Aquic Moisture Regime	_____ Aquic Moisture Regime
_____ Reducing Conditions	_____ Organic Streaking in Sandy Soils
_____ Gleyed or Low-Chroma Colors	_____ Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	_____ Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047753

Parametrix, Inc.



Data Plot #: A1-A3
Wetland: A1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/4/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 21-A

Remarks (Explain sample location, disturbances, problem areas):

Sample taken in a disturbed area between a residence and Miller Creek.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Ranunculus repens</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Plants are predominately cultivated fruit trees and shrubs. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
X Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >20 (in.)
Depth to Saturated Soil: >20 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soils were very moist in July. Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criterion is assumed to be present.

AR 047754

Parametrix, Inc.



Data Plot #: A1-A3

Wetland: A1

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 7/4/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-20	Fill	10YR 2/1	7.5YR 3/4	Few, Medium, Distinct	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Disturbed soil horizons. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No ___

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes X No ___

Yes X No ___

Wetland Hydrology Present?

Yes X No ___

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047755

Parametrix, Inc.



Data Plot #: A1-A4
Wetland: A1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/14/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl and Marti Louther State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 1-AZ
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Plot is located north of confluence of a drainage ditch and Miller Creek. Sample established on Parcel 88.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis gigantea</u>	<u>70</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Holcus lanatus</u>	<u>70</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Lotus corniculatus</u>	<u>60</u>	<u>Herb</u>	<u>FAC</u>
4. <u>Plantago maior</u>	<u>5</u>	<u>Herb</u>	<u>FAC+</u>
5. <u>Prunella vulgans</u>	<u>15</u>	<u>Herb</u>	<u>FACU+</u>
✓ 6. <u>Ranunculus repens</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
✓ 7. <u>Scirpus microcarpus</u>	<u>50</u>	<u>Herb</u>	<u>OBL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC+). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
X Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: 15 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present.

AR 047756

Parametrix, Inc.



Data Plot #: A1-A4
 Wetland: A1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/14/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A1	10YR 2/1	-	-	Mucky sandy loam
8-18	A2	7.5YR 3/1	2.5Y 4/1	Many, Coarse, Distinct	Clay Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Very high organic matter throughout profile. Moist at the surface and saturated at 15 inches below the surface. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland vegetation and hydric soils are present, hydrology is assumed due to dry season sampling. Wetland delineated in this area at the edge of fill

AR 047757

Parametrix, Inc.



Data Plot #: A1-A5

Wetland: A1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: A1-A5

Remarks (Explain sample location, disturbances, problem areas):

Plot located adjacent to Lora Lake on Parcel 52. Data collected adjacent to Lara Lake. Wetland is approx. 2 feet above the lake elevation.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Mowed Lawn</u>	<u>80</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 2. <u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 3. <u>Veronica americana</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
X Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 12 (in.)
Depth to Saturated Soil: 14 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturation was observed in the upper 12 inches

AR 047758

Parametrix, Inc.



Data Plot #: A1-A5
Wetland: A1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 3/2	-	-	Sandy Loam
5-18+	B	10YR 4/1	-	-	Fine Sand w/ ORZ

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047759

Parametrix, Inc.



Date Plot #: A1-B1
Wetland: A1 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA
 1987 Method 1989 Method
Community ID: PC Wetland
Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X
Field Plot ID: 1-B

Remarks (Explain sample location, disturbances, problem areas):

Plot is located in an area that was wetland but has been converted to farmland prior to 12/23/85. Area is actively farmed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>None</u>			

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Area has been recently disked and tilled. No vegetation was identified in this area, thus no hydrophytic vegetation was present.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
X Aerial Photograph
_____ Other
_____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
X Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturated to surface was observed satisfying wetland hydrology criteria.

AR 047760

Parametrix, Inc.



Data Plot #: A1-B1
 Wetland: A1 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16	Ap	10YR 2/1	-	-	Silt loam
>16	B	10YR 6/1	10YR 2/2	Common, Medium, Distinct	Silt loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is not a jurisdictional wetland because it meets "prior converted" status.

AR 047761



Data Plot #: A1-B2
 Wetland: A1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PC Wetland

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 2-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Plot is located in an area that was wetland but has been converted to farmland prior to 12/23/85. Area is actively farmed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Epilobium ciliatum</u>	<u>10</u>	<u>Herb</u>	<u>FACW-</u>
✓ 2. <u>Equisetum arvense</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
3. <u>Unknown grass</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
X Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
X Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 18 (in.)
 Depth to Saturated Soil: 14 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Saturation was observed in the upper 18 inches.

Parametrix, Inc.



Data Plot #: A1-B2
 Wetland: A1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	Ap	10YR 2/1	-	-	Silt loam
6-11	A	10YR 2/1	10YR 5/6	Common, Medium, Distinct	Silt loam
>11	O	10YR 4/2	-	-	Peat

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is not a jurisdictional wetland because it meets "prior converted" status.

AR 047763

Parametrix, Inc.



Data Plot #: A1-B3
Wetland: A1 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 21-B

Remarks (Explain sample location, disturbances, problem areas):

Sample site is in a disturbed lawn between the house and Miller Creek on Parcel 64.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans</u>	<u>80</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Holcus lanatus</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Vegetation is predominantly cultivated fruit and ornamental trees and shrubs. The naturalized herbaceous layer is greater than 50% hydrophytic vegetation and satisfies the hydrophytic wetland criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
_____ Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >20 (in.)
Depth to Saturated Soil: >20 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047764

Parametrix, Inc.



Data Plot #: A1-B3
 Wetland: A1 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-20	Fill	10YR 2/2	-	-	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Disturbed soil horizons, and soil color does not meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Area delineated around change of vegetation and soil color. Wetland vegetation is present, however, both wetland hydrology and hydric soils are absent. Therefore, the area is not a wetland.

AR 047765



Data Plot #: A1-B4
 Wetland: A1 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: Upland Emergent

Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: A1-B4
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Upland plot located above rockery adjacent to Lora Lake on Parcel 50. The plot location is about 4 feet above the adjacent wetland, and above the rock retaining wall.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Equisetum arvense</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Hypochaeris radicata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Plantago lanceolata</u>	<u>20</u>	<u>Herb</u>	<u>FACU+</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- _____ Stream, Lake, or Tide Gage
- _____ Aerial Photograph
- _____ Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- _____ Inundated
- _____ Saturated in Upper 12 inches
- _____ Saturated in Upper 18 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

- _____ Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: A1-B4
 Wetland: A1 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-14	A	10YR 3/2	-	-	Loam
14-16	B	10YR 3/2	10YR 4/6	Few, Fine, Faint	Sand Loam
16-18+	C	10YR 3/2	10YR 4/6	Common, Coarse, Faint	Clay

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present. The presence of mottles below 14 inches indicate the upper soil is well drained.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047767



Data Plot #: A2-A
 Wetland: A2

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: PSS
 Field Plot ID: 3-A

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Unplowed area within Vaca Farm on Parcels 59 and 61. Surrounded to the east by farmland and to the west by road fill.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Rubus discolor</u>	<u>100</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The presence of wetland hydrology and wetland soils suggest that the Rubus discolor is acting hydrophytic.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 Aerial Photograph
 Aerial Photograph
 Other
 _____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 12 (in.)
 Depth to Saturated Soil: 4 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturated soil at 4 inch depth and a water table at 12 inches satisfies the wetland hydrology criteria. Area is part of a mapped floodplain.

Parametrix, Inc.



Data Plot #: A2-A
 Wetland: A2

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	O	10YR 2/1	-	-	Sandy loam
>12	Cg	10B 5/1	-	-	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047769

Parametrix, Inc.



Data Plot #: A2-B
Wetland: A2

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PC Wetland

Do Normal Circumstances exist on the site? Yes No
Is the site significantly disturbed (Atypical Situation)? Yes No
Is the area a potential Problem Area? Yes No

Field Plot ID: 3-B

Remarks (Explain sample location, disturbances, problem areas):

Non-wetland within Vaca Farm on Parcel 61. The majority of Vaca Farm has been converted to farmland prior to 12/23/85 and is actively farmed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Epilobium ciliatum</u>	<u>20</u>	<u>Herb</u>	<u>FACW-</u>
✓ 2. <u>Unknown grass</u>	<u>20</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Actively farmed area that is disked and tilled. Meets "prior converted" status.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 4 (in.)
Depth to Saturated Soil: 4 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology exists. Area is within mapped floodplain of Miller Creek.

AR 047770

Parametrix, Inc.



Data Plot #: A2-B
 Wetland: A2

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	Ap	10YR 2/1	-	-	Organic/ Loam
6-12	O/C	10YR 3/4	-	-	Peat
>12	C	10YR 4/1	-	-	Sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is not a jurisdictional wetland because it meets 'prior converted' status according to the Federal Food Security Act.

AR 047771

Parametrix, Inc.



Data Plot #: A3-A
 Wetland: A3

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 4-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland area within Vaca Farm on Parcel 61. Majority of Vaca Farm has been converted to farmland prior to 12/23/85 and is actively farmed.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Rubus discolor</u>	<u>100</u>	<u>Shrub</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The presence of wetland hydrology and wetland soils suggest that the Rubus discolor is acting hydrophytic.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
X Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 20 (in.)
 Depth to Saturated Soil: 6 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology present. The area is mapped as floodplain of Miller Creek

AR 047772

Parametrix, Inc.



Data Plot #: A3-A
Wetland: A3

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/1	-	-	Silt loam
>4	O	10YR 2/1	-	-	Peat

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No ___

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes X No ___

Yes X No ___

Wetland Hydrology Present?

Yes X No ___

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047773

Parametrix, Inc.



Data Plot #: A3/4-B

Wetland: A3/4

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PC Wetland

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Field Plot ID: 4/5-B

Remarks (Explain sample location, disturbances, problem areas):

Area in Vaca Farm that was wetland but has been converted to farmland prior to 12/23/85 and is actively farmed.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Epilobium ciliatum</u>	<u>20</u>	<u>Herb</u>	<u>FACW-</u>
✓ 2. <u>Unknown grass</u>	<u>80</u>	<u>Herb</u>	<u>NL</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Area was recently disked and tilled and only small patches of vegetation remain.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 18 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology present. Area is located within mapped floodplain.

AR 047774

Parametrix, Inc.



Data Plot #: A3/4-B
 Wetland: A3/4

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	Ap	10YR 2/1	-	-	Silt loam
>6	O	10YR 3/2	-	-	Peat

Hydric Soil Indicators:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Histosol | _____ Listed on Local Hydric Soils List |
| _____ Histic Epipedon | _____ Listed on State Hydric Soils List |
| _____ Sulfidic Odor | _____ Listed on National Hydric Soils List |
| _____ Probable Aquic Moisture Regime | _____ Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | _____ Organic Streaking in Sandy Soils |
| _____ Gleyed or Low-Chroma Colors | _____ Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | _____ Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is not a jurisdictional wetland because it meets 'prior converted' status according to the Federal Food Security Act.

AR 047775



Data Plot #: A4-A
 Wetland: A4

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PSS
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 5-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland area within Vaca Farm on Parcel 61. The majority of Vaca Farm has been converted to farmland prior to 12/23/85 and is actively farmed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Rubus discolor</u>	<u>100</u>	<u>Shrub</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The presence of wetland hydrology and wetland soils suggest that the Rubus discolor is acting hydrophytic.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
X Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
X Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 6 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation, wetland hydrology present.

Parametrix, Inc.



Data Plot #: A4-A
 Wetland: A4

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/9/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? Yes ___ No ___ NA X

Taxonomy (Subgroup): _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	O/A	10YR 2/2	-	-	Organic- silt
>4	O	10YR 2/2	-	-	Peat

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol	_____ Listed on Local Hydric Soils List
_____ Histic Epipedon	_____ Listed on State Hydric Soils List
_____ Sulfidic Odor	_____ Listed on National Hydric Soils List
_____ Probable Aquic Moisture Regime	_____ Aquic Moisture Regime
_____ Reducing Conditions	_____ Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	_____ Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	_____ Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047777

Parametrix, Inc.



Data Plot #: A5-A
 Wetland: A5

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/30/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louthier State: WA
 1987 Method 1989 Method

Community ID: PEM
 Field Plot ID: 74-A

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

The wetland is a mowed lawn on Parcel 161. Fill pads are present to the north and east. A road is located to the west and a building is adjacent to the wetland to the south.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Agrostis sp</u>	<u>40</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 2. <u>Athyrium filix-femina</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 3. <u>Festuca sp</u>	<u>40</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 4. <u>Holcus lanatus</u>	<u>40</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 5. <u>Poa sp</u>	<u>40</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 6. <u>Ranunculus repens</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 7. <u>Taraxacum officinale</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Because the site is largely a mowed lawn planted with non-native grasses, existing vegetation may not reflect the hydrologic conditions present on the site.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >14 (in.)
 Depth to Saturated Soil: >14 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Adjacent to the sample point, standing water was found. The standing water was approximately 0.5 inches deep.

AR 047778

Parametrix, Inc.



Data Plot #: A5-A
Wetland: A5

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 10/30/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/2	10YR 4/6	Many, Coarse, Distinct	Sandy loam
10-14	B	10YR 2/1	10YR 5/8	Many, Medium, Distinct	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and indicators meets the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland was delineated on changes in hydrology, soils and vegetation related to fill surrounding the wetland. The presence of all three parameters indicate the area is a wetland.

AR 047779



Data Plot #: A6-A
 Wetland: A6

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Community ID: PFO
 Field Plot ID: 11-A

Remarks (Explain sample location, disturbances, problem areas):

An alder dominated forest with a dense understory of Himalayan blackberry. Alder stand approximately 15 to 25 years old.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Agrostis gigantea</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
2.	<u>Equisetum telmateia</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 3.	<u>Ins pseudacorus</u>	<u>30</u>	<u>Herb</u>	<u>OBL</u>
4.	<u>Ranunculus repens</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
5.	<u>Rubus laciniatus</u>	<u>10</u>	<u>Herb</u>	<u>FACU+</u>
6.	<u>Stachys cooleyae</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 7.	<u>Rubus discolor</u>	<u>75</u>	<u>Shrub</u>	<u>FACU</u>
✓ 8.	<u>Ainus rubra</u>	<u>80</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met. Forested area but no trees in this data plot.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 X Water Marks
 Drift Lines
 X Sediment Deposits
 X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soils were very moist to the surface. Wetland hydrology is present based on the observed wetland hydrology indicators.

Parametrix, Inc.



Data Plot #: A6-A
 Wetland: A6

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-13	A	10YR 2/1	-	-	Organic/Loam
13+	B	10YR 5/3	-	-	Silt loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

The presence of high organic matter in the soil surface and the low chroma soil color meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047781

Parametrix, Inc.



Data Plot #: A6-B
Wetland: A6 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 11-B

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

An alder dominated forest with a dense understory of Himalayan blackberry. Alder stand approximately 15 to 25 years old.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
✓ 2 <u>Rubus laciniatus</u>	<u>20</u>	<u>Shrub</u>	<u>FACU+</u>
✓ 3 <u>Alnus rubra</u>	<u>80</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The wetland vegetation is not met because the predominant vegetation is not adapted to wetlands and less than 50% of the plants are hydrophytic.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047782

Parametrix, Inc.



Data Plot #: A6-B
 Wetland: A6 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/1/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/3	-	-	Loam
>9	B	10YR 4/6	-	-	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047783

Parametrix, Inc.



Data Plot #: A7-A

Wetland: A7

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 6/30/98

Applicant/Owner: Port of Seattle

County: King

Investigator: William Kleindl

State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No _____

Field Plot ID: 9-A

Is the site significantly disturbed (Atypical Situation)? Yes _____ No X

Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Historically farmed and grazed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis gigantea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Carex stipata</u>	<u>10</u>	<u>Herb</u>	<u>OBL</u>
3. <u>Convolvulus arvensis</u>	<u>10</u>	<u>Herb</u>	<u>NI</u>
4. <u>Juncus effusus</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 5. <u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 6. <u>Rubus discolor</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
✓ 7. <u>Rubus spectabilis</u>	<u>20</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 8. <u>Ainus rubra</u>	<u>70</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soils were very moist throughout soil horizons. Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of oxidized root channels and observations of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present.

AR 047784

Parametrix, Inc.



Data Plot #: A7-A
 Wetland: A7

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/30/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-7	A	10YR 2/1	-	-	Sandy loam with high organic matter
7-18	B	10YR 4/1	5YR 4/6	Common, Medium, Distinct	Loamy sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047785



Data Plot #: A7-B
 Wetland: A7 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/30/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: 9-B

Remarks (Explain sample location, disturbances, problem areas):

Historically the area was farmed and grazed. Currently the area is forested with approximately 15 year old alders.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Ilex aquifolium</u>	<u>40</u>	<u>Shrub</u>	<u>UPL</u>
✓ 2. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 3. <u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The wetland vegetation criteria are not met since the area is dominated by non-wetland plants and less than 50% of the plants are hydrophytic.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: A7-B
Wetland: A7 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/30/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 2/1	-	-	Silt loam
6 - 15	B	10YR 4/4	10YR 5/3	Few, Medium, Distinct	Loamy sand
>15	C	2.5Y 5/2	-	-	Loamy sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047787

Parametrix, Inc.



Data Plot #: A8-A1

Wetland: A8

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/30/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: 10-A
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Sample taken on Parcel # 177. Area was farmed/grazed several years ago. Currently parcel 177 has an overstory of alder and a dense understory of Himalayan blackberry and is not used by the land owner. Sample taken in a depression within the wetland and therefore is amongst the wettest area.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
	1. <u>Athyrium filix-femina</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓	2. <u>Carex sp.</u>	<u>40</u>	<u>Herb</u>	<u>FACW</u>
	3. <u>Equisetum arvense</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓	4. <u>Juncus effusus</u>	<u>40</u>	<u>Herb</u>	<u>FACW</u>
✓	5. <u>Ilex aquifolium</u>	<u>25</u>	<u>Shrub</u>	<u>UPL</u>
✓	6. <u>Rubus discolor</u>	<u>50</u>	<u>Shrub</u>	<u>FACU</u>
✓	7. <u>Rubus laciniatus</u>	<u>20</u>	<u>Shrub</u>	<u>FACU+</u>
✓	8. <u>Alnus rubra</u>	<u>75</u>	<u>Tree</u>	<u>FAC</u>
✓	9. <u>Thuja plicata</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 57

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Very moist soils throughout all horizons. Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present.

AR 047788

Parametrix, Inc.



Data Plot #: AB-A1
 Wetland: A8

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/30/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A	10YR 3/1	-	-	Organic/Loam
>8	B	10YR 5/2	7.5YR 5/6	Few, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters indicate this is a wetland. Wetland edge within parcel 177 delineated by changes in understory vegetation and sharp changes in soil color combined with a gradual break in topography.

AR 047789



Data Plot #: AB-A2
 Wetland: A8

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: M. Louther State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Community ID: PSS
 Field Plot ID: 197-A

Remarks (Explain sample location, disturbances, problem areas):

Sampled on Parcel 197. This data plot is located between flags 4 and 5. Parcel 197 appears to be locked in by the surrounding parcels without access. It is currently undeveloped with a dense cover of Himalayan blackberry. Under the blackberry are piles of fill and urban debris.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum arvense</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Juncus effusus</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Rubus discolor</u>	<u>60</u>	<u>Shrub</u>	<u>FACU</u>
4. <u>Alnus rubra</u>	<u>5</u>	<u>Tree</u>	<u>FAC</u>
5. <u>Populus trichocarpa</u>	<u>5</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

67

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- _____ Stream, Lake, or Tide Gage
- _____ Aerial Photograph
- _____ Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- _____ Inundated
- _____ Saturated in Upper 12 inches
- _____ Saturated in Upper 18 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- X Drainage Patterns in Wetlands

Field Observations:

- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: >18 (in.)
- Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Drainage pattern of channels feeding into wetland near flags 8 and 9. No strong indicators of hydrology due to late in the dry season.

Parametrix, Inc.



Data Plot #: A8-A2
 Wetland: A8

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A	10YR 2/1	-	-	Sandy loam
8-18	A2	10YR 2/1	10YR 4/6	Few, Fine, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil is moist to the surface in August. Mottling increased with depth. Soil Color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

No strong indicators of hydrology due to late in the dry season. Hydric soil and hydrophytic vegetation indicate this area is a wetland. The portion of wetland A-8 on parcel 197 was delineated on a sharp distinction of hydric soil and non-hydric fill.

AR 047791



Data Plot #: AB-A3
 Wetland: AB

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl and Marti Louther State: WA
 1987 Method 1989 Method Community ID: PSS
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 196-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sampled on parcel 196. Some parts of wetland disturbed by filling. Area on parcel 196 where the wetland lies is a combination of mowed grass, gravel fill, and Himalayan blackberry.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 Bare ground and wood chips	50		
2 Agrostis capillans (tenuis)	5	Herb	FAC
3 Echinochloa crusgalli	3	Herb	FACW
4 Equisetum arvense	12	Herb	FAC
5 Holcus lanatus	5	Herb	FAC
✓ 6 Ranunculus repens	20	Herb	FACW
7 Rubus discolor	10	Shrub	FACU

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Patches of wood chips and fill. Large amounts of fill excluded from within wetland boundary. Since greater than 50% of dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soil is moist at surface in August with no recent precipitation events. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present.

Parametrix, Inc.



Data Plot #: A8-A3
 Wetland: A8

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 8/27/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-1	Wood chips	-	-	-	Fibric
1-6	A	10YR 2/2	-	-	Loam
5-10	C	10YR 2/2	10YR 4/6	Common, Fine, Distinct	Sandy loam
10-18	C	10YR 2/1	10YR 4/6	Many, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Depletions in A horizon. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No ___

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes X No ___

Yes X No ___

Wetland Hydrology Present?

Yes X No ___

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

No strong indicators of hydrology are present due to late in the summer. The portion of wetland A-8 on parcel 196 was delineated on a sharp distinction of hydric soil and non-hydric fill and changes in the vegetation community.

AR 047793

Parametrix, Inc.



Data Plot #: A8-A4

Wetland: A8

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/24/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: K. Dunkin, S. Rozenbaum State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 60-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sampled on parcel 200. Like parcel 196, parcel 200 does not appear to have access. The parcel is unused and has several large cottonwoods with an understory of Himalayan blackberry. Wetland sample plot was taken in the lowest section of the wetland.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Athyrium filix-femina</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
2.	<u>Convolvulus arvensis</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>
✓ 3.	<u>Equisetum telmateia</u>	<u>35</u>	<u>Herb</u>	<u>FACW</u>
4.	<u>Glycyca elata</u>	<u>15</u>	<u>Herb</u>	<u>FACW+</u>
✓ 5.	<u>Lysichiton americanum</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
✓ 6.	<u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 7.	<u>Rubus discolor</u>	<u>65</u>	<u>Shrub</u>	<u>FACU</u>
8.	<u>Sambucus racemosa</u>	<u>3</u>	<u>Shrub</u>	<u>FACU</u>
✓ 9.	<u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>
✓ 10.	<u>Populus trichocarpa</u>	<u>30</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

83

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Obligate plants present. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criterion is assumed to be present.

AR 047794

Parametrix, Inc.



Data Plot #: A8-A4

Wetland: A8

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 9/24/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 2/1	-	-	Loam
6-18	B	10YR 4/2	10YR 5/4 & 2.5Y 5/4	Common, Medium, Distinct	Fine loamy sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Soils and vegetation present; hydrology assumed. The soils near the edge of the wetland were marginal, therefore, the wetland was delineated on the presence of obligate plants.

AR 047795



Data Plot #: A8-B1
 Wetland: A8 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/30/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 10-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Previously farmed/ grazed area. Sampled on Parcel # 177.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Hedera helix</u>	<u>20</u>	<u>Herb</u>	<u>NL</u>
✓ 2 <u>Ilex aquifolium</u>	<u>25</u>	<u>Shrub</u>	<u>UPL</u>
✓ 3 <u>Rubus discolor</u>	<u>75</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4 <u>Alnus rubra</u>	<u>95</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Predominant upland plant community. Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: A8-B1
Wetland: A8 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/30/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A1	10YR 2/2	-	-	Sandy loam
4-10	A2	10YR 3/2	-	-	Sandy loam
>10	B	10YR 4/4	-	-	Sand loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047797

Parametrix, Inc.



Data Plot #: A8-B2
 Wetland: A8 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindi and M. Louthier State: WA
 1987 Method 1989 Method Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X
 Field Plot ID: 196-B

Remarks (Explain sample location, disturbances, problem areas):
Sampled on Parcel 196

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	Bare ground	5		
2.	Convolvulus arvensis	10	Herb	NL
3.	Echinochloa crusgalli	10	Herb	FACW
✓ 4.	Festuca rubra	30	Herb	FAC+
5.	Taraxacum officinale	5	Herb	FACU
6.	Tofolium pratense	15	Herb	FACU

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

According to the Washington State Delineation Manual (Page 68, Step 13 (a)) areas that are dominated by FAC plants but lack wetland hydrology and hydric soils do not satisfy the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present

AR 047798

Parametrix, Inc.



Data Plot #: A8-B2
 Wetland: A8 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 8/27/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
None					Compacted Fill

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil too compacted to dig past 2 inches. Soils dry at surface. Compacted fill.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
No wetland indicators are present.

AR 047799

Parametrix, Inc.



Data Plot #: A8-B3
 Wetland: A8 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/24/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kristie Dunkin (Rozenbaum, Kleindl) State: WA
 1987 Method 1989 Method Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: 60-B

Remarks (Explain sample location, disturbances, problem areas):
Plot is located 4 feet behind the fence on lot in parcel 200.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Ilex aquifolium</u>	<u>15</u>	<u>Shrub</u>	<u>UPL</u>
<input checked="" type="checkbox"/> 2.	<u>Oemena cerasiformis</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
3.	<u>Prunus laurocerasus</u>	<u>15</u>	<u>Shrub</u>	<u>UPL</u>
4.	<u>Rubus discolor</u>	<u>Trace</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 5.	<u>Fraxinus sp</u>	<u>100</u>	<u>Tree</u>	<u>NL</u>
<input checked="" type="checkbox"/> 6.	<u>Thuja heterophylla</u>	<u>100</u>	<u>Tree</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
No herb layer - closed canopy. Only a few small seedlings of Ilex and laurel. The wetland vegetation criteria are not met since the area is dominated by non-wetland plants.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present

Parametrix, Inc.



Data Plot #: A8-B3
 Wetland: A8 Upland Plot

Project/Site Seattle Tacoma Airport - Master Plan Update Date: 9/24/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 3/3	-	-	Loam
5-18	B	10YR 5/4	10YR 6/6	Few. Coarse. Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047801



Data Plot #: A9-A
 Wetland: A9

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and S. Rozenbaum State: WA
 1987 Method 1989 Method
 Community ID: PSS
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 58-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Tractor access trail (compacted road) runs length of wetland. Water flows down-slope in ditch - dissipates at bottom of slope. Hydrological connection to npanan wetland R-10.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Agrostis sp</u>	<u>8</u>	<u>Herb</u>	<u>NL</u>
2. <u>Athyrium filix-femina</u>	<u>3</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 3. <u>Convolvulus arvensis</u>	<u>20</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 4. <u>Equisetum telmateia</u>	<u>40</u>	<u>Herb</u>	<u>FACW</u>
5. <u>Glycena grandis</u>	<u>10</u>	<u>Herb</u>	<u>OBL</u>
<input checked="" type="checkbox"/> 6. <u>Ranunculus repens</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 7. <u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
8. <u>Corylus cornuta</u>	<u>15</u>	<u>Tree</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 9. <u>Thuja plicata</u>	<u>25</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 14 (in.)
 Depth to Saturated Soil: 12 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Very moist in upper profile. Narrow, hand-dug ditch with logs along road. Direct observation primary and secondary hydrologic indicators support the presence of wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: A9-A
 Wetland: A9

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/1	-	-	Silt loam
9-15	B	10YR 3/1	10YR 4/3 & 10YR 5/1	Common, Medium, Prominent	Loam
>15	C	10YR 5/1	10YR4/4	Common, Medium, Prominent	Loamy sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland was delineated based on changes in hydrology and soil conditions. Borders correspond to various constructed features such as roads sidewalks and ditches. The presence of all three parameters indicate this area is a wetland.

AR 047803

Parametrix, Inc.



Data Plot #: A10-A

Wetland: A10

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PSS
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 55-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sample is located on Parcel 313 about 20 feet of Miller Creek. Vegetation in the area is unmaintained and surrounded by lawn, driveway, and agricultural disturbances.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Convolvulus arvensis</u>	<u>2</u>	<u>Herb</u>	<u>NL</u>
✓ 3. <u>Equisetum telmateia</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Lytium salicaria</u>	<u>7</u>	<u>Herb</u>	<u>FACW+</u>
5. <u>Phalaris arundinacea</u>	<u>1</u>	<u>Herb</u>	<u>FACW</u>
6. <u>Scirpus microcarpus</u>	<u>3</u>	<u>Herb</u>	<u>OBL</u>
7. <u>Veronica americana</u>	<u>2</u>	<u>Herb</u>	<u>OBL</u>
✓ 8. <u>Rubus discolor</u>	<u>99</u>	<u>Shrub</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soils were very moist. Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present.

AR 047804

Parametrix, Inc.



Data Plot #: A10-A
 Wetland: A10

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 2/1	10YR 5/6 & 5YR 6/6	Many, Large, Prominent	Sandy loam
9+	Bg	10G 6/1	7.5YR 6/6	Many, Large, Prominent	Sandy clay loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil is gleyed and mottled. Soil color and indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047805

Parametrix, Inc.



Data Plot #: A11-A
 Wetland: A11

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/16/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: 54-A

Remarks (Explain sample location, disturbances, problem areas):

Sample is located on Parcel 313 about 20 feet of Miller Creek. Vegetation in the area is unmaintained and surrounded by lawn, driveway, and agricultural disturbances.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Athyrium filix-femina</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 2.	<u>Equisetum telmateia</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 3.	<u>Iris pseudacorus</u>	<u>25</u>	<u>Herb</u>	<u>OBL</u>
4.	<u>Phalans arundinacea</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 5.	<u>Scirpus microcarpus</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
<input checked="" type="checkbox"/> 6.	<u>Rubus discolor</u>	<u>100</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland soils very moist to within 3 inches of the surface. Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present.

AR 047806

Parametrix, Inc.



Data Plot #: A11-A
 Wetland: A11

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/16/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 2/2	-	-	Loam
3-11	Ap	10YR 3/1&4/1	10YR 5/4, 7.5YR 5/8	Common, Medium, Distinct	Gravelly loam
3-11	B	10YR 4/2	10YR 4/4	Common, Medium, Distinct	Gravelly loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Few iron-depleted pockets (10Y6) in color in Ap horizon. Black plastic between A and Ap horizons. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland? Yes <u>X</u> No ___
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Wetland delineation was based on topography and soils.

AR 047807



Data Plot #: A11-B
 Wetland: A11 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/19/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Scott Rozenbaum and Kristie Dunkin State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Field Plot ID: 54-B

Remarks (Explain sample location, disturbances, problem areas):

This sample plot is in a nursery bed on Parcel 314. Miller Creek is 70 feet from plot center. Vegetation is nursery stock (2-6 feet tall) comprised of Pacific ninebark, Douglas spiraea, and Oceanspray.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Nursery Stock</u>			

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Because the area is dominated by planted nursery stock, vegetation does not reflect environmental conditions at the site and cannot be used to evaluate wetland conditions.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is absent

Parametrix, Inc.



Data Plot #: A11-B
Wetland: A11 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/19/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A ¹	10YR 4/3	-	-	Loam
10-16	A ²	10YR 5/4	-	-	Sandy loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil is dry to 16 inches. Soil is not wetland soil and is possibly fill. Does not meet hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes ___ No X Is this Sampling Point Within a Wetland?
Hydric Soils Present? Yes ___ No X Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are absent.

AR 047809

Parametrix, Inc.



Data Plot #: A12-A
Wetland: A12

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98
Applicant/Owner: Port of Seattle County: King
Investigator: Scott Rozenbaum and Kristie Dunkin State: WA
 1987 Method 1989 Method Community ID: PSS
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 52-A
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

The Sample plot is located behind a residence on Parcel 339. The plot was located in a shrub community.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	<u>Athyrium filix-femina</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
2	<u>Lvsichiton amercanum</u>	<u>10</u>	<u>Herb</u>	<u>OBL</u>
3	<u>Oemiaena cerasiformis</u>	<u>15</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4	<u>Ribes spp</u>	<u>20</u>	<u>Shrub</u>	<u>NL</u>
✓ 5	<u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6	<u>Rubus spectabilis</u>	<u>20</u>	<u>Shrub</u>	<u>FAC+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met. The wetland is shaded by a big-leaf maple rooted outside of the wetland.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 3 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
X Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The wetland hydrology criteria is satisfied. Patches of surface water and saturated soil occur throughout the wetland. The hillside drainage, hydrology supported by groundwater.

AR 047810

Parametrix, Inc.



Data Plot #: A12-A
 Wetland: A12

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A1	10YR 2/1	-	-	Mucky loam
5-16	A2	2.5Y 4/1	5Y 3/1	Common, Fine, Faint	Sandy loam
16+	C	5Y 3/1	-	-	Gravelly sandy loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

In the A2 layer, depositions of sands and organic matter are interlayered. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. The wetland is well defined by topographic and soils conditions.

AR 047811

Parametrix, Inc.



Data Plot #: A12/13-B
Wetland: A12/13 Upland Plo

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/10/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl and Kristie Dunkin State: WA
 1987 Method 1989 Method Community ID: Upland
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 52/53-B
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The plot is in forested upland area on Parcel 317 adjacent to Wetland A-13.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Oemleria cerasiformis</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
2. <u>Prunus laurocerasus</u>	<u>T</u>	<u>Shrub</u>	<u>NL</u>
3. <u>Rubus discolor</u>	<u>10</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 4. <u>Acer macrophyllum</u>	<u>70</u>	<u>Tree</u>	<u>FACU</u>
5. <u>Alnus rubra</u>	<u>5</u>	<u>Tree</u>	<u>FAC</u>
6. <u>Corylus cornuta</u>	<u>5</u>	<u>Tree</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
The wetland vegetation criteria are not met since the area is dominated by non-wetland plants.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047812

Parametrix, Inc.



Data Plot #: A12/13-B
Wetland: A12/13 Upland Plo

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/10/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	O	10YR 2/2	-	-	Fibnc
3-7	A	10YR 3/2	-	-	Sand
7-11	B	10YR 5/3	-	-	Sand
>11	C	10YR 5/4	-	-	Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes ___ No <u>X</u>	Yes ___ No <u>X</u>
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047813



Data Plot #: A13-A
 Wetland: A13

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Scott Rozenbaum and Krstie Dunkin State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: 53-A

Remarks (Explain sample location, disturbances, problem areas):

The sample plot was established on Parcel 340, down slope of the house in an alder forest. A failing septic system may exist upslope of the wetland.

VEGETATION (Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Athyrium filix-femina</u>	<u>25</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 2. <u>Convolvulus arvensis</u>	<u>25</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 3. <u>Equisetum telmateia</u>	<u>85</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Prunus Lauroliata</u>	<u>15</u>	<u>Shrub</u>	<u>NL</u>
<input checked="" type="checkbox"/> 5. <u>Rubus discolor</u>	<u>65</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 6. <u>Alnus rubra</u>	<u>80</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The vegetation in the wetland is disturbed by fill. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
X Other
 _____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
X Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 9 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is present

Parametrix, Inc.



Data Plot #: A13-A
 Wetland: A13

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 2/1	-	-	Mucky sandy loam
9-16	C	N5 4/1	2.5Y 6/3	Many. Large. Prominent	Cobbly sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input checked="" type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

AR 047815

Parametrix, Inc.



Data Plot #: A14a:A
 Wetland: A14a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/21/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Community ID: PFO
 Field Plot ID: A14a:A

Remarks (Explain sample location, disturbances, problem areas):

Wetland A14 is bisected by a driveway between 326 and 327. Wetland A14a is located on Parcel 326.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
2. <u>Carex obnupta</u>	<u>5</u>	<u>Herb</u>	<u>OBL</u>
✓ 3. <u>Equisetum telmateia</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Lvsichiton amercanum</u>	<u>5</u>	<u>Herb</u>	<u>OBL</u>
✓ 5. <u>Ptendium aquilinum</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 6. <u>Rubus discolor</u>	<u>60</u>	<u>Shrub</u>	<u>FACU</u>
✓ 7. <u>Rubus spectabilis</u>	<u>30</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 8. <u>Alnus rubra</u>	<u>100</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of soil saturation within the upper 12 inches of the soil horizon satisfies the wetland hydrology criteria.

AR 047816

Parametrix, Inc.



Data Plot #: A14a:A

Wetland: A14a

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 9/21/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	O _i	10YR 4/2	-	-	Silty Loam
4-10	A	10YR 3/1	-	-	Silty Loam
10-18+	B	10YR 3/1	-	-	Fine Sandv Sit

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No ___

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes X No ___

Yes X No ___

Wetland Hydrology Present?

Yes X No ___

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047817



Data Plot #: A14b:A
 Wetland: A14b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/21/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA
 1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: A14b:A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland A14 is bisected by a driveway between 326 and 327. Wetland A14b is located on Parcel 327.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
2. <u>Carex obnupta</u>	<u>10</u>	<u>Herb</u>	<u>OBL</u>
3. <u>Convolvulus arvensis</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>
✓ 4. <u>Equisetum telmateia</u>	<u>40</u>	<u>Herb</u>	<u>FACW</u>
✓ 5. <u>Glycycaenia elata</u>	<u>20</u>	<u>Herb</u>	<u>FACW+</u>
6. <u>Ranunculus repens</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
✓ 7. <u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 8. <u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 10 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of soil saturation to surface, shallow water table, and other indicators satisfies the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: A14b:A
 Wetland: A14b

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 9/21/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-11	A	10YR 2/1	-	-	Mucky Loam
11-17	B	10YR 4/1	10YR 4/6	Common, Coarse, Distinct	Fine Sandy Silt
17-18+	C	10YR 5/1	10YR 5/6	Common, Coarse, Distinct	Fine Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland? Yes <u>X</u> No ___
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland

AR 047819



Data Plot #: A14:B
 Wetland: A14 Upland Plot

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/21/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA

1987 Method 1989 Method Community ID: Upland Forested
 Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: A14:B
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
The plot is in area upland plot located on Parcel 326, adjacent to Wetland A14.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. Equisetum telmateia	1	Herb	FACW
✓ 2. Moss	100	Herb	NL
✓ 3. Oemlena cerasiformis	40	Shrub	FACU
4. Ribes lacustre	1	Shrub	FAC+
✓ 5. Rubus discolor	40	Shrub	FACU
✓ 6. Acer macrophyllum	25	Tree	FACU
✓ 7. Alnus rubra	100	Tree	FAC

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 20

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- _____ Stream, Lake, or Tide Gage
- _____ Aerial Photograph
- _____ Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

- Primary Indicators:
- _____ Inundated
 - _____ Saturated in Upper 12 inches
 - _____ Saturated in Upper 18 inches
 - _____ Water Marks
 - _____ Drift Lines
 - _____ Sediment Deposits
 - _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

- _____ Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present

Parametrix, Inc.



Data Plot #: A14:B
Wetland: A14 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/21/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	A	2.5Y 5/2	-	-	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes ___ No X Is this Sampling Point Within a Wetland?
Hydric Soils Present? Yes ___ No X Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

No wetland indicators are present.

AR 047821



Data Plot #: A15:A
 Wetland: A15

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA
 1987 Method 1989 Method Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: A15:A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland A15 is located Parcel 325. Excavation has removed top soil and exposed a compacted till layer that perches water on the soil surface.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Holcus lanatus</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Phalaris arundinacea</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Poa pratensis</u>	<u>60</u>	<u>Herb</u>	<u>FAC</u>
✓ 4. <u>Ranunculus repens</u>	<u>45</u>	<u>Herb</u>	<u>FACW</u>
5. <u>Triofolium repens</u>	<u>10</u>	<u>Herb</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >13 (in.)
 Depth to Saturated Soil: >13 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation, and hydric soil, the wetland hydrology criteria is assumed to be present.

Parametrix, Inc.



Data Plot #: A15:A
 Wetland: A15

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 4/4	-	-	Silty Clay
3-13+	C	10YR 6/1	2.5Y 6/3	Many, Coarse, Prominent	Silty Clay

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria. The soils are compacted at the depth of 13 inches.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047823

Parametrix, Inc.



Data Plot #: A16:A
 Wetland: A16

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/21/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA
 1987 Method 1989 Method Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: A16:A

Remarks (Explain sample location, disturbances, problem areas):

Wetland A16 is a linear depression, ditched in parts and is supported by groundwater that surfaces at the toe of a slope. The wetland extends from Parcel 323 to 322.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	Carex obnupta	t	Herb	OBL
2	Juncus balticus	5	Herb	FACW+
✓ 3	Juncus effusus	80	Herb	FACW
4	Typha latifolia	t	Herb	OBL
5	Ainus rubra	10	Tree	FAC

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "t" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

____ Stream, Lake, or Tide Gage
 ____ Aerial Photograph
 ____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

____ Inundated
X Saturated in Upper 12 inches
 ____ Saturated in Upper 18 inches
 ____ Water Marks
 ____ Drift Lines
 ____ Sediment Deposits
 ____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

____ Oxidized Root Channels in Upper 12 inches
 ____ Water-Stained Leaves
 ____ Local Soil Survey Data
 ____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of soil saturation to surface and shallow water table satisfies the wetland hydrology criteria

AR 047824

Parametrix, Inc.



Data Plot #: A16:A
 Wetland: A16

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 9/21/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 4/1	10YR 5/6	Common, Coarse, Prominent	Gravelly Loam
6+	C	5B6 4/1	-	-	Clay

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No _____

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes X No _____

Yes X No _____

Wetland Hydrology Present?

Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047825



Data Plot #: A17a:A
 Wetland: A17a

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louthier State: WA
 1987 Method 1989 Method

Community ID: PEM
 Field Plot ID: A17:A
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland A16a is an emergent wetland that is separated from lower sections of the Wetland A17 by driveway fill. The wetland is located on Parcel 256.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	<u>Epilobium ciliatum</u>	<u>3</u>	<u>Herb</u>	<u>FACW-</u>
2	<u>Equisetum arvense</u>	<u>5</u>	<u>Herb</u>	<u>FAC</u>
✓ 3	<u>Hiclus lanatus</u>	<u>25</u>	<u>Herb</u>	<u>FAC</u>
✓ 4	<u>Ranunculus repens</u>	<u>70</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry months. Based on the presence of hydric soil and topography, the wetland hydrology criteria is assumed to be present

Parametrix, Inc.



Data Plot #: A17a:A
 Wetland: A17a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 2/2	-	-	Sandy Loam
6-18+	B	10YR 3/2	10YR 3/6	Common, Coarse, Faint	Gravelly Silt Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

AR 047827

Parametrix, Inc.



Data Plot #: A17a:B
 Wetland: 17d Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louthier State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: A17a:B
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
Upland Plot located on Parcel 261, adjacent to Wetland A17a

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>70</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Hedera helix</u>	<u>5</u>	<u>Herb</u>	<u>NL</u>
3. <u>Rubus discolor</u>	<u>3</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Pseudotsuga menziesii</u>	<u>20</u>	<u>Tree</u>	<u>FACU</u>
✓ 5. <u>Tsuga heterophylla</u>	<u>20</u>	<u>Tree</u>	<u>FACU+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047828

Parametrix, Inc.



Data Plot #: A17a:B
 Wetland: 17d Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	A	10YR 4/3	-	-	Gravelly Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047829

Parametrix, Inc.



Data Plot #: A17b:A
 Wetland: A17b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/8/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl, M. Lutner State: WA
 1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: A17b:A
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland A17 borders an unnamed tributary to Miller Creek. The wetland extends from South 160th Street to Miller Creek and between Des Moines Memorial Drive and 9th Avenue. Several driveways and streets cross the wetland.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Rubus spectabilis</u>	<u>80</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 3. <u>Alnus rubra</u>	<u>80</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 7 (in.)
 Depth to Saturated Soil: 5 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

An small intermittent stream (Water D) flows southerly through the wetland toward Miller Creek.

AR 047830

Parametrix, Inc.



Data Plot #: A17b:A
Wetland: A17b

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 10/8/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/1	10YR 3/4	Few, Fine, Distinct	Sandy Loam with HOC
10-18	B	10YR 3/1	10YR 3/3	Common, Coarse, Distinct	Sandy Loam with HOC
18+	C	10YR 3/1	10YR 3/3	Common, Coarse, Distinct	Fine Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No _____

Hydric Soils Present?

Yes X No _____

Wetland Hydrology Present?

Yes X No _____

Is this Sampling Point Within a Wetland?

Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047831



Data Plot #: A17c:A1
 Wetland: A17c

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/11/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl State: WA
 1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: A17c:A1
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland A17 borders an unnamed tributary to Miller Creek. The wetland extends from South 160th Street to Miller Creek and between Des Moines Memorial Drive and 9th Avenue. Several driveways and streets cross the wetland

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Poa pratensis</u>	<u>100</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Ranunculus repens</u>	<u>35</u>	<u>Herb</u>	<u>FACW</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 12 (in.)
 Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of soil saturation to surface and shallow water table satisfies the wetland hydrology criteria

Parametrix, Inc.



Data Plot #: A17c:A1
 Wetland: A17c

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/11/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-15	A	10YR 3/1	-	-	Loam
15-18+	B	10YR 3/1	10YR 3/3	Common, Coarse, Distinct	Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047833

Parametrix, Inc.



Data Plot #: A17c:A2
Wetland: A17c

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/11/00
Applicant/Owner: Port of Seattle County: King
Investigator: W. Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes No

Field Plot ID: A17c:A2

Is the site significantly disturbed (Atypical Situation)? Yes No

Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland A17 borders an unnamed tributary to Miller Creek. The wetland extends from South 160th Street to Miller Creek and between Des Moines Memorial Drive and 9th Avenue. Several driveways and streets cross the wetland.

VEGETATION Dominant species are checked

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Poa pratensis</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 3. <u>Ranunculus repens</u>	<u>35</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 15 (in.)
Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Field indicators of wetland hydrology are present.

AR 047834

Parametrix, Inc.



Data Plot #: A17c:A2
 Wetland: A17c

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 4/11/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/1	-	-	Loam
9-15	B	10YR 3/1	10YR 4/4	Few, Fine, Faint	Loam
15-18+	Ab	10YR 2/1	10YR 5/3	Many, Coarse, Distinct	Loam with HOC

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria. Buried A layer with high organic content at 15 inches.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are present.

AR 047835



Data Plot #: A17c:A3
 Wetland: A17c

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/14/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes No

Field Plot ID: A17c:A3

Is the site significantly disturbed (Atypical Situation)? Yes No

Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland A17 borders an unnamed tributary to Miller Creek. The wetland extends from South 160th Street to Miller Creek and between Des Moines Memorial Drive and 9th Avenue. Several driveways and streets cross the wetland.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Carex obnupta</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
<input checked="" type="checkbox"/> 2. <u>Ins pseudacorus</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
<input checked="" type="checkbox"/> 3. <u>Ranunculus repens</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 2 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation and soil saturation were observed, satisfying wetland hydrology criteria

Parametrix, Inc.



Data Plot #: A17c:A3
Wetland: A17c

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/14/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	A	10YR 2/1	10YR 3/2	Few. Fine. Faint	Loam with HOC

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria. High organic content (HOC) was observed.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047837



Data Plot #: A17d:A1
 Wetland: A17d

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louther State: WA
 1987 Method 1989 Method Community ID PEM

Do Normal Circumstances exist on the site? Yes No Field Plot ID: A17d:A1
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland A17 borders an unnamed tributary to Miller Creek. The wetland extends from South 160th Street to Miller Creek and between Des Moines Memorial Drive and 9th Avenue. Several driveways and streets cross the wetland.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
2. <u>Convolvulus arvensis</u>	<u>5</u>	<u>Herb</u>	<u>NL</u>
3. <u>Equisetum arvense</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓ 4. <u>Ranunculus repens</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
5. <u>Solanum dulcamara</u>	<u>5</u>	<u>Herb</u>	<u>FAC+</u>
✓ 6. <u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 7. <u>Alnus rubra</u>	<u>100</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 2 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturation to the surface and shallow groundwater at 2 inches below the surface were observed and satisfies the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: A17d:A1
 Wetland: A17d

Project Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-1E	Cl	10YR 2/1	-	-	Muck

Hydric Soil Indicators:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Histosol | _____ Listed on Local Hydric Soils List |
| _____ Histic Epipedon | _____ Listed on State Hydric Soils List |
| _____ Sulfidic Odor | _____ Listed on National Hydric Soils List |
| _____ Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| _____ Reducing Conditions | _____ Organic Streaking in Sandy Soils |
| _____ Gleyed or Low-Chroma Colors | _____ Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | _____ Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

The presence of organic soil layers meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047839

Parametrix, Inc.



Data Plot #: A17d:A2
 Wetland: A17d

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/14/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: A17d A2
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland A17 borders an unnamed tributary to Miller Creek. The wetland extends from South 160th Street to Miller Creek and between Des Moines Memorial Drive and 9th Avenue. Several driveways and streets cross the wetland. Sample plot located on Parcel 227

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 Phalaris arundinacea	100	Herb	FACW
2 Rubus discolor	t	Shrub	FACU

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 2 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturation to the surface and shallow groundwater at 2 inches below the surface were observed and satisfies the wetland hydrology criteria.

AR 047840

Parametrix, Inc.



Data Plot #: A17d:A2
 Wetland: A17d

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/14/00

SOILS

Soil Survey Data:

Map Unit Name: Not Mapped Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/1	-	-	Loam with HOC
10-18+	C	10YR 3/2	10YR 3/4	Common, Coarse, Distinct	Course Sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

High organic content in the upper layer. Sandy deposits indicate overbank depositional events. Soil color and the presence of hydric soil indicators satisfies the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047841



Data Plot #: A17d:A3
 Wetland: A17d

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louthier State: WA
 1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: A17d:A3
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland A17 borders an unnamed tributary to Miller Creek. The wetland extends from South 160th Street to Miller Creek and between Des Moines Memorial Drive and 9th Avenue. Several driveways and streets cross the wetland. Plot is located on Parcel 239.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Holcus lanatus</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
3. <u>Juncus effusus</u>	<u>tr</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5. <u>Alnus rubra</u>	<u>60</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

____ Stream, Lake, or Tide Gage
 ____ Aerial Photograph
 ____ Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

____ Inundated
 ____ Saturated in Upper 12 inches
 ____ Saturated in Upper 18 inches
 ____ Water Marks
 ____ Drift Lines
 ____ Sediment Deposits
 ____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 ____ Water-Stained Leaves
 ____ Local Soil Survey Data
 ____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Based on the presence of hydric soil and topography, the wetland hydrology criteria is assumed to be present.

Parametrix, Inc.



Data Plot #: A17d:A3
 Wetland: A17d

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-12	A	10YR 2/2	10YR 4/4	Few. Coarse. Distinct	Loam
12-18+	B	10YR 3/2	10YR 4/4	Common. Coarse. Distinct	Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland

AR 047843



Data Plot #: A17d:B1
 Wetland: A17d Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louther State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Community ID: Upland
 Field Plot ID: A17d:B1

Remarks (Explain sample location, disturbances, problem areas):
Upland comparison plot for Wetland A17d located on Parcel 237

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Dactylis glomerata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
2. <u>Holcus lanatus</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Alnus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>
5. <u>Populus trichocarpa</u>	<u>5</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 _____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: A17d:B1
 Wetland: A17d Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 3/2	-	-	Loam
12-18+	B	10YR 3/3	10YR 4/4	Few. Coarse. Distinct	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present. The presence of mottles at the depth of 12 inches indicates seasonal saturation, however it is not in the upper soil horizons.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047845



Data Plot #: A17d:B2
 Wetland: A17a Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Marti Louthier State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: A17d:B2
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Upland comparison plot for wetland A17a located on Parcel 240.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>40</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Festuca arundinacea</u>	<u>10</u>	<u>Herb</u>	<u>FAC-</u>
✓ 3. <u>Festuca rubra</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
4. <u>Hypochaeris radicata</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
5. <u>Plantago lanceolata</u>	<u>10</u>	<u>Herb</u>	<u>FACU+</u>
6. <u>Taraxacum officinale</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

According to the DOE wetland manual section 13.a.(1) (page 68), the presence of 50% of the dominant facultative plants in areas with no wetland hydrology or hydric soils do not satisfy the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

- Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present

Parametrix, Inc.



Data Plot #: A17d:B2
 Wetland: A17a Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/13/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 3/3	-	-	Loam
5-10	B	10YR 4/3	10YR 3/4 (10YR 4/4)	Many, Coarse, Distinct	Sandy Silt
10-18+	C	10YR 4/2	10YR 4/4	Common, Coarse, Distinct	Sandy Silt (Till)

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color does not meet the hydric soil criteria, therefore hydric soils are not present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

No wetland parameters are present.

AR 047847

Parametrix, Inc.



Date Plot #: A18-A
 Wetland: A18

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 2/5/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and Marti Louther State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: A18-A

Remarks (Explain sample location, disturbances, problem areas):
Plot located on Parcel 305.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
✓ 2. <u>Polystichum munitum</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 3. <u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5. <u>Rubus spectabilis</u>	<u>30</u>	<u>Shrub</u>	<u>FAC+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the plant species are hydrophytic, therefore the vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- _____ Stream, Lake, or Tide Gage
- _____ Aerial Photograph
- _____ Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- X Inundated
- X Saturated in Upper 12 inches
- _____ Saturated in Upper 18 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- _____ Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The presence of inundation and saturation to the surface meet the wetland hydrology criteria satisfied. Wetland hydrology is supported by groundwater discharge from hillside seep.

Parametrix, Inc.



Data Plot #: A18-A
 Wetland: A18

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 2/5/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-11	A	10YR 3/1	-	-	Mucky sandy loam
11-18+	C	10YR 3/4	-	-	Loamy, sandy gravel

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland? Yes <u>X</u> No ___
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The three wetland parameters are present.

AR 047849



Data Plot #: A18-B
 Wetland: A18

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 2/5/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and Marti Louthier State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: A18-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Upland area adjacent to Wetland A18, located on Parcel 305.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Dactylis glomerata</u>	<u>tr</u>	<u>Herb</u>	<u>FACU</u>
2. <u>Geum macrophyllum</u>	<u>10</u>	<u>Herb</u>	<u>FAC+</u>
3. <u>Polystichum munitum</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
4. <u>Ilex aquifolium</u>	<u>2</u>	<u>Shrub</u>	<u>NL</u>
✓ 5. <u>Oemlena cerasiformis</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 7. <u>Acer macrophyllum</u>	<u>80</u>	<u>Tree</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since none of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present

Parametrix, Inc.



Data Plot #: A18-B
 Wetland: A18

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 2/5/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-11	A	10YR3/2	-	-	Silt Loam
11-18+	B	10yr 3/3	-	-	Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
No wetland parameters are present, therefore the area is not a wetland.

AR 047851

Parametrix, Inc.



Data Plot #: A19-A
 Wetland: A19

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Community ID: PEM
 Field Plot ID: A19-A

Remarks (Explain sample location, disturbances, problem areas):

Plot located in on the southern edge of Parcel 251 near the base of a slope east of 168th Avenue South. Groundwater enters the area in this location.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
	1. <u>Carex obnupta</u>	<u>t</u>	<u>Herb</u>	<u>OBL</u>
<input checked="" type="checkbox"/>	2. <u>Epilobium ciliatum (watsonii)</u>	<u>20</u>	<u>Herb</u>	<u>FACW-</u>
<input checked="" type="checkbox"/>	3. <u>Ranunculus repens</u>	<u>50</u>	<u>Herb</u>	<u>FACW</u>
	4. <u>Rumex crispus</u>	<u>5</u>	<u>Herb</u>	<u>FAC+</u>
	5. <u>Veronica americana</u>	<u>t</u>	<u>Herb</u>	<u>OBL</u>
<input checked="" type="checkbox"/>	6. <u>Polygonum persicaria</u>	<u>20</u>	<u>Shrub</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
100% of the plant species are hydrophytic, therefore the vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 4 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soil saturation to the surface meets the wetland hydrology criteria. A channel (Water C) enters wetland A19 through a 10 inch pipe. This channel flows through a small pond, through a drain and into a buried culvert.

AR 047852

Parametrix, Inc.



Data Plot #: A19-A
 Wetland: A19

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/2	-	-	Loam, oxidized rhizospheres
10-18+	B	10YR 2/1	10YR 3/3	Many, Coarse, Distinct	Loam, oxidized rhizospheres

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color, mottles, and saturation indicate that this soil is hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are met, therefore the area is a wetland.

AR 047853

Parametrix, Inc.



Data Plot #: A19-B
Wetland: Upland

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
Applicant/Owner: Port of Seattle County: King
Investigator: W. Kleindl and J. Hawkins State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: A19-B

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Site is located on parcel 250, in an upland area adjacent to Wetland A19.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Turf grass species</u>	<u>100</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The site is dominated by mowed lawn grasses and the species composition could not be determined.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No field indicators of hydrology present.

AR 047854

Parametrix, Inc.



Data Plot #: A19-B
 Wetland: Upland

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	A	10YR 2/1	-	-	Sandy Loam
2-18+	C	2.5Y 5/4	-	-	Gravelly fine sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
No field indicators of hydric soil were present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
All three parameters are not present, therefore the area is not a wetland.

AR 047855



Data Plot #: W1-A
 Wetland: W1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: W1-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Wetland sampled in area east of 12th Ave S. and south of temporary retention and detention pond.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>30</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Juncus effusus</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Ranunculus repens</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
✓ 5. <u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Populus balsamifera ssp. trichocarpa</u>	<u>60</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 83

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: 4 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Inundation in pockets throughout wetland. The presence of inundation satisfies wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: W1-A
 Wetland: W1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/1	10YR 5/6	Common, Fine, Distinct	Loam
10-15+	B	10YR 2/1	10YR 5/6	Common, Medium, Distinct	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input checked="" type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Low chroma soil matrix with mottles satisfies the hydric soil criteria. A brick was found at 12 inches indicating a disturbed soil horizon.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Wetland Delineated on changes in hydrology.

AR 047857

Parametrix, Inc.



Data Plot #: W2-A
Wetland: W2

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PEM
Do Normal Circumstances exist on the site? Yes No Field Plot ID: W2-A
Is the site significantly disturbed (Atypical Situation)? Yes No
Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland sampled in area east of 12th Ave S., south of temporary retention and detention pond, and east of W1.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1.	<u>Phalaris arundinacea</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 2.	<u>Rubus discolor</u>	<u>50</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 3.	<u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 4.	<u>Populus balsamifera ssp. trichocarpa</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Area dominated by reed canarygrass. Greater than 50 % of the vegetation is hydrophytic and satisfies the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 10 (in.)
Depth to Saturated Soil: 1 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology present. Natural hydrologic piping was observed within the wetland.

AR 047858

Parametrix, Inc.



Data Plot #: W2-A
 Wetland: W2

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 1/5/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16	A	10YR 3/1	-	-	Gravelly loam
16-20+	C	10YR 5/2	10YR 5/6	Common, Fine, Distinct	Gravelly Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Low chroma soil matrix with mottles satisfies the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Wetland Delineated on changes in hydrology.

AR 047859



Data Plot #: W2-B
 Wetland: W2 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: W2-b
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Upland comparison plot adjacent to Wetland W1:A and W2:A

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Rubus discolor</u>	<u>90</u>	<u>Shrub</u>	<u>FACU</u>
✓ 3. <u>Alnus rubra</u>	<u>30</u>	<u>Tree</u>	<u>FAC</u>
✓ 4. <u>Populus balsamifera ssp. trichocarpa</u>	<u>30</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: W2-B
 Wetland: W2 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/5/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-7	A	10YR 3/2	-	-	Silt loam
7-14	B	10YR 4/2	-	-	Silt loam
14-18+	C	10YR 5/4	10YR 5/8	Few, Medium, Distinct	Silt

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland vegetation is present, however wetland hydrology and hydric soils are absent and the area is not a wetland.

AR 047861



Data Plot #: R1-A
 Wetland: R1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No X
 Is the site significantly disturbed (Atypical Situation)? Yes X No
 Is the area a potential Problem Area? Yes No X

Community ID: PEM
 Field Plot ID: 57-A

Remarks (Explain sample location, disturbances, problem areas):
Located behind house on Parcel 98.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis gigantea</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Ranunculus repens</u>	<u>75</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: 8 (in.)

Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Saturated soils within 8 inches of surface after a very dry summer when most wetlands in the Puget Sound lowlands lack hydrology.

Parametrix, Inc.



Data Plot #: R1-A
 Wetland: R1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
1-18	A	10YR 2/1	10YR3/2	Few, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

AR 047864



Data Plot #: R2-A
 Wetland: R2

WETLAND DETERMINATION
 (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No X
 Is the site significantly disturbed (Atypical Situation)? Yes X No
 Is the area a potential Problem Area? Yes X No

Community ID: PEM
 Field Plot ID: 57-A

Remarks (Explain sample location, disturbances, problem areas):
Located behind house on Parcel 148.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Holcus lanatus</u>	<u>80</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Ins pseudacorus</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
✓ 4. <u>Ranunculus repens</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >20 (in.)
 Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Saturated soils within 10 inches of surface after a very dry summer when most wetlands in the Puget Sound lowlands lack hydrology.

Parametrix, Inc.



Data Plot #: R2-A
 Wetland: R2

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A1	10YR 3/1	-	-	Sandy loam
5-10	A2	10YR 3/1	10YR 3/2	Few, Medium, Faint	Sandy loam
10-12	C	10YR 3/1	-	-	Sand
12-20+	C2	10YR 2/1	10YR 3/2	Common, Medium, Distinct	Gravel loam organic

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input checked="" type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

AR 047866



Data Plot #: R3/4-A

Wetland: R3/R4

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kleindi and Louther State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: 64-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland located on Parcel 153. Wetland is located between the ordinary high water mark of Miller Creek and toe of the slope.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Equisetum arvense</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓ 2.	<u>Festuca rubra</u>	<u>60</u>	<u>Herb</u>	<u>FAC+</u>
✓ 3.	<u>Ranunculus repens</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
4.	<u>Rubus discolor</u>	<u>15</u>	<u>Shrub</u>	<u>FACU</u>
5.	<u>Rubus spectabilis</u>	<u>15</u>	<u>Shrub</u>	<u>FAC+</u>
6.	<u>Ainus rubra</u>	<u>15</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0.5 (in.)
 Depth to Free Water in Pit: 18 (in.)
 Depth to Saturated Soil: surface (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation was observed satisfying wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: R3/4-A
 Wetland: R3/R4

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	A	10YR 2/1	10YR 3/6	Few. Coarse. Distinct	Sandy loam

Hydric Soil Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input checked="" type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input checked="" type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil has high hemic organic content. Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047868



Data Plot #: R3/R4-B
 Wetland: R3/R4 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Louther and Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 63/64-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Upland comparison sampled on Parcel 153.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Dactylis glomerata</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
2. <u>Hypochaeris radicata</u>	<u>2</u>	<u>Herb</u>	<u>FACU</u>
3. <u>Pteridium aquilinum</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
4. <u>Ilex aquifolium</u>	<u>5</u>	<u>Shrub</u>	<u>UPL</u>
5. <u>Oemlena cerasiformis</u>	<u>2</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Rubus discolor</u>	<u>25</u>	<u>Shrub</u>	<u>FACU</u>
7. <u>Alnus rubra</u>	<u>15</u>	<u>Tree</u>	<u>FAC</u>
✓ 8. <u>Thuja plicata</u>	<u>60</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 25

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology.

AR 047869

Parametrix, Inc.



Data Plot #: R3/R4-B
Wetland: R3/R4 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 3/4	-	-	Gravelly sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047870

Parametrix, Inc.



Data Plot #: R4b-A
 Wetland: R4b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA
 1987 Method 1989 Method Community ID: PSS/PEM
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: R4b-A
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

This wetland area is located on Parcel 182. A portion of the wetland is riparian and influenced by the hydrology of Miller Creek. The remaining portion of the wetland occurs on a slope. The plot was taken in the hillslope portion, approximately 15 feet above the elevation of the stream.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Convolvulus arvensis</u>	<u>5</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 2. <u>Equisetum telmateia</u>	<u>90</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Ilex aquifolium</u>	<u>5</u>	<u>Shrub</u>	<u>NL</u>
<input checked="" type="checkbox"/> 4. <u>Alnus rubra</u>	<u>60</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

- Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 6 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of soil saturation to the surface meets the wetland hydrology criteria

AR 047871

Parametrix, Inc.



Data Plot #: R4b-A
 Wetland: R4b

Project/Site Seattle Tacoma Airport - Master Plan Update Date: 11/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/1	-	-	Loam
9-14	B	5GY 5/1	7.5YR 4/4	Common, Coarse, Prominent	sandy silt
14-18+	Bll	5G 5/1	-	-	Sandy Silt

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

AR 047872

Parametrix, Inc.



Data Plot #: R4b:B
Wetland: R4b Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl, Pat Tougher State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No _____
Field Plot ID: R4b:B
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Upland Plot located on Parcel 180, adjacent to the Wetland R4b. The esample location is a mowed lawn.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Poa spp.</u>	<u>100</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since none of the dominant plants are hydrophytic, the wetland vegetation criteria is not met. Due to recent mowing, grass species could not be determined.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
_____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
_____ Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >15 (in.)
Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047873

Parametrix, Inc.



Data Plot #: R4b:B
 Wetland: R4b Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 3/3	-	-	Sandy Loam
5-18+	B	10YR 4/4	-	-	Sandy Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047874



Data Plot #: R5-A
 Wetland: R5

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/23/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 70-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Streamside riparian wetland between house and stream. Most of the wetland is composed of mowed grass.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Ins pseudacorus</u>	<u>5</u>	<u>Herb</u>	<u>OBL</u>
✓ 3. <u>Ranunculus repens</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Urtica dioica</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
5. <u>Comus stolonifera</u>	<u>10</u>	<u>Shrub</u>	<u>FACW</u>
6. <u>Prunus laurocerasus</u>	<u>5</u>	<u>Shrub</u>	<u>UPL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of several indicators are present meeting the hydnc soil criteria.

Parametrix, Inc.



Data Plot #: R5-A
 Wetland: R5

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/23/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	O	10YR 2/1	-	-	Muck
18+	C	10YR 3/2	-	-	Sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047876

Parametrix, Inc.



Data Plot #: R5b-A
 Wetland: R5b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Community ID: PEM
 Field Plot ID: R5b-A

Remarks (Explain sample location, disturbances, problem areas):
A steep slope wetland with a groundwater source from the contributing basin from the west.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Equisetum telmateia</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Ins pseudocorus</u>	<u>t</u>	<u>Herb</u>	<u>OBL</u>
✓ 3. <u>Phalans arundinacea</u>	<u>90</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Cornus sencea</u>	<u>t</u>	<u>Shrub</u>	<u>FACW</u>
5. <u>Rubus discolor</u>	<u>10</u>	<u>Shrub</u>	<u>FACU</u>
6. <u>Alnus rubra</u>	<u>t</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 17 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Free water was seeping in at 17-18 inches with saturation to the surface. Soil saturation to the surface meets the wetland hydrology criteria.

AR 047877

Parametrix, Inc.



Data Plot #: R5b-A
 Wetland: R5b

Project Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-E	A	10YR 2/2	-	-	Loam, oxidized rhizospheres
8-12	B	10YR 4/1	-	-	Sandy loam
12-18+	C	5N 2/1	10YR 4/4	Common, Medium, Prominent	Cobbly gravelly sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes X No _____ Is this Sampling Point Within a Wetland?
 Hydric Soils Present? Yes X No _____ Yes X No _____
 Wetland Hydrology Present? Yes X No _____

Remarks (if applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are met.

AR 047878

Parametrix, Inc.



Data Plot #: R5b-B
Wetland: Upland

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
Applicant/Owner: Port of Seattle County: King
Investigator: W. Kleindi and J. Hawkins State: WA

1987 Method 1989 Method

Community ID: upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: R5b-B

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Site is immediately west and upslope of wetland R5b. The sampling area is a mowed lawn

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Mowed lawn grass</u>	<u>100</u>	<u>Herb</u>	<u>NL</u>
2. <u>Thuja plicata</u>	<u>t</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

The site was covered by mowed lawn grass and plant species could not be determined. Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No field indicators of hydrology were present.

AR 047879

Parametrix, Inc.



Data Plot #: R5b-B
 Wetland: Upland

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A	10YR 3/2	-	-	Loam
8-18+	B	10YR 3/2	-	-	Gravelly loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Hydric soil criteria are not met.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are absent, therefore the area is not a wetland.

AR 047880



Data Plot #: R6-A
 Wetland: R6

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kleindl and Grialou State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No
 Community ID: PFO
 Field Plot ID: 62-A

Remarks (Explain sample location, disturbances, problem areas):
Plot located on Parcel 215. The riparian wetland is adjacent to Miller Creek.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis sp</u>	<u>80</u>	<u>Herb</u>	<u>NL</u>
✓ 2. <u>Epilobium ciliatum</u>	<u>20</u>	<u>Herb</u>	<u>FACW-</u>
✓ 3. <u>Equisetum telmateia</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Hedera helix</u>	<u>40</u>	<u>Herb</u>	<u>NL</u>
✓ 5. <u>Ranunculus repens</u>	<u>40</u>	<u>Herb</u>	<u>FACW</u>
✓ 6. <u>Solanum dulcamara</u>	<u>25</u>	<u>Herb</u>	<u>FAC+</u>
✓ 7. <u>Cornus stolonifera</u>	<u>25</u>	<u>Shrub</u>	<u>FACW</u>
✓ 8. <u>Rubus discolor</u>	<u>25</u>	<u>Shrub</u>	<u>FACU</u>
✓ 9. <u>Rubus spectabilis</u>	<u>40</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 10. <u>Alnus rubra</u>	<u>30</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 88

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Oxidized root horizons present indicating prolonged saturation into the growing season, satisfying wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: R6-A
 Wetland: R6

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-7	A	10YR 2/2	-	-	sandy loam
7->15	B	7.5YR 3/2	7.5YR4/4	Common, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047882

Parametrix, Inc.



Data Plot #: R6-B
 Wetland: R6

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kleindl and Grialou State: WA

1987 Method 1989 Method Community ID: Upland yard
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 62-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Plot located on Parcel 211. Paired upland plot.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Agrostis gigantea</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Mowed lawn and moss</u>	<u>90</u>	<u>Herb</u>	<u>NL</u>
3. <u>Ranunculus repens</u>	<u>2</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Ilex aquifolium</u>	<u>5</u>	<u>Shrub</u>	<u>UPL</u>
✓ 5. <u>Prunus laurocerasus</u>	<u>25</u>	<u>Shrub</u>	<u>UPL</u>
6. <u>Cornus comuta</u>	<u>10</u>	<u>Tree</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
No hydrophytic plants are present thus not satisfying the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047883



Data Plot #: R6-B
 Wetland: R6

WETLAND DETERMINATION
 (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/15/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 3/3	-	-	Loam
5-13	B1	10YR 3/4	-	-	Loam
>13	B2	10YR 4/3	10YR 4/6	Many, Medium Distinct	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
This area is an upland since all wetland parameters are absent.

Parametrix, Inc.



Data Plot #: R6b-A
 Wetland: R6b

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindi and J. Hawkins State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R6b-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

The sampling plot is located in the riparian area of Miller Creek. Water sources to the wetland include hillslope seeps and Miller Creek. Plot located on Parcel 215.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Athyrium filix-femina</u>	<u>1</u>	<u>Herb</u>	<u>FAC+</u>
2. <u>Carex obnupta</u>	<u>5</u>	<u>Herb</u>	<u>OBL</u>
✓ 3. <u>Epilobium ciliatum</u>	<u>20</u>	<u>Herb</u>	<u>FACW-</u>
4. <u>Festuca arundinacea</u>	<u>1</u>	<u>Herb</u>	<u>FAC-</u>
✓ 5. <u>Holcus lanatus</u>	<u>70</u>	<u>Herb</u>	<u>FAC</u>
6. <u>Juncus effusus</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 7. <u>Ranunculus repens</u>	<u>50</u>	<u>Herb</u>	<u>FACW</u>
8. <u>Rumex sp</u>	<u>1</u>	<u>Herb</u>	<u>NL</u>
9. <u>Alnus rubra</u>	<u>1</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- X Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 10 (in.)
 Depth to Saturated Soil: 5 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is present.



Data Plot #: R6b-A
 Wetland: R6b

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	O	10YR 3/1	-	-	Sandy Loam
2-3	C	10YR 3/1	-	-	Fine sand
3-5	Ab	10YR 3/2	-	-	Loam
5+	C	-	-	-	Cobbly gravelly sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland? Yes <u>X</u> No ___
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
All three wetland parameters are present.

Parametrix, Inc.



Data Plot #: R7-A
 Wetland: R7

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/28/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 73-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Plot 73 is an old deposition sand bar on inside of a bend.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 2. <u>Alnus rubra</u>	<u>95</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 12 (in.)
 Depth to Saturated Soil: 12 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

There is free water within 12 inches of surface, satisfying wetland hydrology criteria

AR 047887

Parametrix, Inc.



Date Plot #: R7-A
 Wetland: R7

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/28/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	C	10YR 5/1			Sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Point bar, depositional area. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No ___	Yes <u>X</u> No ___
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Point bar of Miller Creek. Dominant vegetation is not hydrophytic; however, the wetland is located on a point depositional bar and has hydrology and soils.

AR 047888

Parametrix, Inc.



Data Plot #: R7-B
 Wetland: R7 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/28/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 73-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Upland plot in yard between house and stream.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Hypochaeris radicata</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
✓ 2. <u>Poa sp</u>	<u>75</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Upland plant community, no hydrophytic vegetation is present.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047889

Parametrix, Inc.



Data Plot #: R7-B
Wetland: R7 Upland Plot

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/28/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10+	Fill	10YR 3/3	-	-	sandy loam - gravel

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes ___ No X Is this Sampling Point Within a Wetland?
Hydric Soils Present? Yes ___ No X Yes ___ No X
Wetland Hydrology Present? Yes ___ No X

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047890

Parametrix, Inc.



Data Plot #: R7a:A
 Wetland: R6.5

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA

1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No Community ID: PEM
 Is the site significantly disturbed (Atypical Situation)? Yes No X Field Plot ID: R7a:A
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The site is a riparian wetland area adjacent to Miller Creek, located on Parcel 257.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Holcus lanatus</u>	<u>95</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Juncus effusus</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Ranunculus repens</u>	<u>35</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Trifolium repens</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation, hydric soil, and hydrological indicators, the wetland hydrology criteria is assumed to be present.

AR 047891

Parametrix, Inc.



Data Plot #: R7a:A
 Wetland: R6.5

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 3/2	-	-	Sandy Loam
6-18+	B	10YR 3/1	10YR 4/6	Common, Fine, Distinct	Gravelly Sandy Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047892

Parametrix, Inc.



Data Plot #: R8-A
 Wetland: R8

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/30/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 72-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Riparian wetland with groundwater expressed at topographic break, additional wetland hydrology influenced by stream hydrology

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Equisetum telmateia</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Impatiens sp</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>
4. <u>Ins pseudacorus</u>	<u>10</u>	<u>Herb</u>	<u>OBL</u>
✓ 5. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 6. <u>Rubus discolor</u>	<u>25</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- X Inundated
 X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 X Water Marks
 Drift Lines
 X Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Saturated to surface, satisfying wetland hydrology criteria

AR 047893



Data Plot #: R8-A
 Wetland: R8

WETLAND DETERMINATION
 (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/30/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-15	O	10YR 2/1	-	-	Mucky loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Sand lenses interbedded. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

Parametrix, Inc.



Data Plot #: R8-A2
 Wetland: R8

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA

1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes X No Community ID: PEM
 Is the site significantly disturbed (Atypical Situation)? Yes No X Field Plot ID: R8-A2
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Riparian wetland located on Parcel 276. This area was delineated per the ACOE request to decrease the area previously delineated.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Polygonum persicaria</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Urtica dioica</u>	<u>40</u>	<u>Herb</u>	<u>FAC+</u>
✓ 4. <u>Ainus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 10 (in.)
 Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The presence of standing water and soil saturation within 10 inches of the soil surface meets the wetland hydrology criteria. Sample taken within the riverine influence of Miller Creek.

Parametrix, Inc.



Data Plot #: R8-A2

Wetland: R8

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 11/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16	A	10YR 3/1	-	-	Sandy Silt
16-18+	C	10YR 3/1	-	-	Sand

Hydric Soil Indicators:

Histosol

Listed on Local Hydric Soils List

Histic Epipedon

Listed on State Hydric Soils List

Sulfidic Odor

Listed on National Hydric Soils List

Probable Aquic Moisture Regime

Aquic Moisture Regime

Reducing Conditions

Organic Streaking in Sandy Soils

Gleyed or Low-Chroma Colors

Mottles

High Organic Content in Surface Layer

Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047896

Parametrix, Inc.



Data Plot #: R8-B
 Wetland: R8 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/30/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 72-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Disturbed area adjacent to barn, or slope approximately 150 ft west of Miller Creek on Parcel 291.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Urtica dioica</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
✓ 4. <u>Rubus spectabilis</u>	<u>20</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 5. <u>Thuja plicata</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Disturbed soils and disturbed plant community adjacent to a barn. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047897

Parametrix, Inc.



Data Plot #: R8-B
 Wetland: R8 Upland Plot

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/30/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 3/3	-	-	Loam
3-11	B	10YR 3/3	10YR4 /6	Few, Medium, Distinct	Loam
11+	C	10YR 4/6	-	-	sandy loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Compacted, well drained soils next to barn.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Disturbed hydrophytic plant community present; however, area lacks hydric soils and wetland hydrology.

AR 047898



Data Plot #: R8:B2
 Wetland: R8 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: R8:B2

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

The sample plot was located in a upland area adjacent to Wetland R8 on Parcel 276.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Festuca arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FAC-</u>
✓ 2. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Ranunculus repens</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Urtica dioica</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
✓ 5. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: R8:B2
 Wetland: R8 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16+	A	10YR 4/3	-	-	Cobbles loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland vegetation is present, however wetland hydrology and hydric soils are absent and the area is not a wetland.

AR 047900



Data Plot #: R9-A
 Wetland: R9

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: K. Dunkin, S. Rozenbaum State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: 57-A
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):
Plot located on parcel 312 at Miller Creek Nursery.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Cerastium arvense</u>	<u>20</u>	<u>Herb</u>	<u>NL</u>
2. <u>Convolvulus arvensis</u>	<u>4</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 3. <u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Holcus lanatus</u>	<u>3</u>	<u>Herb</u>	<u>FAC</u>
5. <u>Matricaria matricanoides</u>	<u>2</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 6. <u>Poa pratensis</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 7. <u>Ranunculus repens</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 8. <u>Scirpus microcarpus</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Plot placed immediately down-slope of planted nursery area. Cleared area for tractor access. Obligate plants present and hydrophytic vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: 8 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Saturated soils are within 8 inches of surface after a very dry summer when most wetlands in the Puget Sound lowlands lack hydrology. Indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: R9-A

Wetland: R9

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 9/18/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	Ap1	10YR 3/1	-	-	Sandy loam
2-12	Ap2	10YR 3/1	7.5YR 3/3	Many, Medium, Distinct	Sandy loam
12+	C	10YR 3/1, 2.5Y 5/2	7.5YR 3/3 & 4/4	Many, Medium, Prominent	Sandy loam and sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Plot at lower toe of the slope adjacent to creek terrace. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047902

Parametrix, Inc.



Data Plot #: R9-B
 Wetland: R9 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: Kristie Dunkin and Scott Rozenbaum State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 57-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Plot located on Parcel 312, and sample area is in active nursery.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. Bare Ground	80	-	NL
2. Epilobium ciliatum	1	Herb	FACW-
3. Equisetum telmateia	8	Herb	FACW
4. Ranunculus repens	5	Herb	FACW
5. Tanacetum sp.	1	Herb	NL
6. Rubus discolor	3	Shrub	FACU

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Planted rows of nursery stock: crabapple sweet gum, Lombard poplar, white ash, katsura, ornamental birches, Japanese maples. All herbs occur as weeds in between rows of trees and ground cover. The wetland vegetation criteria are not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >22 (in.)
 Depth to Saturated Soil: 22 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047903

Parametrix, Inc.



Data Plot #: R9-B
 Wetland: R9 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/18/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16	Ap	10YR 2/2	-	-	Sandy loam
16-24	C	10YR 3/2	7.5YR 4/6	Fine, Medium, Distinct	Sandy clay loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Lower horizon saturated. Five percent slope towards Miller Creek. No indicators of hydric soils.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047904

Parametrix, Inc.



Data Plot #: R9a-A1
Wetland: R9

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
Applicant/Owner: Port of Seattle County: King
Investigator: W. Kleindl and J. Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R9a-A1
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X
Remarks (Explain sample location, disturbances, problem areas):
Site is located in the lawn of Parcel 310.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	<u>Agrostis capillans (tenuis)</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓ 2	<u>Juncus effusus</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
✓ 3	<u>Ranunculus repens</u>	<u>90</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 6 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Soil is saturated to the surface and thus meets the technical criteria for wetland hydrology.

AR 047905

Parametrix, Inc.



Data Plot #: R9a-A1
 Wetland: R9

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 2/1	-	-	Loam, oxidized rhizospheres, concrete
5-18+	B	2.5Y 5/2	2.5Y 5/4	Common, Coarse, Faint	Clay Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input checked="" type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are met, therefore the area is a wetland.

AR 047906



Data Plot #: R9a-A2

Wetland: R9

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: R9a-A2

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

The site is located within sewer line easement on parcel 312. The west edge of the wetland is at the base of the slope.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Convolvulus arvensis</u>	<u>5</u>	<u>Herb</u>	<u>NL</u>
2. <u>Epilobium ciliatum</u>	<u>10</u>	<u>Herb</u>	<u>FACW-</u>
✓ 3. <u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Ins pseudacorus</u>	<u>10</u>	<u>Herb</u>	<u>OBL</u>
5. <u>Mimulus spp.</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>
✓ 6. <u>Rubus discolor</u>	<u>90</u>	<u>Shrub</u>	<u>FACU</u>
✓ 7. <u>Alnus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 6 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soil is saturated to the surface and therefore meets the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: R9a-A2
 Wetland: R9

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 3/1	-	-	Sandy silt (fill)
5-18+	C	2.5Y 3/2	2.5Y 3/1	Many, Coarse, Faint	Sandy silt (fill)

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria. Soils in the sewer easement are disturbed and composed dominantly of fill material.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are met.

AR 047908



Data Plot #: R10-A
 Wetland: R10

WETLAND DETERMINATION
 (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PEM/PSS
 Do Normal Circumstances exist on the site? Yes No X Field Plot ID: 56-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Plot is located at west edge on Parcel 316.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Agrostis gigantea</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 2. <u>Convolvulus arvensis</u>	<u>30</u>	<u>Herb</u>	<u>NL</u>
3. <u>Equisetum telmateia</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Ranuncius repens</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 5. <u>Urtica dioica</u>	<u>30</u>	<u>Herb</u>	<u>FAC+</u>
6. <u>Cornus stolonifera</u>	<u>5</u>	<u>Shrub</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 7. <u>Rubus discolor</u>	<u>50</u>	<u>Shrub</u>	<u>FACU</u>
8. <u>Salix spp. (planted)</u>	<u>15</u>	<u>Shrub</u>	<u>FACW</u>
9. <u>Spiraea spp. (planted)</u>	<u>10</u>	<u>Shrub</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Plants are either nursery stock or invasive weedy species. Area is highly altered with a nursery bed of dogwood, spiraea and willow. Vegetation in cultivated areas of wetland includes Salix sp. (not planted) or weedy species. Greater than 50% of the vegetation is hydrophytic and therefore satisfies wetland plant criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >16 (in.)
 Depth to Saturated Soil: >16 (in.)

- Secondary Indicators (2 or more required):
- Oxidized Root Channels in Upper 12 inches
 - Water-Stained Leaves
 - Local Soil Survey Data
 - Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present.

Parametrix, Inc.



Data Plot #: R10-A
 Wetland: R10

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 9/17/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 2/2	-	-	Sandy loam
3-16	B	10YR 2/2	2.5Y 6/4	Common, Medium, Prominent	Sandy Clay loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

No strong indicators of hydrology due to summer season and no recent precipitation. Vegetation is hydrophytic and soils are hydric and therefore wetland presence assumed.

AR 047910

Parametrix, Inc.



Data Plot #: R11-A1
Wetland: R11

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
Applicant/Owner: Port of Seattle County: King
Investigator: W. Kleindl and J. Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
Do Normal Circumstances exist on the site? Yes No Field Plot ID: R11-A1
Is the site significantly disturbed (Atypical Situation)? Yes No
Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

The sample plot is located on the Miller Creek Nursery between toe of the slope and Miller Creek on Parcel 314.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Athyrium filix-femina</u>	<u>1</u>	<u>Herb</u>	<u>FAC+</u>
✓ 3. <u>Equisetum terreste</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Ins pseudocorus</u>	<u>5</u>	<u>Herb</u>	<u>OBL</u>
✓ 5. <u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
6. <u>Alnus rubra</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Oxidized rhizospheres in the upper 9 inches of the soil profile suggest seasonal soil saturation in present. Wetland hydrology was observed on several site visits between November 1999 and April 2000.

AR 047911

Parametrix, Inc.



Data Plot #: R11-A1
 Wetland: R11

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/2	10YR 4/3	Many, Fine, Faint	Silty sand, oxidized rhizospheres
9-18+	B	10YR 4/2	10YR 4/4	Many, Fine, Faint	Silty sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and mottles indicate that this soil is hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland? Yes <u>X</u> No ___
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are present.

AR 047912

Parametrix, Inc.



Data Plot #: R11-A2
 Wetland: R11

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA

1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: R11-A2
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):
The sample plot located on Miller Creek Nursery site, about 15 feet north of Miller Creek..

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>50</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Ranunculus repens</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Veronica americana</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
✓ 4. <u>Rubus discolor</u>	<u>50</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >10 (in.)
 Depth to Saturated Soil: >10 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Oxidized rhizospheres in the upper 9 inches of the soil profile suggest seasonal soil saturation in present. Wetland hydrology was observed on several site visits between November 1999 and April 2000.

Parametrix, Inc.



Data Plot #: R11-A2

Wetland: R11

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-10	A	10YR 4/2	10YR 4/4	Many, Coarse, Faint	Loam (fill)
10+	-	-	-	-	Rock, impenetrable fill

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and mottles indicate that this soil is hydric. Soils were not observed at depths greater than 10 inches. At 10+ inches, impenetrable fill on sewer line.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are present, therefore the area is a wetland.

AR 047914

Parametrix, Inc.



Data Plot #: R11-B
 Wetland: Upland

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindi and J. Hawkins State: WA

1987 Method 1989 Method Community ID: Upland Forest
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R11-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The sample plot is located in the Miller Creek Nursery site, adjacent to Wetland R-11

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Equisetum telmateia</u>	<u>15</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Ins pseudocorus</u>	<u>1</u>	<u>Herb</u>	<u>OBL</u>
3. <u>Polytichum munrum</u>	<u>15</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Corvus cornuta</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5. <u>Oemlena cerasiformis</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Rubus discolor</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
7. <u>Rubus laciniatus</u>	<u>15</u>	<u>Shrub</u>	<u>FACU+</u>
✓ 8. <u>Ainus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>
✓ 9. <u>Populus trichocarpa</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 40

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
There are no field hydrology indicators present.

AR 047915

Parametrix, Inc.



Data Plot #: R11-B
 Wetland: Upland

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A	10YR 2/2	-	-	Loam
8-18+	B	10YR 3/3	-	-	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are not present, therefore the area is not a wetland.

AR 047916

Parametrix, Inc.



Data Plot #: R13-A
 Wetland: R13

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA
 1987 Method 1989 Method Community ID: PSS
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R13
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The sample plot is located on shallow slope about 10 feet east of Miller Creek on Parcel 321.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Herb</u>	<u>FAC+</u>
✓ 2. <u>Equisetum telmateia</u>	<u>50</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Phalaris arundinacea</u>	<u>15</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Ranunculus repens</u>	<u>40</u>	<u>Herb</u>	<u>FACW</u>
✓ 5. <u>Rubus discolor</u>	<u>90</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The presence of hydrophytic vegetation and hydric soils suggest wetland hydrology is present. Sample was taken before seasonal wetland hydrology was present.

Parametrix, Inc.



Data Plot #: R13-A
 Wetland: R13

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/1	-	-	Sandy loam
10-18+	B	10YR 2/1	10YR 4/2 and 10YR 4/4	Common, Coarse, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Observation of plastic and paper in the soil horizon indicate the soils have been disturbed. Soil color and indicators support the presence of hydric soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland? Yes <u>X</u> No ___
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are present, therefore the area is a wetland.

AR 047918



Data Plot #: R14a-A
 Wetland: R14

WETLAND DETERMINATION
 (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: R14a-A
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):
The sample plot is locate on Parcel 322 about 15 feet south of Miller Creek.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>40</u>	<u>Herb</u>	<u>FAC+</u>
✓ 2. <u>Equisetum telmateia</u>	<u>30</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Hedera helix</u>	<u>20</u>	<u>Herb</u>	<u>NL</u>
✓ 4. <u>Urtica dioica</u>	<u>30</u>	<u>Herb</u>	<u>FAC+</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Soil was saturated to the surface. Wetland hydrology was present on 11/02/2000. The presence of soils saturation to the surface in the growing season supports the presence of wetland criteria.

DRAFT

AR 047919

Parametrix, Inc.



Data Plot #: R14a-A

Wetland: R14

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	O	10YR 2/1			Organic Muck

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

The sapric O layer and sulfur smell indicated that this soil is hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No _____

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes X No _____

Yes X No _____

Wetland Hydrology Present?

Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are present.

DRAFT

AR 047920



Data Plot #: R14b-A
 Wetland: R14b

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA
 1987 Method 1989 Method Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: R14b-A
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
The sample is located on Parcel 321 about 15 feet north of Miller Creek.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Ranunculus repens</u>	<u>90</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Rumex crispus</u>	<u>5</u>	<u>Herb</u>	<u>FAC+</u>
3. <u>Rhododendron - horticultural varieties</u>	<u>10</u>	<u>Shrub</u>	<u>nl</u>
4. <u>Rubus discolor</u>	<u>10</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 _____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 _____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The presence of hydrophytic vegetation and hydric soils indicate wetland hydrology is present.

Parametrix, Inc.



Data Plot #: R14b-A
 Wetland: R14b

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/1	-	-	Loam
9-11	C	2.5Y 4/3	-	-	Fine sand
11-18+	Ab	10YR 3/1	-	-	Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color satisfies hydric soil criteria. Buried A horizon suggests overbank flow from Miller Creek.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No ___	Is this Sampling Point Within a Wetland? Yes <u>X</u> No ___
Hydric Soils Present?	Yes <u>X</u> No ___	
Wetland Hydrology Present?	Yes <u>X</u> No ___	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are present, therefore the area is a wetland.

AR 047922



Data Plot #: R14b-B
 Wetland: Upland

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA

1987 Method 1989 Method Community ID: Upland Lawn
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R14b
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The sample plot located in front yard of parcel 321 between Miller Creek and 9th Avenue South, adjacent to Wetland R14.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis spp.</u>	<u>50</u>	<u>Herb</u>	<u>NL</u>
✓ 2. <u>Plantago lanceolata</u>	<u>20</u>	<u>Herb</u>	<u>FACU+</u>
✓ 3. <u>Plantago major</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 4. <u>Poa spp</u>	<u>50</u>	<u>Herb</u>	<u>NL</u>
5. <u>Ranunculus repens</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
6. <u>Taraxacum officinale</u>	<u>5</u>	<u>Herb</u>	<u>FACU</u>
✓ 7. <u>Domestic fruit trees</u>	<u>30</u>	<u>Tree</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 20

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No field indicators of wetland hydrology are present.

Parametrix, Inc.



Date Plot #: R14b-B
 Wetland: Upland

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/2	-	-	Loam
10-18+	C	10YR 4/4	-	-	Fine sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No field indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are absent, therefore the area is not a wetland.

AR 047924

Parametrix, Inc.



Data Plot #: R15a-A
 Wetland: R15a

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA

1987 Method 1989 Method Community ID: PEM
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R15a
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Site is locate in a lawn adjacent to Miller Creek at north end of parcel 251.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Carex obnupta</u>	<u>20</u>	<u>Herb</u>	<u>OBL</u>
✓ 2. <u>Ranunculus repens</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Rumex spp.</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>
4. <u>Taraxacum officinale</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
✓ 5. <u>Unknown lawn grasses</u>	<u>70</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 12 (in.)
 Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Soil was saturation at 10 inches meets the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: R15a-A

Wetland: R15a

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 3/1	-	-	Loam, oxidized rhizospheres
6-18+	B	10YR 5/1	10YR 2/1	Manv. Coarse. Distinct	Loam

Hydric Soil Indicators:

_____ Histosol

_____ Histic Epipedon

_____ Sulfidic Odor

_____ Probable Aquic Moisture Regime

_____ Reducing Conditions

X Gleyed or Low-Chroma Colors

_____ High Organic Content in Surface Layer

_____ Listed on Local Hydric Soils List

_____ Listed on State Hydric Soils List

_____ Listed on National Hydric Soils List

X Aquic Moisture Regime

_____ Organic Streaking in Sandy Soils

X Mottles

_____ Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color, mottles, and saturation indicate that this soil is hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No _____

Hydric Soils Present?

Yes X No _____

Wetland Hydrology Present?

Yes X No _____

Is this Sampling Point Within a Wetland?

Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All technical criteria are met.

AR 047926

Parametrix, Inc.



Data Plot #: R15a-A2
Wetland: R15

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
Applicant/Owner: Port of Seattle County: King
Investigator: W. Kleindl and J. Hawkins State: WA

1987 Method 1989 Method Community ID: PEM
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R15a-A2
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The sample plot is located on Parcel 252, about 25 feet south of Miller Creek

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>40</u>	<u>Herb</u>	<u>FAC+</u>
2. <u>Equisetum telmateia</u>	<u>t</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Ranunculus repens</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Scirpus microcarpus</u>	<u>30</u>	<u>Herb</u>	<u>OBL</u>
5. <u>Rubus discolor</u>	<u>t</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since 100% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 0 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soil was saturated to the surface. The hydrology at this location is supported by groundwater. Portions of the wetland receive water from Miller Creek.

AR 047927

Parametrix, Inc.



Data Plot #: R15a-A2

Wetland: R15

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	O _i	10YR 2/1	-	-	Sapnc

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

The presence of organic matter in the soil surface meets the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No _____

Hydric Soils Present?

Yes X No _____

Wetland Hydrology Present?

Yes X No _____

Is this Sampling Point Within a Wetland?

Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are met.

AR 047928

Parametrix, Inc.



Data Plot #: R15a-B
 Wetland: Upland

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindi and J. Hawkins State: WA
 1987 Method 1989 Method Community ID: Upland Lawn
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R15a-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Sample plot is located in an upland area adjacent to wetland R15 on parcel 252.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis spp.</u>	<u>50</u>	<u>Herb</u>	<u>NL</u>
✓ 2. <u>Dactylis glomerata</u>	<u>50</u>	<u>Herb</u>	<u>FACU</u>
3. <u>Hypochaeris radicata</u>	<u>t</u>	<u>Herb</u>	<u>FACU</u>
4. <u>Taraxacum officinale</u>	<u>t</u>	<u>Herb</u>	<u>FACU</u>
5. <u>Rubus discolor</u>	<u>t</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of hydrology are present.

Parametrix, Inc.



Data Plot #: R15a-B
 Wetland: Upland

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/3	-	-	Loam
10-18+	B	10YR 3/3	10YR 4/4	Common, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No field indicators of hydric soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters are not present, therefore the area is not a wetland.

AR 047930

Parametrix, Inc.

Data Plot #: R15b-AWetland: R15

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
Applicant/Owner: Port of Seattle County: King
Investigator: W. Kleindl and J. Hawkins State: WA 1987 Method 1989 MethodCommunity ID: PEMDo Normal Circumstances exist on the site? Yes No Field Plot ID: R15b-AIs the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

The sample plot is located on Parcel 243 15 feet north of Miller Creek. The area is within the Miller Creek floodplain and is a mowed lawn. Site located above sewer line fill.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. moss	50	Herb	NL
✓ 2. Agrostis capillans (tenuis)	20	Herb	FAC
✓ 3. Prunella vulgaris	20	Herb	FACU+
✓ 4. Ranunculus repens	50	Herb	FACW

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Oxidized rhizospheres and the presence of hydric soil suggest that wetland hydrology criteria is met.

AR 047931

Parametrix, Inc.



Data Plot #: R15b-A
 Wetland: R15

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 4/2	-	-	Gravelly loam (fill)
9-18+	B	2.5Y 5/1	10YR 4/4	Common. Coarse. Distinct	Dense sandy silt (fill)

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Site is locate within the fill area of a sewer line easement. Soil color and indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Only 50% of the plant species are hydrophytic. Lawn mosses were not identified and the aquatic tolerance of moss is poorly understood. The area is within the Miller Creek floodplain and has hydric soils.

AR 047932

Parametrix, Inc.



Data Plot #: R15b-B
 Wetland: Upland

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl and J. Hawkins State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: R15b-B

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Sample plot is located on Parcel 243 in an upland area adjacent to Wetland R15b.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Hypochaeris radicata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 2. <u>Unidentifiable moss species</u>	<u>50</u>	<u>Herb</u>	<u>NL</u>
✓ 3. <u>Unidentifiable mowed lawn grass</u>	<u>50</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met. The grass species could not be identified due to recent mowing.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: >18 (in.)
- Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of hydrology present.

AR 047933

Parametrix, Inc.



Data Plot #: R15b-B

Wetland: Upland

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/2/00

SOILS

Soil Survey Data:

Map Unit Name: Not mapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No X NA ___

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 4/3	-	-	Sandy Loam
6-18+	B	2.5Y 5/3	2.5Y 5/2	Common, Coarse, Faint	Silty sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
No field indicators of hydric soil present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
All three parameters are absent, therefore the area is not a wetland.

AR 047934

Parametrix, Inc.



Data Plot #: R17:A1
 Wetland: R17

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/14/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl, M. Luther State: WA

1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R17:A1
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Wetland R17 is a riparian wetland system with a slope component. Site is located on Parcel 300.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1	Athyrium filix-femina	10	Herb	FAC+
✓ 2	Equisetum telmateia	20	Herb	FACW
3	Lysichiton americanum	10	Herb	OBL
✓ 4	Ranunculus repens	40	Herb	FACW
✓ 5	Urtica dioica	20	Herb	FAC+
6	Rubus discolor	10	Shrub	FACU
✓ 7	Rubus spectabilis	30	Shrub	FAC+
✓ 8	Alnus rubra	60	Tree	FAC

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >20 (in.)
 Depth to Saturated Soil: 6 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The presence of soil saturation within the upper 12 inches of the soil horizon satisfies the wetland hydrology criteria.

AR 047935

Parametrix, Inc.



Data Plot #: R17:A1
 Wetland: R17

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/14/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/1	-	-	Loam
10-12	C	10YR 5/2	-	-	Sand
12-18+	Bb	10YR 3/2	10YR 3/3	Common, Medium, Faint	Sandy Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

AR 047936



Data Plot #: R17:A2
Wetland: R17

WETLAND DETERMINATION
(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/14/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl, M. Luther State: WA
 1987 Method 1989 Method Community ID: PSS
 Do Normal Circumstances exist on the site? Yes No Field Plot ID: R17:A2
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):
Wetland R17 is a riparian wetland system with a slope component.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>30</u>	<u>Herb</u>	<u>FAC+</u>
✓ 2. <u>Rubus spectabilis</u>	<u>80</u>	<u>Shrub</u>	<u>FAC+</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >20 (in.)
 Depth to Saturated Soil: 5 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The presence of soil saturation within the upper 12 inches of the soil horizon satisfies the wetland hydrology criteria.

Parametrix, Inc.



Data Plot #: R17:A2

Wetland: R17

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 10/14/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	A	10YR 3/2	10YR 3/4	Common, Coarse, Faint	Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No _____

Hydric Soils Present?

Yes X No _____

Wetland Hydrology Present?

Yes X No _____

Is this Sampling Point Within a Wetland?

Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047938

Parametrix, Inc.



Data Plot #: R17:B
 Wetland: R17 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/14/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: W. Kleindl, P. Tougher, M. Luther State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: R17:B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Upland Plot located on Parcel 312.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Ilex aquifolium</u>	<u>20</u>	<u>Shrub</u>	<u>NL</u>
✓ 2. <u>Oemena cerasiformis</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 3. <u>Acer macrophyllum</u>	<u>30</u>	<u>Tree</u>	<u>FACU</u>
✓ 4. <u>Thuja plicata</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 25

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047939

Parametrix, Inc.



Data Plot #: R17:B
Wetland: R17 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 10/14/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
No wetland indicators are present.

AR 047940

Borrow Area 1

AR 047941

Parametrix, Inc.



Data Plot #: 48-B
Wetland: 48

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/16/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA
 1987 Method 1989 Method
Community ID: Upland
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: B52-B
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Wetland and upland plot located on the western end of S. 212th street in borrow site 1.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1 <u>Rubus discolor</u>	<u>75</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 2 <u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 3 <u>Pseudotsuga menziesii</u>	<u>20</u>	<u>Tree</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50 % of the vegetation is hydrophytic, the wetland plant criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: 48-B
Wetland: 48

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/16/98

SOILS

Soil Survey Data:

Map Unit Name: _____ Drainage Class: _____
Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A1	10YR 4/3	-	-	Sand
5-18	A2	10YR 4/3	10YR 5/2	Few Fine. Distrct	Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047943

Parametrix, Inc.



Data Plot #: 48-A

Wetland: 48

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 12/16/98

Applicant/Owner: Port of Seattle

County: King

Investigator: William Kleindl

State: WA

1987 Method 1989 Method

Community ID: PFO/PEM

Do Normal Circumstances exist on the site? Yes No

Field Plot ID: B56-A

Is the site significantly disturbed (Atypical Situation)? Yes No

Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Wetland and upland plot located on the western end of S. 212th street in borrow site 1.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Equisetum telmateia</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Juncus effusus</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 4. <u>Ranunculus repens</u>	<u>80</u>	<u>Herb</u>	<u>FACW</u>
✓ 5. <u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Ainus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50 % of the dominant vegetation are hydrophytic, the wetland vegetation criteria is met

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation is present, satisfying the wetland hydrologic criteria

AR 047944

Parametrix, Inc.



Data Plot #: 48-A
Wetland: 48

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/16/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	C	10YR 5/2	10YR 5/4	Few. Medium. Distinct	Gravelly sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and observation of indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047945

Parametrix, Inc.



Data Plot #: B1-A
 Wetland: B1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 5/14/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindi State: WA

1987 Method 1989 Method

Community ID: PFO/PSS

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: B1-A

Remarks (Explain sample location, disturbances, problem areas):

Depression with apparent stormwater influence via ditch from residential area to the east.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Carex sp</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Equisetum palustre</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
✓ 3. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Rubus spectabilis</u>	<u>20</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 5. <u>Spiraea douglasii</u>	<u>85</u>	<u>Shrub</u>	<u>FACW</u>
✓ 6. <u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>
✓ 7. <u>Populus trichocarpa</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
X Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
X Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Saturation and free water to the soil surface satisfies the wetland hydrology criteria

AR 047946

Parametrix, Inc.



Data Plot #: B1-A
Wetland: B1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 5/14/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 3/1	-	-	Clay Loam
12-20	B	10YR 4/1	10YR 5/8	Common, Medium, Distinct	Clay Loam
>20	C	10YR 4/3	10YR 5/6	Few, Medium, Distinct	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Immediately below 10" the soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland

AR 047947

Parametrix, Inc.



Data Plot #: B1-B
 Wetland: B1 Upland Plot

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 5/14/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No
 Remarks (Explain sample location, disturbances, problem areas):
Upland area pair plot.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Galium sp</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
✓ 2.	<u>Geranium robertianum</u>	<u>40</u>	<u>Herb</u>	<u>NL</u>
✓ 3.	<u>Urtica dioica</u>	<u>40</u>	<u>Herb</u>	<u>FAC+</u>
✓ 4.	<u>Oemlena cerasiformis</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 5.	<u>Rubus discolor</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6.	<u>Acer macrophyllum</u>	<u>40</u>	<u>Tree</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 17

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
The wetland vegetation criteria are not met since the area is dominated by non-wetland plants

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present

AR 047948

Parametrix, Inc.



Data Plot #: B1-B
Wetland: B1 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 5/14/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 3/3	-	-	Sandy loam
6-11	B	10YR 4/4	-	-	Sandy loam
>11	C	10YR 5/8	-	-	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color does not meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047949

Parametrix, Inc.



Data Plot #: B4-A
 Wetland: B4

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/28/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: PSS
 Field Plot ID: B4-A

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Remarks (Explain sample location, disturbances, problem areas):

Plot is located along the side of the narrow ravine.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 Polystichum munitum	25	Herb	FACU
✓ 2 Ranunculus repens	25	Herb	FACW
✓ 3 Rubus discolor	40	Shrub	FACU
✓ 4 Rubus spectabilis	40	Shrub	FAC+

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 20

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Area sampled in delta deposits. Higher up in the ravine the vegetation is predominantly salmonberry. Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Data plot located within channel of ravine with distinct bed and bank. Saturation in the upper 12 inches satisfies the wetland hydrology criteria.

AR 047950

Parametrix, Inc.



Data Plot #: B4-A
 Wetland: B4

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/28/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-11	A	10YR 2/1	-	-	Loam with organics
11+	C	10YR 5/1	10YR 4/4	Few, Medium, Distinct	Loam with organics

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of hydric soils and wetland hydrology indicates this area is a wetland.

AR 047951

Parametrix, Inc.



Data Plot #: B4-B
 Wetland: B4 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/28/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: B4-B

Remarks (Explain sample location, disturbances, problem areas):

This is the upland plot next to flag B-4 F-16.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Acer circinatum</u>	<u>25</u>	<u>Shrub</u>	<u>FAC-</u>
✓ 2. <u>Oemlena cerasiformis</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 3. <u>Acer macrophyllum</u>	<u>60</u>	<u>Tree</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

33

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since less than 50% of the vegetation is hydrophytic, the wetland vegetation is not satisfied.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology are present.

AR 047952

Parametrix, Inc.



Data Plot #: B4-B
 Wetland: B4 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 7/28/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 2/1	-	-	Loam
5-13	B	10YR 3/3	-	-	Loam
13-18+	C	10YR 3/4	10YR 4/4	Few, Fine, Faint	Sandy loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color does not meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area is an upland since all wetland parameters are absent.

AR 047953

Parametrix, Inc.



Data Plot #: B11-A
 Wetland: B11

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: S. Rozenbaum and Wm Kleindl State: WA
 1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Field Plot ID: B66

Remarks (Explain sample location, disturbances, problem areas):

Wetland in borrow site. Area dominated by reed canary grass and, according to historical aerial photographs, no structures were placed on this section.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Herb</u>	<u>FACW</u>
2. <u>Rosa nutkana</u>	<u>T</u>	<u>Shrub</u>	<u>FAC-</u>
3. <u>Rubus discolor</u>	<u>5</u>	<u>Shrub</u>	<u>FACU</u>
4. <u>Populus balsamifera ssp. trichocarpa</u>	<u>T</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Area dominated by reed canarygrass. Since greater than 50 % of the dominant plants are hydrophytic, the wetland vegetation criteria is satisfied.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1.5 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation was present and wetland hydrology criteria was satisfied.

AR 047954

Parametrix, Inc.



Data Plot #: B11-A
 Wetland: B11

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 3/1	-	-	Loam
9-18+	B	2.5YR 5/1	10YR 4/6	Common, Coarse, Prominent	Gravelly sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Low chroma soil matrix with mottles satisfies the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047955

Parametrix, Inc.



Data Plot #: B11-B
 Wetland: B11 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: B66-B

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Paired upland plot for Wetland B11-A. Sample established on fill soils adjacent to B11-A

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>65</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Phalans arundinacea</u>	<u>15</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 2 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of soil saturation to surface and shallow water table satisfies the wetland hydrology criteria.

AR 047956

Parametrix, Inc.



Data Plot #: B11-B
 Wetland: B11 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	Fill	10YR 4/2	-	-	Gravelly sandy Loam (Fill)
8-13	Fill	2.5YR 4/3	7.5 YR 4/4	Few. Coarse. Distinct	Gravelly sandy Loam (fill)

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Compacted fill prevented digging below 12 inches. No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Soil is fill and non-hydric however the fill does perch water and the vegetation is disturbed. Following Corps guidance on fill within the borrow areas, this sample location is not a wetland.

AR 047957

Parametrix, Inc.



Data Plot #: B12-A
 Wetland: B12

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: b-65

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Plot established in a shallow ravine, draining westerly off the Port's property.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Athyrium filix-femina</u>	<u>30</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Polystichum munitum</u>	<u>30</u>	<u>Herb</u>	<u>FACU</u>
3. <u>Prunus laurocerasus</u>	<u>10</u>	<u>Shrub</u>	<u>NL</u>
✓ 4. <u>Acer circinatum</u>	<u>85</u>	<u>Tree</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
X Water Marks
X Drift Lines
X Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 2 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

The presence of inundation satisfies wetland hydrology criteria

AR 047958

Parametrix, Inc.



Data Plot #: B12-A
 Wetland: B12

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: Indianola Drainage Class: Somewhat excessively drained
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Dystric Xeropsamments Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-7	A	10YR 3/1	-	-	Silt loam
7-10	AB	10YR 3/1	10YR 4/4	Few, Fine, Distinct	Silt loam
10-18	B	2.5YR 5/2	10YR 4/4	Few, Medium, Distinct	Sandy Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):
Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
The presence of all three parameters indicate this area is a wetland.

AR 047959

Parametrix, Inc.



Data Plot #: B12-B
 Wetland: B12 Upland Plot

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Klendl State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Community ID: Upland
 Field Plot ID: b-65b

Remarks (Explain sample location, disturbances, problem areas):
Companion plot established in forested upland adjacent to Wetland B-12A.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Polystichum munitum</u>	<u>30</u>	<u>Herb</u>	<u>FACU</u>
2. <u>Ilex aquifolium</u>	<u>10</u>	<u>Shrub</u>	<u>UPL</u>
3. <u>Prunus laurocerasus</u>	<u>10</u>	<u>Shrub</u>	<u>NL</u>
✓ 4. <u>Rubus spectabilis</u>	<u>50</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 5. <u>Acer macrophyllum</u>	<u>50</u>	<u>Tree</u>	<u>FACU</u>
✓ 6. <u>Pseudotsuga menziesii</u>	<u>20</u>	<u>Tree</u>	<u>FACU</u>
✓ 7. <u>Tsuga heterophylla</u>	<u>30</u>	<u>Tree</u>	<u>FACU+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 20

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 _____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 _____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: B12-B
Wetland: B12 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: Indianola Drainage Class: Somewhat excessively drained
Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Dystric Xeropsamments Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	A	10YR 2/1	-	-	Sandy loam
5-18+	B	10YR 3/3	-	-	Sandy loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?
Hydric Soils Present? Yes No Yes No
Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

No wetland indicators are present.

AR 047961

Parametrix, Inc.

Data Plot #: B14-AWetland: B14

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan UpdateDate: 12/17/98Applicant/Owner: Port of SeattleCounty: KingInvestigator: William KleindlState: WA 1987 Method 1989 MethodCommunity ID: PEM/PSSDo Normal Circumstances exist on the site? Yes X No Field Plot ID: B57-AIs the site significantly disturbed (Atypical Situation)? Yes No XIs the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland B-14 is located within an old residential area. Aerial photographs show that the wetland has not been filled in the last 20 years.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1	<u>Juncus effusus</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2	<u>Phalaris arundinacea</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 3	<u>Ranunculus repens</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 4	<u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1 (in.)
Depth to Free Water in Pit: 0 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation is present, satisfying the wetland hydrologic criteria.

AR 047962

Parametrix, Inc.



Data Plot #: B14-A

Wetland: B14

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 12/17/98

SOILS

Soil Survey Data:

Map Unit Name: Indianola

Drainage Class: Somewhat excessively drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Dystric Xeropsamments

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A	10YR 2/1	-	-	Mucky loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No Is this Sampling Point Within a Wetland?

Hydric Soils Present? Yes No Yes No

Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047963

Parametrix, Inc.



Data Plot #: B14-B
 Wetland: B14 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/17/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindi State: WA
 1987 Method 1989 Method
 Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No
 Community ID: Upland
 Field Plot ID: B56-B

Remarks (Explain sample location, disturbances, problem areas):

Wetland B-14 upland comparison plot is located within an old residential area. Aerial photographs show that the wetland has not been filled in the last 20 years.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis gigantea</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Holcus lanatus</u>	<u>20</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Hypochaeris radicata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Vicia americana</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
✓ 5. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 6. <u>Alnus rubra</u>	<u>30</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

70

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

According to the Washington State Delineation Manual (Page 68, Step 13 (a)) areas that are dominated by FAC plants but lack wetland hydrology and hydric soils do not satisfy the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >10 (in.)
 Depth to Saturated Soil: >10 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
 No indicators of wetland hydrology are present.

AR 047964

Parametrix, Inc.



Data Plot #: B14-B
Wetland: B14 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/17/98

SOILS

Soil Survey Data:

Map Unit Name: Indianola Drainage Class: Somewhat excessively drained
Field Observations Confirm Mapped Type? Yes No NA

Taxonomy (Subgroup): Dystric Xeropsamments Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	Fill	10YR 3/3	10YR 7/3	Common, Fine, Distinct	Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color does not meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are absent.

AR 047965

Parametrix, Inc.



Data Plot #: B15a-A
 Wetland: B15a

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/16/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: B50-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland B-15 upland companson plot is located within an old residential area. Aerial photographs show that the wetland has not been filled in the last 20 years. Wetland B15 has 2 lobes separated by a narrow upland strp. The wetlands are similar.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1 <u>Rubus discolor</u>	<u>15</u>	<u>Shrub</u>	<u>FACU</u>
✓ 2 <u>Rubus spectabilis</u>	<u>60</u>	<u>Shrub</u>	<u>FAC+</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50 % of the vegetation is hydrophytic, the wetland plant criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
X Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 2 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Inundation is present, satisfying the wetland hydrologic criteria.

AR 047966

Parametrix, Inc.



Data Plot #: B15a-A
Wetland: B15a

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/16/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
Field Observations Confirm Mapped Type? Yes _____ No _____ NA X

Taxonomy (Subgroup): _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-13	A	10YR 2/1	-	-	Mucky loam

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol	_____ Listed on Local Hydric Soils List
_____ Histic Epipedon	_____ Listed on State Hydric Soils List
_____ Sulfidic Odor	_____ Listed on National Hydric Soils List
_____ Probable Aquic Moisture Regime	_____ Aquic Moisture Regime
_____ Reducing Conditions	_____ Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	_____ Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	_____ Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Black mucky soils with high organic content, soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047967

Parametrix, Inc.



Data Plot #: B15a-B
 Wetland: B15a Upland Plot

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/16/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: Upland
 Field Plot ID: B50-B

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
Paired plot with B15-A.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Polystichum munitum</u>	<u>30</u>	<u>Herb</u>	<u>FACU</u>
✓ 2. <u>Ilex aquifolium</u>	<u>30</u>	<u>Shrub</u>	<u>UPL</u>
✓ 3. <u>Rubus discolor</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Acer macrophyllum</u>	<u>30</u>	<u>Tree</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
The wetland vegetation criteria are not met since the area is dominated by non-wetland plants.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

- _____ Inundated
- _____ Saturated in Upper 12 inches
- _____ Saturated in Upper 18 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

- Secondary Indicators (2 or more required):
- _____ Oxidized Root Channels in Upper 12 inches
 - _____ Water-Stained Leaves
 - _____ Local Soil Survey Data
 - _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology present.

Parametrix, Inc.



Data Plot #: B15a-B
 Wetland: B15a Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 12/16/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	A	10YR 2/2	-	-	Fibric loam
3-9	B	7.5YR 3/3	-	-	Loam*
9+	C	7.5YR 3/4	-	-	Sandy loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
No indicator of hydric soils present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No **Is this Sampling Point Within a Wetland?**
 Hydric Soils Present? Yes No Yes No
 Wetland Hydrology Present? Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
This area is an upland since all wetland parameters are absent.

AR 047969

AR 047970

Parametrix, Inc.



Data Plot #: 30-A1
 Wetland: 30

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PFO/PSS
 Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: 30-A
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
Extension of EIS wetland #30.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Polystichum munitum</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 2.	<u>Urtica dioica</u>	<u>30</u>	<u>Herb</u>	<u>FAC+</u>
<input checked="" type="checkbox"/> 3.	<u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 4.	<u>Rubus spectabilis</u>	<u>60</u>	<u>Shrub</u>	<u>FAC+</u>
<input checked="" type="checkbox"/> 5.	<u>Salix spp</u>	<u>20</u>	<u>Shrub</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 6.	<u>Acer macrophyllum</u>	<u>30</u>	<u>Tree</u>	<u>FACU</u>
7.	<u>Alnus rubra</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>
8.	<u>Thuja plicata</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 60

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X _____ No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 _____ Inundated
X _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 12 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The soil is saturated within 12 inches of the surface, thus wetland hydrology criteria is met.

AR 047971

Parametrix, Inc.



Data Plot #: 30-A1
 Wetland: 30

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98

SOILS

Soil Survey Data:

Map Unit Name: Indianola Drainage Class: Somewhat excessively drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Dystric Xeropsamments Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	Oa	10YR 2/1	-	-	Sapnc
4-13	A1	10YR 2/1	-	-	Silt Organic
>13	C	10YR 4/1	-	-	Sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland

AR 047972

Parametrix, Inc.



Data Plot #: 30-A2
 Wetland: 30

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS
 Field Plot ID: 30-B

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Wetland plot along the extension of EIS wetland #30.

VEGETATION Dominant species are checked

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Equisetum telmateia</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 2. <u>Urtica dioica</u>	<u>25</u>	<u>Herb</u>	<u>FAC+</u>
<input checked="" type="checkbox"/> 3. <u>Rubus discolor</u>	<u>75</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 4. <u>Rubus spectabilis</u>	<u>25</u>	<u>Shrub</u>	<u>FAC+</u>
<u>Acer macrophyllum</u>	<u>10</u>	<u>Tree</u>	<u>FACU</u>
<u>Alnus rubra</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>
<u>Thuja plicata</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
X Saturated in Upper 12 inches
X Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >24 (in.)
 Depth to Saturated Soil: 12 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The soil is saturated within 12 inches of the surface, thus wetland hydrology criteria is met.

AR 047973

Parametrix, Inc.



Data Plot #: 30-A2
 Wetland: 30

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 6/15/98

SOILS

Soil Survey Data:

Map Unit Name: Indianola

Drainage Class: Somewhat excessively drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Dystic Xeropsamments

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-9	A	10YR 3/1	10YR 2/1	Few. Fine. Faint	Sandy loam
9-13	B1	10YR 3/1	10YR 4/3 and 10 R 2/1	Common. Medium. Distinct	Sandy loam
13-24	B2	10YR 3/1	N 3/1	Few. Fine. Prominent	Sandy loam
>24	C	10YR 5/1	5YR 4/4	Few. Fine. Distinct	Sand

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input checked="" type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047974



Data Plot #: B5-A
 Wetland: B5

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/4/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: PFO/PSS
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: B5-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Disturbed area with a well in the middle of the wetland. The area may have been farm site. On the northeast corner of 208th Ave. S and S. 12th St.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Galium aparine</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
✓ 2. <u>Ranunculus repens</u>	<u>60</u>	<u>Herb</u>	<u>FACW</u>
3. <u>Rumex crispus</u>	<u>1</u>	<u>Herb</u>	<u>FAC</u>
4. <u>Solanum dulcamara</u>	<u>10</u>	<u>Herb</u>	<u>FAC+</u>
5. <u>Salix spp</u>	<u>15</u>	<u>Shrub</u>	<u>FACW</u>
6. <u>Salix spp</u>	<u>15</u>	<u>Shrub</u>	<u>FACW</u>
✓ 7. <u>Spiraea douglasii</u>	<u>35</u>	<u>Shrub</u>	<u>FACW</u>
✓ 8. <u>Alnus rubra</u>	<u>45</u>	<u>Tree</u>	<u>FAC</u>
✓ 9. <u>Fraxinus latifolia</u>	<u>30</u>	<u>Tree</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50 % of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
X Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present. Hydrology was observed during winter of 98/99.

Parametrix, Inc.



Data Plot #: B5-A
 Wetland: B5

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 6/4/98

SOILS

Soil Survey Data:

Map Unit Name: Indianola

Drainage Class: Somewhat excessively drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Dystric Xeropsamments

Yes X No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-8	A	10YR 2/1	-	-	Mucky silt loam
8-17	B	2.5Y 4/2	10YR 3/4, 7.5YR 3/4	Many, Fine, Prominent	med & fine sandv loam
17	Oa	10YR 2/1	-	-	Muck (Sapric)

Hydric Soil Indicators:

<u> </u> Histosol	<u> </u> Listed on Local Hydric Soils List
<u> </u> Histic Epipedon	<u> </u> Listed on State Hydric Soils List
<u> </u> Sulfidic Odor	<u> </u> Listed on National Hydric Soils List
<u> </u> Probable Aquic Moisture Regime	<u> </u> Aquic Moisture Regime
<u> </u> Reducing Conditions	<u> </u> Organic Streaking in Sandy Soils
<u>X</u> Gleyed or Low-Chroma Colors	<u>X</u> Mottles
<u>X</u> High Organic Content in Surface Layer	<u> </u> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

B horizon has distinct iron depleted matrix with mottling. Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u> </u>	Is this Sampling Point Within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soils Present?	Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047976

Parametrix, Inc.



Data Plot #: B5-B
 Wetland: B5 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/4/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: B5-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Disturbed area with a well in the middle of the wetland. The area may have been farm site.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Polystichum munitum</u>	<u>2</u>	<u>Herb</u>	<u>FACU</u>
2. <u>Urtica dioica</u>	<u>8</u>	<u>Herb</u>	<u>FAC+</u>
3. <u>Corvus comuta</u>	<u>1</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Helix hederia</u>	<u>85</u>	<u>shrub</u>	<u>NL</u>
5. <u>Oemena cerasiformis</u>	<u>2</u>	<u>Shrub</u>	<u>FACU</u>
6. <u>Rubus discolor</u>	<u>1</u>	<u>Shrub</u>	<u>FACU</u>
7. <u>Rubus spectabilis</u>	<u>8</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 8. <u>Alnus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>
9. <u>Fraxinus latifolia</u>	<u>15</u>	<u>Tree</u>	<u>FACW</u>
✓ 10. <u>Prunus sp</u>	<u>20</u>	<u>Tree</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since only 50 % of the dominant vegetation is hydrophytic, the wetland vegetation is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

- Primary Indicators:
- Inundated
 - Saturated in Upper 12 inches
 - Saturated in Upper 18 inches
 - Water Marks
 - Drift Lines
 - Sediment Deposits
 - Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

AR 047977

Parametrix, Inc.



Data Plot #: B5-B
 Wetland: B5 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/4/98

SOILS

Soil Survey Data:

Map Unit Name: Indianola Drainage Class: Somewhat excessively drained
 Field Observations Confirm Mapped Type? Yes No X NA

Taxonomy (Subgroup): Dystric Xeropsammets Yes No X NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/1	-	-	Sandy loam
4-8	C	10YR 3/3	-	-	Sandy loam
8-17	Ab	10YR 2/1	-	-	Sandy loam
17-18	Bwb	2.5Y 4/2	10YR 3/4	Common, Fine, Distinct	Loamy sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Area does not meet hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
This area is an upland since all wetland parameters are absent.

AR 047978

Parametrix, Inc.



Data Plot #: B6-A
Wetland: B6

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/5/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method

Community ID: PSS

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: B6-A

Remarks (Explain sample location, disturbances, problem areas):

Disturbed soil horizon, and the site appears to have been much wetter in the past. This area may have been a former farm pond.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Maianthemum dilatatum</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Moss sp</u>	<u>25</u>	<u>Herb</u>	<u>NL</u>
✓ 3. <u>Rubus spectabilis</u>	<u>100</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 4. <u>Alnus rubra</u>	<u>35</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage

Aerial Photograph

Other
X
No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated

Saturated in Upper 12 inches

Saturated in Upper 18 inches

Water Marks

Drift Lines

Sediment Deposits

Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

X
Oxidized Root Channels in Upper 12 inches

Water-Stained Leaves

Local Soil Survey Data
X
Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is frequently absent from wetlands during the dry summer months. Based on the presence of wetland vegetation and hydric soil the wetland hydrology criteria is assumed to be present. Hydrology was observed during winter of 98/99

AR 047979

Parametrix, Inc.



Data Plot #: B6-A
 Wetland: B6

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 6/5/98

SOILS

Soil Survey Data:

Map Unit Name: Indianola

Drainage Class: Somewhat excessively drained

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): Dystric Xeropsamments

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
9-6	O _i	10YR 2/1	-	-	Duff
6-0	O _e	10YR 2/1	-	-	Decomposed duff
0-9	A	10YR 2/1	-	-	Organic rich silt
9+	B	10YR 2/1	7.5YR 3/3	Few, Coarse, Distinct	Silt

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Organic rich topsoil with oxidized rhizospheres in B horizon. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Hydrology assumed due dry season sampling and no recent precipitation events. Wetland determination made on vegetation and soils.

AR 047980

Parametrix, Inc.



Data Plot #: B9-A
Wetland: B9

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PFO, PEM
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: B9-A
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Wetland is bisected by a road.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>
2. <u>Epilobium ciliatum</u>	<u>10</u>	<u>Herb</u>	<u>FACW-</u>
✓ 3. <u>Galium aparine</u>	<u>30</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Ranunculus repens</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
5. <u>Rumex crispus</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
✓ 6. <u>Acer macrophyllum</u>	<u>20</u>	<u>Tree</u>	<u>FACU</u>
✓ 7. <u>Alnus rubra</u>	<u>20</u>	<u>Tree</u>	<u>FAC</u>
8. <u>Salix spp</u>	<u>10</u>	<u>Tree</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50 % the plant community is hydrophytic, therefore the wetland plant criteria is satisfied.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
X Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 2 (in.)
Depth to Free Water in Pit: 0 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Inundation is present, satisfying the wetland hydrologic criteria

AR 047981

Parametrix, Inc.



Data Plot #: B9-A
 Wetland: B9

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98

SOILS

Soil Survey Data:

Map Unit Name: Indianaola Drainage Class: Somewhat excessively drained
 Field Observations Confirm Mapped Type? Yes No NA

Taxonomy (Subgroup): Dystric Xeropsammets Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-11	Oa	10YR 2/1	-	-	Sapric Muck
>11	C	10YR 6/2	10YR 3/2	Few, Fine, Distinct	Sand

Hydric Soil Indicators:

<input checked="" type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047982

Parametrix, Inc.



Data Plot #: B9-B
 Wetland: B9 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: B8&9
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Paired upland plot for Wetland B9 and the Wetland 30 extension.

VEGETATION Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
1.	<u>Polystichum munitum</u>	<u>10</u>	<u>Herb</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 2.	<u>Ilex aquifolium</u>	<u>40</u>	<u>Shrub</u>	<u>UPL</u>
<input checked="" type="checkbox"/> 3.	<u>Prunus emarginata (s)</u>	<u>20</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 4.	<u>Rubus discolor</u>	<u>75</u>	<u>Shrub</u>	<u>FACU</u>
<input checked="" type="checkbox"/> 5.	<u>Spiraea douglasii</u>	<u>25</u>	<u>Shrub</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 6.	<u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>
7.	<u>Sorbus aucupana</u>	<u>10</u>	<u>Tree</u>	<u>UPL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 40

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present

AR 047983

Parametrix, Inc.



Data Plot #: B9-B
 Wetland: B9 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/2	-	-	Loam
4-20	B	10YR 4/3	10YR 7/4	Few, Medium, Distinct	Silt loam
>24	C	10YR 5/4	-	-	Fine sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
No indicators of hydric soil are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
This area is an upland since all wetland parameters are absent.

AR 047984



Data Plot #: B10-A
 Wetland: B10

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: B10-A
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Seep from the toe of slope. Joins easterly approximately 100 feet to sand lens.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Equisetum telmateia</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Hedera helix</u>	<u>20</u>	<u>Herb</u>	<u>NL</u>
3. <u>Rubus discolor</u>	<u>15</u>	<u>Shrub</u>	<u>FACU</u>
✓ 4. <u>Rubus spectabilis</u>	<u>20</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 5. <u>Acer saccharinum</u>	<u>30</u>	<u>Tree</u>	<u>NL</u>
✓ 6. <u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC+). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 75

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
X Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1.0 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Inundation is present satisfying wetland criteria.

Parametrix, Inc.



Data Plot #: B10-A
 Wetland: B10

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 6/15/98

SOILS

Soil Survey Data:

Map Unit Name: Urban

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	Oa	10YR 2/1	-	-	Sapnc
4-5	Cg	10YR 5/1	-	-	Loam
>5	C	10YR 5/4	10YR 5/1	Common, Medium, Distinct	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes No

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes No

Yes No

Wetland Hydrology Present?

Yes No

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047986

Parametrix, Inc.



Data Plot #: B10-B
 Wetland: B10 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Klerndl State: WA
 1987 Method 1989 Method Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Field Plot ID: B10-B

Remarks (Explain sample location, disturbances, problem areas):
Upland area pair plot.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Hedera helix</u>	<u>30</u>	<u>Herb</u>	<u>NL</u>
✓ 2. <u>Ilex aquifolium</u>	<u>20</u>	<u>Shrub</u>	<u>UPL</u>
✓ 3. <u>Rubus spectabilis</u>	<u>95</u>	<u>Shrub</u>	<u>FAC+</u>
✓ 4. <u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>
✓ 5. <u>Arbutus menziesii</u>	<u>80</u>	<u>Tree</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 20

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
The wetland vegetation criteria are not met since the area is dominated by non-wetland plants.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 _____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 _____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No indicators of wetland hydrology are present.

Parametrix, Inc.



Data Plot #: B10-B
 Wetland: B10 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/15/98

SOILS

Soil Survey Data:

Map Unit Name: Urban Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No X NA _____

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/2	-	-	Sandy loam
4-9	C1	10YR 6/4	-	-	Sand
>9	C2	10YR 5/3	-	-	Clay Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil colors indicate area is well drained.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
This area is an upland since all wetland parameters are absent.

AR 047988

Parametrix, Inc.



Data Plot #: 28-A1
 Wetland: 28

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes X No

Field Plot ID: G3-A

Remarks (Explain sample location, disturbances, problem areas):
Plot located on western section of the Tyee Valley Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Festuca arundinacea</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Other unknown grasses. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: surface (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Indicators of wetland hydrology present

AR 047990

Parametrix, Inc.



Data Plot #: 28-A1
 Wetland: 28

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	O	10YR 2/1	-	-	Muck

Hydric Soil Indicators:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Organic peat with ash layer at 8 inches. Hydric soils are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
All three wetland parameters are present, therefore the area was delineated as a wetland.

AR 047991

Parametrix, Inc.



Data Plot #: 28-A2
Wetland: G1

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99
Applicant/Owner: Port of Seattle County: King
Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes X No

Field Plot ID: G1-A

Remarks (Explain sample location, disturbances, problem areas):

Plot located on western section of the Tyee Valley Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Festuca arundinacea</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Other unknown grasses. A row of cottonwood is present within wetland. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: surface (in.)
Depth to Free Water in Pit: 0 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland Hydrology is present

AR 047992

Parametrix, Inc.



Data Plot #: 28-A2
Wetland: G1

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18+	O	10YR 2/1	-	-	Muck

Hydric Soil Indicators:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Histosol | _____ Listed on Local Hydric Soils List |
| _____ Histic Epipedon | _____ Listed on State Hydric Soils List |
| _____ Sulfidic Odor | _____ Listed on National Hydric Soils List |
| _____ Probable Aquic Moisture Regime | _____ Aquic Moisture Regime |
| _____ Reducing Conditions | _____ Organic Streaking in Sandy Soils |
| _____ Gleyed or Low-Chroma Colors | _____ Mottles |
| _____ High Organic Content in Surface Layer | _____ Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Organic peat with ash layer at 6 inches. Hydric soil indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are present and therefore area was delineated as a wetland.

AR 047993

Parametrix, Inc.



Data Plot #: 28-A3

Wetland: G2

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 1/18/99

Applicant/Owner: Port of Seattle

County: King

Investigator: William Kleindi

State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: G2-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes X No

Remarks (Explain sample location, disturbances, problem areas):

Plot located on western section of the Tyee Valley Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Festuca arundinacea</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- X Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: surface (in.)
Depth to Free Water in Pit: 0 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology is present

AR 047994

Parametrix, Inc.



Data Plot #: 28-A3
 Wetland: G2

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	O	10YR 4/1	-	-	Clay Loam
4-10	A	10YR 3/1	-	-	Clay Loam
10-18+	C	10YR 5/1	10YR 3/1	Many, Medium Distinct	Clay

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Hydric Soil Indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are present and therefore area was delineated as a wetland.

AR 047995



Data Plot #: 28-B
 Wetland: 28 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA
 1987 Method 1989 Method

Community ID: Upland
 Field Plot ID: G3-B

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes X No

Remarks (Explain sample location, disturbances, problem areas):
Upland comparison plot located on eastern section of the Tyee Valley Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Poa pratensis</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Other unknown grasses within the golf course grasses. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

- Inundated
- Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No wetland hydrology is present

Parametrix, Inc.



Data Plot #: 28-B
 Wetland: 28 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-3	O	10YR 3/2	-	-	Fibric/ Sandy Loam
3-6	A1	10YR 3/2	-	-	Sandy Loam
6-7	Cb	2.5YR 5/2	-	-	Loamy Sand
7-15	A2	10YR 3/2	-	-	Cobbly Gravelly Loam
15+	B	10YR 4/4	-	-	Gravelly Loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No hydric soil indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Although the grass planted in the upland area of the golf course is adapted for wetter soils, no other wetland indicators are present and therefore the area is not a wetland.

AR 047997

Parametrix, Inc.



Data Plot #: 52-A1
 Wetland: 52

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: M. Louthier, C. Anteau State: WA
 1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Field Plot ID: TA-D

Remarks (Explain sample location, disturbances, problem areas):

Data plot is marked in field as TA-D. Boundary flagging is marked "A-1 to A-24" in the Tyee Golf Course. This data plot is located in an active golf course (the Tyee Golf Course) and connects to Wetland 52 that was previously delineated by others.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>90</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Festuca arundinacea</u>	<u>T</u>	<u>Herb</u>	<u>FAC</u>
✓ 3. <u>Juncus effusus</u>	<u>25</u>	<u>Herb</u>	<u>FACW</u>
4. <u>Scirpus acutus</u>	<u>T</u>	<u>Herb</u>	

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50 % of the vegetation is hydrophytic, the wetland plant criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0-2 (in.)
 Depth to Free Water in Pit: 3 (in.)
 Depth to Saturated Soil: surface (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Indicators of wetland hydrology are present

Parametrix, Inc.



Data Plot #: 52-A1

Wetland: 52

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 3/2	-	-	gravely sandy loam
4-9	B	N 3/1	-	-	Silt. Sand
9-15	B	N 3/1	10YR 5/4	Few, Fine, Prominent	Silt. sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and observation of indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 047999

Parametrix, Inc.



Data Plot #: 52-A2
Wetland: 52

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
Applicant/Owner: Port of Seattle County: King
Investigator: M. Louthier, C. Anteau State: WA
 1987 Method 1989 Method

Community ID: PEM
Field Plot ID: TB4-A

Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Mown. This wetland connects to the large wetland associated with Des Moines Creek (Wetland 52) in Tyee Golf Course; that wetland was delineated by others. This plot is labeled as TB4A in the field. This data plot is located in an active golf course and connects to Wetland 52 that was previously delineated by others.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Agrostis sp (cf tenuis)</u>	<u>100</u>	<u>Herb</u>	<u>FAC</u>
2 <u>Bellis perennis</u>	<u>T</u>	<u>Herb</u>	<u>NL</u>
3 <u>Glycena grandis</u>	<u>T</u>	<u>Herb</u>	<u>OBL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Ponded area downslope with patch of closed-sheath grass, probably Glycena sp. Since less than 50 % of the vegetation is hydrophytic, the wetland plant criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

____ Stream, Lake, or Tide Gage
____ Aerial Photograph
____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
____ Saturated in Upper 18 inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 3 (in.)
Depth to Free Water in Pit: >18 (in.)
Depth to Saturated Soil: 8 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Zone of saturation strongly mottled with abundant oxidized rhizospheres. Indicators of wetland hydrology are present

AR 048000

Parametrix, Inc.



Data Plot #: 52-A2

Wetland: 52

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____

Yes _____ No _____ NA _____ X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/2	-	-	sandy silt
4-6	E	10YR 3/2	10YR 3/6	Common, Medium, Faint	sandy silt
6-33	B	Gley N 4/1	-	Few, Fine, Faint	sandy silt

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and observation of indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

Yes X No _____

Is this Sampling Point Within a Wetland?

Hydric Soils Present?

Yes X No _____

Yes X No _____

Wetland Hydrology Present?

Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 048001

Parametrix, Inc.



Data Plot #: 52-B
Wetland: _____

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
Applicant/Owner: Port of Seattle County: King
Investigator: C. Antreau State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No _____

Field Plot ID: 52-B

Is the site significantly disturbed (Atypical Situation)? Yes _____ No X

Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

Located in the Tyee Golf Course. Vegetation was not mowed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Agrostis capillans (tenuis)</u>	<u>100</u>	<u>Herb</u>	<u>FAC</u>
2 <u>Equisetum telmateia</u>	<u>5</u>	<u>Herb</u>	<u>FACW</u>
3 <u>Festuca arundinacea</u>	<u>Trace</u>	<u>Herb</u>	<u>FAC</u>
4 <u>Festuca pratensis</u>	<u>Trace</u>	<u>Herb</u>	<u>FACU+</u>
5 <u>Hypochaeris radicata</u>	<u>Trace</u>	<u>Herb</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

According to the Washington State Delineation Manual (Page 68, Step 13 (a)) areas that are dominated by FAC plants but lack wetland hydrology and hydric soils do not satisfy the wetland vegetation criteria.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
_____ Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0 (in.)
Depth to Free Water in Pit: >14 (in.)
Depth to Saturated Soil: >14 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No evidence of hydrology is present.

AR 048002

Parametrix, Inc.



Data Plot #: 52-B
Wetland: _____

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-14	A	10YR 3/3	-	-	Sandy silt

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No evidence of hydric soils are present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three wetland parameters are absent.

AR 048003

Parametrix, Inc.



Data Plot #: G2-A
Wetland: G2

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
Applicant/Owner: Port of Seattle County: King
Investigator: M. Louther, C. Anteau State: WA
 1987 Method 1989 Method

Community ID: PEM
Field Plot ID: TB2-A

Do Normal Circumstances exist on the site? Yes X No
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Small seep area below the Tye Golf Course clubhouse. This is a rectangular wetland. This is a small wetland with 5 flags. It is labeled as "TB-2" in the field.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis tenuis</u>	<u>60</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Bellis perennis</u>	<u>10</u>	<u>Herb</u>	<u>NL</u>
3. <u>Hypochaeris radicata</u>	<u>1</u>	<u>Herb</u>	<u>FACU</u>
✓ 4. <u>Juncus sp. (seedlings)</u>	<u>50</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Moss present in trace amounts. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0-1 (in.)
Depth to Free Water in Pit: >4 (in.)
Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Seep area on slope above green. Saturated 0-10" Oxidized rhizospheres with living root in B sand layer

AR 048004

Parametrix, Inc.



Data Plot #: G2-A
 Wetland: G2

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/2	-	-	Silty sand
4-10	B	N 4/1	10YR 3/4	Few, Fine, Distinct	Coarse sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters present, therefore the area is a wetland.

AR 048005

Parametrix, Inc.



Data Plot #: G2-B
Wetland: G2 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
Applicant/Owner: Port of Seattle County: King
Investigator: M. Louthier, C. Anteau State: WA
 1987 Method 1989 Method

Community ID: Upland
Field Plot ID: TB2-B
Do Normal Circumstances exist on the site? Yes X No _____
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

This is an upland plot located near wetland GB-2, in the Tye Golf Course. The plot in field is GB-2.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
<input checked="" type="checkbox"/> 1. <u>Agrostis capillans (tenuis)</u>	<u>80</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Bellis perennis</u>	<u><15</u>	<u>Herb</u>	<u>NL</u>
<input checked="" type="checkbox"/> 3. <u>Hypochaeris radicata</u>	<u>40</u>	<u>Herb</u>	<u>FACU</u>
4. <u>Plantago lanceolata</u>	<u>†</u>	<u>Herb</u>	<u>FACU+</u>
5. <u>Taraxacum officinale</u>	<u>†</u>	<u>Herb</u>	<u>FAC-</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "†" indicates trace.

50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Moss (100%) underlain with other vegetation. Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

____ Stream, Lake, or Tide Gage
____ Aerial Photograph
____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

____ Inundated
X Saturated in Upper 12 inches
____ Saturated in Upper 18 inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: >8 (in.)
Depth to Saturated Soil: >8 (in.)

Secondary Indicators (2 or more required):

____ Oxidized Root Channels in Upper 12 inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No hydrological indicators present

AR 048006

Parametrix, Inc.



Data Plot #: G2-B
 Wetland: G2 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 3/2	-	-	Silty sand
5-8	B	2.5Y 4/3	-	-	sand w/cobble

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No low chroma. No water. Abundant cobble can not dig below 8 inches. No hydric soil indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters absent, therefore the area is not a wetland

AR 048007

Parametrix, Inc.



Data Plot #: G4-A
 Wetland: G4

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: M. Louthier, C. Anbeau State: WA
 1987 Method 1989 Method

Community ID: PEM
 Field Plot ID: TD-A

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes X No

Remarks (Explain sample location, disturbances, problem areas):
Located in the Tyee Valley Golf Course area. Vegetation was not mowed.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Agrostis capillans (tenuis)</u>	<u>80</u>	<u>Herb</u>	<u>FAC</u>
2 <u>Belis perennis</u>	<u>t</u>	<u>Herb</u>	<u>NL</u>
✓ 3 <u>Festuca arundinacae</u>	<u>50</u>	<u>Herb</u>	<u>FAC</u>
4 <u>Hypochaeris radicata</u>	<u>t</u>	<u>Herb</u>	<u>FACU</u>
5 <u>Trifolium repens</u>	<u>t</u>	<u>Herb</u>	<u>FAC-</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "t" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Other unknown grasses. A large cottonwood is present to south of wetland. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: surface (in.)
 Depth to Free Water in Pit: 4 (in.)
 Depth to Saturated Soil: surface (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Saturated to bottom of hole (11") Water pounng in from sides and top. Water ponding on surface to approx. 1 inch, therefore wetland hydrology is present

Parametrix, Inc.



Data Plot #: G4-A
 Wetland: G4

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-4	A	10YR 2/2	-	-	gravelly sand loam
4-	B	10YR 3/2	10YR 3/6	Few. Faint, Distinct	Sandy loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input checked="" type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Most roots in 4 inch surface. Oxidized roots channels below 4 inches. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters present, therefore the area is a wetland

AR 048009

Parametrix, Inc.



Data Plot #: G4-B
 Wetland: G4 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: M. Louthier, C. Anteau State: WA
 1987 Method 1989 Method

Community ID: Upland
 Field Plot ID: TD-B
 Do Normal Circumstances exist on the site? Yes X No _____
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
Located in the Tyee Valley Golf Course area.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Agrostis capillans (tenuis)</u>	<u>80</u>	<u>Herb</u>	<u>FAC</u>
✓ 2 <u>Festuca arundinaceae</u>	<u>30</u>	<u>Herb</u>	<u>FAC</u>
3 <u>Hypochaeris radicata</u>	<u>†</u>	<u>Herb</u>	<u>FACU</u>
4 <u>Plantago lanceolata</u>	<u>†</u>	<u>Herb</u>	<u>FACU+</u>
5 <u>Trifolium pratense</u>	<u>†</u>	<u>Herb</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (†) as showing morphological adaptations to wetlands. "†" indicates trace.

50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Test pit is located in an abandoned "driveway" area; some compaction, but soils dry. Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
 _____ Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >18 (in.)
 Depth to Saturated Soil: >18 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Soil dry, no water in pit

AR 048010

Parametrix, Inc.



Data Plot #: G4-B
Wetland: G4 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation (Munsell Moist)	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 3/3	-	-	gravelly sand loam
10-18	B	2.5Y 3/3	10YR 3/4	Few. Fine. Distinct	gravelly sand loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Compacted layer below 10 inches. Abundant cobble. Soil color and other hydric soil indicators meet the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes _____ No <u>X</u>	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters absent, therefore the area is not a wetland.

AR 048011

Parametrix, Inc.



Data Plot #: G5-A1
 Wetland: G5

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: M. Louthier, C. Anteau State: WA
 1987 Method 1989 Method

Community ID: PEM
 Field Plot ID: T-3-2
 Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes X No

Remarks (Explain sample location, disturbances, problem areas):
This data plot is in the Tyee Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Agrostis capillans (tenuis)</u>	<u>90</u>	<u>Herb</u>	<u>FAC</u>
✓ 2 <u>Bellis perennis</u>	<u>30</u>	<u>Herb</u>	<u>NL</u>
✓ 3 <u>Hypochaeris radicata</u>	<u>20</u>	<u>Herb</u>	<u>FACU</u>
4 <u>Juncus effusus</u>	<u><1</u>	<u>Herb</u>	<u>FACW</u>
5 <u>Prunella vulgaris</u>	<u><5</u>	<u>Herb</u>	<u>FACU+</u>
✓ 6 <u>Ranunculus repens</u>	<u>50</u>	<u>Herb</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Carex obnupta at outer edge of plot. Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0 (in.)
 Depth to Free Water in Pit: 10 (in.)
 Depth to Saturated Soil: 0-3 10-14 (in.)

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Soil saturated from 0 to 3 inches and below 10 inches, therefore wetland hydrology is present.

AR 048012

Parametrix, Inc.



Data Plot #: G5-A1
 Wetland: G5

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	A	10YR 2/1	-	-	gravelly sand loam
6-11	B	10YR 2/1	-	-	gravelly sand loam
11-14	C	10YR 3/2	10YR 3/6	Common, Medium, Distinct	Silty sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Live roots and oxidized root zones from 0 to 11 inches. Below 11 inches soil mixed (tilled?). slight sulfidic odor. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

All three parameters present, therefore the area is a wetland.

AR 048013

Parametrix, Inc.



Data Plot #: G5-A2
 Wetland: G5

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: M. Louthier, C. Anteau State: WA

1987 Method 1989 Method

Community ID: PEM

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: T-3-4

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes X No

Remarks (Explain sample location, disturbances, problem areas):

(Transect 3 Plot 4 @ 148 ft.) in Tyee Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 <u>Agrostis capillans (tenuis)</u>	<u>100</u>	<u>Herb</u>	<u>FAC</u>
✓ 2 <u>Bellis perennis</u>	<u>30</u>	<u>Herb</u>	<u>NL</u>
3 <u>Hypochaeris radicata</u>	<u>T</u>	<u>Herb</u>	<u>FACU</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Moss - 5%. Turf grass. Vegetation community disturbed from golf course activities. Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: none (in.)
 Depth to Free Water in Pit: 5 (in.)
 Depth to Saturated Soil: at 5 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

At 5 to 10 inches water beginning to pour into hole, therefore wetland hydrology is present

AR 048014

Parametrix, Inc.



Data Plot #: G5-A2
 Wetland: G5

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/1	-	-	sandy silt
10-15	B	5Y 3/1	-	-	Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

High organic content in upper artificial top soil. Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Vegetation meets technical criteria of the ACOE 1987 Wetland Delineation Manual 35,b.(1). Strong soil and wetland hydrology present.

AR 048015

Parametrix, Inc.



Data Plot #: G5-B
Wetland: G5 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99
Applicant/Owner: Port of Seattle County: King
Investigator: M. Louthier, C. Anteau State: WA
 1987 Method 1989 Method

Community ID: Upland
Do Normal Circumstances exist on the site? Yes No
Is the site significantly disturbed (Atypical Situation)? Yes No
Is the area a potential Problem Area? Yes No
Field Plot ID: T1-1

Remarks (Explain sample location, disturbances, problem areas):

Transect 1 Plot 1 in Tyee Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis sp.</u>	<u>25</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Bellis perennis</u>	<u><2</u>	<u>Herb</u>	<u>NL</u>
✓ 3. <u>Poa sp.</u>	<u>25</u>	<u>Herb</u>	<u>NL</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

This is a constructed golf course with drainage features. Vegetation is seeded turf species. Since only 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 0 (in.)
Depth to Free Water in Pit: 10 (in.)
Depth to Saturated Soil: 10 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Groundwater flowed into hole approx. 10"; perhaps through a mole hole

AR 048016

Parametrix, Inc.



Data Plot #: G5-B
 Wetland: G5 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/18/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-5	A	10YR 2/2	-	-	Sandy silt loam
5-10	B	10YR 3/6	-	-	Silty sand
10-		10YR 2/2	-	-	Silty sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

No odor; lots of bark and wood chips in soil profile. No hydric soil indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Soil highly disturbed. This plot is located just outside wetland boundary.

AR 048017

Parametrix, Inc.



Data Plot #: G7-A
 Wetland: G7

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/23/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: K. Dunkin, M. Louther State: WA
 1987 Method 1989 Method

Community ID: PSS/PFO

Do Normal Circumstances exist on the site? Yes No
 Is the site significantly disturbed (Atypical Situation)? Yes No
 Is the area a potential Problem Area? Yes No

Field Plot ID: DpS2

Remarks (Explain sample location, disturbances, problem areas):

This plot is located in Wetland G7 (flagged in the field as Wetland S/SS), south of the Tye Golf Course.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 Agrostis capillans (tenuis)	65	Herb	FAC
2 Holcus lanatus	1	Herb	FAC
3 Hypochaeris radicata	2	Herb	FACU
✓ 4 Juncus effusus	25	Herb	FACW
5 Alnus rubra (s)	5	Shrub	FAC
✓ 6 Populus balsamifera ssp. trichocarpa (s)	35	Shrub	FAC
7 Rubus discolor	5	Shrub	FACU

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 1-2 (in.)
 Depth to Free Water in Pit: none (in.)
 Depth to Saturated Soil: 0-6 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Patches of standing water in the northern portion of the wetland, to south soil is saturated in upper part. There is an excavated drainage ditch along the eastern portion of the wetland

AR 048018

Parametrix, Inc.



Data Plot #: G7-A
 Wetland: G7

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/23/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-12	A	5GY 6/1	5Y 4/2, 7.5YR 5/6	Common, Medium, Distinct	gravelly sand loam
12-15	B	2.5Y 5/3	7.5Y 5/4, 7.5YR 5/4	Common, Medium, Distinct	gravelly clay loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input checked="" type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

0-12 inches is saturated, below 12 inches soils very moist. Hydric soil indicators present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This data plot is located near flags SS1 and S1 near northern portion of wetland. All three wetland parameters present, therefore the area is a wetland

AR 048019

Parametrix, Inc.



Data Plot #: G7-B
Wetland: G7 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/23/99
Applicant/Owner: Port of Seattle County: King
Investigator: K. Dunkin, M. Louthier State: WA
 1987 Method 1989 Method

Community ID: Upland
Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: DpS1
Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):

This area is located where the wetland was a gravel/borrow pit. Lots of water coming off the hill slope. Data Plot #S-1 is located west of flags S-25 and SS 16, wetland renamed as Wetland E4. Other upland vegetation not in plot included A. menziesii.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>30</u>	<u>Herb</u>	<u>FAC</u>
✓ 2. <u>Cytisus scoparius</u>	<u>25</u>	<u>Shrub</u>	<u>NL</u>
3. <u>Rubus discolor</u>	<u>10</u>	<u>Shrub</u>	<u>FACU</u>
4. <u>Alnus rubra</u>	<u>10</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since only 50% of the plants are hydrophytic, the wetland plant criteria is not satisfied

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
_____ Aerial Photograph
_____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

_____ Inundated
_____ Saturated in Upper 12 inches
_____ Saturated in Upper 18 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No saturated, no standing water

AR 048020

Parametrix, Inc.



Data Plot #: G7-B
 Wetland: G7 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 3/23/99

SOILS

Soil Survey Data:

Map Unit Name: unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 4/3	-	-	gravelly sand loam
12-16	B	10YR 4/4	-	-	gravelly loam sand

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

No hydric indicators present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Hydric Soils Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This plot is located in a typical upland area.

AR 048021

Parametrix, Inc.



Data Plot #: WH-A
 Wetland: WH

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl, Pat Tougher State: WA
 1987 Method 1989 Method

Community ID: PEM
 Field Plot ID: WH-A

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
The site is located near the southeast corner of Tyee Valley Golf Course

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1 Mowed Golf Lawn	100	Herb	NL

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 0

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since less than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is not met. Grass species could not be identified due to recent mowing.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
 No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >15 (in.)
 Depth to Saturated Soil: >15 (in.)

Secondary Indicators (2 or more required):

Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Based on the presence of hydric soil, the wetland hydrology criteria is assumed to be present. An inundated pond is located in the center of the wetland. Data plot was taken about 3 feet above the elevation of the pond. Area was observed flooded in the winter of 1999-2000.

AR 048022

Parametrix, Inc.



Data Plot #: WH-A
 Wetland: WH

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 11/1/00

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type? _____

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-9	A	10YR 4/2	-	-	Gravelly Loam (fill)
9-13+	B	10YR 3/2	2.5Y 5/1	Many, Coarse, Distinct	Gravelly Loam w/ ORZ
13-18+	Bii	10YR 4/2	2.5Y 6/1	Common, Coarse, Distinct	Gravelly Loam (fill)

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria. Soils on the site were disturbed by golf course construction.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland? Yes <u>X</u> No _____
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Vegetation meets technical criteria of the ACOE 1987 Wetland Delineation Manual 35.b.(1).

AR 048023

Data Sheet For Wetland DMC From the *SR509/South Access Road EIS Wetlands Discipline Report* (CH2Mhill, 2000). Data was collected by Shapiro and Associates, Inc. and reported in the above report as Wetland G.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6973020
Project/Site: SR 509 / Wetland G
Field Investigator(s): RP, JC

Date: 10/2/98
Sample Plot #: SPG6

SOILS

SCS Mapping Unit: Urban
Field Identification: no
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
			10YR 2.5/2	faint	few	none	

Landform/Topography:

Comments:

Hydric Soils? **yes** Basis: low chroma

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit: none

Surface water depth: none
Depth to saturation: none

- Yes No -Oxidized root zones
- Yes No -Water marks
- Yes No -Drift lines
- Yes No -Water-borne sediment deposits

- Yes No -Water-stained leaves
- Yes No -Surface scoured areas
- Yes No -Wetland drainage patterns
- Yes No -Morphological plant adaptations

Comments:

Wetland Hydrology? **yes** Basis: hydrology assumed

SUMMARY

Do normal environmental conditions exist at the plant community? **yes**
Has the vegetation, soils, and/or hydrology been significantly disturbed? **no**
Disturbed area? **yes** Basis: Vegetation maintained as golf course fairway
Problem area? **no** Basis:

Comments: Wetland determination based on hydric soils (histosol and low chroma soils) and indicators of wetland hydrology

- Is the hydrophytic vegetation criterion met?
- Is the hydric soil criterion met? **yes**
- Is the wetland hydrology criterion met? **yes**
- Is the vegetation unit or plot wetland? **yes**

Rationale for jurisdictional decision: Presences of hydric soils and wetland hydrology
Atypical vegetation was not used in determination

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**



Project/Site: SR 509 / Wetland G
Field Investigator(s): RP, JC

Sample Plot #: SPG6
Date: 10/2/98

Sp Code	Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
	<i>mowed grass</i>		100	7	98.0	1
pima	<i>Plantago major</i>	FACU+	10	2	10.5	2

Sum of Midpoints: 108.5
Dominance Threshold: 54.3

Sp Code	Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

Sp Code	Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

Sp Code	Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

% of Dominants that are OBL, FACW, and/or FAC:
Hydrophytic Vegetation?

Comments: atypical vegetation, Vegetation maintained as golf course fairway
Vegetation would revert to hydrophytic vegetation if golf course maintenance were stopped.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

Parametrix, Inc.



Data Plot #: IWSa-A
 Wetland: IWSa

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/16/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindi and Knstie Dunkin State: WA
 1987 Method 1989 Method

Community ID: PFO
 Field Plot ID: IWSa-A

Do Normal Circumstances exist on the site? Yes X No
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Wetland located north of the IWS Lagoon.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Rubus discolor</u>	<u>30</u>	<u>Shrub</u>	<u>FACU</u>
✓ 2. <u>Alnus rubra</u>	<u>40</u>	<u>Tree</u>	<u>FAC</u>
✓ 3. <u>Populus tremuloides</u>	<u>60</u>	<u>Tree</u>	<u>FAC+</u>
✓ 4. <u>Rhamnus purshiana</u>	<u>25</u>	<u>Tree</u>	<u>FAC-</u>
✓ 5. <u>Salix sitchensis</u>	<u>25</u>	<u>Tree</u>	<u>FACW</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 80

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):
 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:

 Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: 8 (in.)
 Depth to Saturated Soil: Surface (in.)

Secondary Indicators (2 or more required):
 Oxidized Root Channels in Upper 12 inches
X Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Wetland hydrology present. Slight buttressing on the trees were observed.

Parametrix, Inc.



Data Plot #: IWSa-A
 Wetland: IWSa

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/16/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	A	10YR 3/2	-	-	Course Sandy Loam
2-10+	B	2.5Y 5/1	10YR 4/6	Many. Coarse. Distinct	Course Sandy Loam

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input checked="" type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input checked="" type="checkbox"/> Mottles |
| <input checked="" type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):

Low chroma soil matrix with mottles satisfies the hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Wetland Delineated on changes in hydrology

AR 048029

Parametrix, Inc.



Data Plot #: IWSb-A

Wetland: IWSb

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 6/16/99

Applicant/Owner: Port of Seattle

County: King

Investigator: William Kleindl and Kriste Dunkin

State: WA

1987 Method 1989 Method

Community ID: PFO

Do Normal Circumstances exist on the site? Yes X No

Field Plot ID: IWSb-A

Is the site significantly disturbed (Atypical Situation)? Yes No X

Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

Wetland located north of the IWS Lagoon.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1	<u>Equisetum telmateia</u>	<u>20</u>	<u>Herb</u>	<u>FACW</u>
✓ 2	<u>Ainus rubra</u>	<u>95</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.

100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since 100 of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

- Stream, Lake, or Tide Gage
- Aerial Photograph
- Other
- No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

- Inundated
- X Saturated in Upper 12 inches
- Saturated in Upper 18 inches
- X Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: 11 (in.)
Depth to Saturated Soil: Surface (in.)

Secondary Indicators (2 or more required):

- Oxidized Root Channels in Upper 12 inches
- Water-Stained Leaves
- Local Soil Survey Data
- Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

Wetland hydrology present.

AR 048030

Parametrix, Inc.



Data Plot #: IWSb-A
 Wetland: IWSb

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 6/16/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-7	A	10YR 3/1	-	-	Course Loamy Sand
7-12+	B	10YR 4/1	10YR 4/6	Common, Coarse, Distinct	Gravelly Course Sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input checked="" type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Low chroma soil matrix with mottles satisfies the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland. Wetland Delineated on changes in hydrology.

AR 048031



Data Plot #: E1-A
 Wetland: E1

WETLAND DETERMINATION
 (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/19/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: C. Anteau M. Eccleston S. Rozenbaum State: WA

1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: E1-A
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
This wetland is located in a forested area south of 188th & east of the tank farms, in the City of Sea Tac. Future location of the Puget Sound Energy South Substation.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Rubus discolor</u>	<u>80</u>	<u>Shrub</u>	<u>FACU</u>
✓ 2. <u>Alnus rubra</u>	<u>30</u>	<u>Tree</u>	<u>FAC</u>
✓ 3. <u>Populus balsamifera ssp. trichocarpa</u>	<u>60</u>	<u>Tree</u>	<u>FAC</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 67

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50 % the plant community is hydrophytic, the wetland plant criteria is satisfied.

HYDROLOGY

Recorded Data (Describe in Remarks):
 _____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):
 Primary Indicators:
 _____ X Inundated
 _____ X Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ X Drainage Patterns in Wetlands

Field Observations:
 Depth of Surface Water: 0 (in.)
 Depth to Free Water in Pit: 2 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):
 _____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
Soil was saturated to the surface.

Parametrix, Inc.



Data Plot #: E1-A
 Wetland: E1

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 1/19/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	10YR 2/2	-	-	Cobbly gravel
11-14	B	10YR 2/2	10YR 3/4	Manv. Medium, Distinct	Cobbly gravel loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input checked="" type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland.

AR 048034

Parametrix, Inc.



Data Plot #: E1-B
Wetland: E1 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/19/99
Applicant/Owner: Port of Seattle County: King
Investigator: C. Antieau M. Eccleston S. Rozenbaum State: WA

1987 Method 1989 Method

Community ID: Upland

Do Normal Circumstances exist on the site? Yes X No Field Plot ID: E1-B
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

This upland plot is located outside of a forested area (Wetland E1-A) south of 188th & east of the tank farms, in the City of Sea Tac. Future location of the Puget Sound Energy South Substation.

VEGETATION (✓ Dominant species are checked)

	Plant Species	% Cover	Stratum	Indicator
✓ 1	Rubus discolor	60	Shrub	FACU
2	Salix scoulenana	10	Shrub	FAC
✓ 3	Spiraea douglasii	25	Shrub	FACW
4	Alnus rubra	10	Tree	FAC
✓ 5	Populus balsamifera ssp. trichocarpa	30	Tree	FAC
6	Pseudotsuga menziesii	5	Tree	FACU

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 67

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Cottonwood canopy rooted in the wetland margin. Since greater than 50 % the plant community is hydrophytic, the wetland plant criteria is satisfied.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: >16 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

No indicators of wetland hydrology present

AR 048035

Parametrix, Inc.



Data Plot #: E1-B
 Wetland: E1 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/19/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes No NA

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-6	A	10YR 3/3	-	-	Sandv loam
6-16	B	7.5YR 3/4	-	-	Sandv loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Hydric soil indicators are not present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

Wetland vegetation is present, however both wetland hydrology and hydric soils are absent. Therefore, the area is not a wetland.

AR 048036

Parametrix, Inc.



Data Plot #: E2-A
Wetland: E2

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 2/1/99
Applicant/Owner: Port of Seattle County: King
Investigator: M. Louther State: WA
 1987 Method 1989 Method Community ID: PFO/PSS
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: E2-A
Is the site significantly disturbed (Atypical Situation)? Yes No X
Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):

This wetland was delineated to identify site conditions for the Puget Sound Energy South Substation project.

VEGETATION Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Festuca arundinacea</u>	<u>10</u>	<u>Herb</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 2. <u>Rubus discolor</u>	<u>40</u>	<u>Shrub</u>	<u>FACU</u>
3. <u>Salix sp</u>	<u>15</u>	<u>Shrub</u>	<u>FACW</u>
<input checked="" type="checkbox"/> 4. <u>Alnus rubra</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>
<input checked="" type="checkbox"/> 5. <u>Populus balsamifera ssp. trichocarpa</u>	<u>50</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 66

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):

Since greater than 50 % the plant community is hydrophytic, the wetland plant criteria is satisfied

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
X Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 6-14 (in.)
Depth to Free Water in Pit: Surface (in.)
Depth to Saturated Soil: Surface (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):

There are several areas of standing water throughout this area and saturation to the surface indicating the presence of wetland hydrology.

AR 048037

Parametrix, Inc.



Data Plot #: E2-A

Wetland: E2

Project/Site: Seattle Tacoma Airport - Master Plan Update

Date: 2/1/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped

Drainage Class: _____

Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____

Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-2	A		-	-	Gravelly sand loam
2-12	A	10YR 5/1	-	-	Gravelly sand loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Depletions in soil matrix, soil consists of some native gravel material. Soil color and other indicators indicate hydric soil present

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes X No _____ Is this Sampling Point Within a Wetland?

Hydric Soils Present? Yes X No _____ Yes X No _____

Wetland Hydrology Present? Yes X No _____

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

This area has been disturbed and may be a man-made feature resulting from grading activities for south 188th or other project. The presence of all three parameters indicate this area is a wetland.

AR 048038

Parametrix, Inc.



Data Plot #: E2-B
 Wetland: E2 Upland Plot

WETLAND DETERMINATION

(Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/2/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: M. Louther State: WA
 1987 Method 1989 Method
 Community ID: Upland
 Do Normal Circumstances exist on the site? Yes X No Field Plot ID: E2-B
 Is the site significantly disturbed (Atypical Situation)? Yes No X
 Is the area a potential Problem Area? Yes No X

Remarks (Explain sample location, disturbances, problem areas):
Upland plot for Wetland E2 for Puget Sound Energy South Substation.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
✓ 1. <u>Agrostis capillans (tenuis)</u>	<u>45</u>	<u>Herb</u>	<u>FAC</u>
2. <u>Populus balsamifera ssp. trichocarpa (s)</u>	<u>10</u>	<u>Shrub</u>	<u>FAC</u>
✓ 3. <u>Rubus discolor</u>	<u>90</u>	<u>Shrub</u>	<u>FACU</u>

Percent of **Dominant Species** that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 50

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Scot's broom and madrone are present to the north. This data plot is located approximately 30 feet east of the gravel road.

HYDROLOGY

Recorded Data (Describe in Remarks):

 Stream, Lake, or Tide Gage
 Aerial Photograph
 Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
 Inundated
 Saturated in Upper 12 inches
 Saturated in Upper 18 inches
 Water Marks
 Drift Lines
 Sediment Deposits
 Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: None (in.)
 Depth to Free Water in Pit: >12 (in.)
 Depth to Saturated Soil: >12 (in.)

Secondary Indicators (2 or more required):

 Oxidized Root Channels in Upper 12 inches
 Water-Stained Leaves
 Local Soil Survey Data
 Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
No hydrologic indicators present.

AR 048039

Parametrix, Inc.



Data Plot #: E2-B
Wetland: E2 Upland Plot

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 1/2/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
Field Observations Confirm Mapped Type? Yes ___ No ___ NA X

Taxonomy (Subgroup): _____ Yes ___ No ___ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	A	2.5YR 4/3	-	-	Gravelly sand loam
10-12	A	2.5YR 4/3	10YR 4/6	Few, Medium, Distinct	Gravelly sand loam

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Listed on State Hydric Soils List |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Probable Aquic Moisture Regime | <input type="checkbox"/> Aquic Moisture Regime |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Mottles |
| <input type="checkbox"/> High Organic Content in Surface Layer | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks (Describe soil disturbances, local variations, etc.):
Soil is composed of fill material. No hydric soil indicators present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ___ No <u>X</u>	Is this Sampling Point Within a Wetland? Yes ___ No <u>X</u>
Hydric Soils Present?	Yes ___ No <u>X</u>	
Wetland Hydrology Present?	Yes ___ No <u>X</u>	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):
All three wetland parameters are absent, therefore, the area is an upland

AR 048040



Data Plot #: E3-A
 Wetland: E3

WETLAND DETERMINATION (Modified from: 1987 COE Wetlands Delineation Manual)

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 2/17/99
 Applicant/Owner: Port of Seattle County: King
 Investigator: William Kleindl State: WA

1987 Method 1989 Method Community ID: PFO
 Do Normal Circumstances exist on the site? Yes X No _____ Field Plot ID: PSE2-A
 Is the site significantly disturbed (Atypical Situation)? Yes _____ No X
 Is the area a potential Problem Area? Yes _____ No X

Remarks (Explain sample location, disturbances, problem areas):
Inundated area that has been excavated and ponded. This wetland was delineated to identify site conditions for the PSE south substation project.

VEGETATION (✓ Dominant species are checked)

Plant Species	% Cover	Stratum	Indicator
1. <u>Juncus effusus</u>	<u>10</u>	<u>Herb</u>	<u>FACW</u>
✓ 2. <u>Populus balsamifera ssp. trichocarpa</u>	<u>80</u>	<u>Tree</u>	<u>FAC</u>

Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100

Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):
Since greater than 50% of the dominant plants are hydrophytic, the wetland vegetation criteria is met.

HYDROLOGY

Recorded Data (Describe in Remarks):

_____ Stream, Lake, or Tide Gage
 _____ Aerial Photograph
 _____ Other
X No Recorded Data Available

Wetland Hydrology Indicators (Describe in Remarks):

Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
 _____ Saturated in Upper 18 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
 _____ Drainage Patterns in Wetlands

Field Observations:

Depth of Surface Water: 12 (in.)
 Depth to Free Water in Pit: 0 (in.)
 Depth to Saturated Soil: 0 (in.)

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches
 _____ Water-Stained Leaves
 _____ Local Soil Survey Data
 _____ Other (Explain in Remarks)

Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.):
The presence of inundation satisfies wetland hydrology criteria

Parametrix, Inc.



Data Plot #: E3-A
 Wetland: E3

Project/Site: Seattle Tacoma Airport - Master Plan Update Date: 2/17/99

SOILS

Soil Survey Data:

Map Unit Name: Unmapped Drainage Class: _____
 Field Observations Confirm Mapped Type?

Taxonomy (Subgroup): _____ Yes _____ No _____ NA X

Profile Description:

Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc
0-8	C1	10YR 5/1	-	-	Fine sand
8-18+	C2	2.5Y 8/1	-	-	Fine sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Listed on State Hydric Soils List
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Probable Aquic Moisture Regime	<input checked="" type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Mottles
<input type="checkbox"/> High Organic Content in Surface Layer	<input type="checkbox"/> Other (Explain in Remarks)

Remarks (Describe soil disturbances, local variations, etc.):

Soil color and other hydric soil indicators meet the hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is this Sampling Point Within a Wetland?
Hydric Soils Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks (If applicable, explain any differences between 1987 and 1989 delineation results):

The presence of all three parameters indicate this area is a wetland

AR 048042

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 11/29/94

Project/Site: SeaTac - Borrow sites - Area 1

Sample Plot #: 1

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints: Dominance Threshold:					
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus spectabilis</i>	FAC+	85	6	85.5	1*
<i>Rubus discolor</i>	FACU	5	1	3.0	2
Sum of Midpoints: Dominance Threshold:				88.5 44.3	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	15	2	10.5	1*
Sum of Midpoints: Dominance Threshold:				10.5 5.3	
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	45	4	38.0	1*
Sum of Midpoints: Dominance Threshold:				38.0 19.0	

% of Dominants that are OBL, FACW, and/or FAC: 3/3 = 100%

Hydrophytic Vegetation? YES

Comments: FORESTED UPLAND.

Plot located in depression dominated by FAC vegetation. Spirea stand located in depression.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are ranked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and herbarium information from the literature.

AR 048044

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 1
Field Investigator(s): AS/SL

Date: 11/29/94
Sample Plot #: 1

SOILS

SCS Mapping Unit: Alderwood gravelly sandy loam, 6-15
Field Identification: Alderwood
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
- Is soil mottled? yes
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-14	sandy loam	10YR 2/2 10YR 3/2				
B	14-18	sandy loam	10YR 4/3 10YR 3/3	7.5YR 4/4	c,1,d		

Landform/Topography: flat, barely depressional
Comments:

Hydric Soils? NO Basis: Lack of hydric characteristics.

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit: N/A

Surface water depth: N/A
Depth to saturation: N/A

- | | |
|--|--|
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: There are a few oxidized rhizospheres in B horizon.

Wetland Hydrology? NO Basis: Lack of hydrologic indicators.

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Soils and hydrology parameters do not satisfy wetland criteria.

AR 048045

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 11/29/94

Project/Site: SeaTac - Borrow sites - Area 2

Sample Plot #: 2

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Ranunculus repens</i>	FACW	65	5	63.0	1*
<i>Poa sp.</i>	FACW-UPL**	5	1	3.0	3
<i>Lolium perenne</i>	FACU	5	1	3.0	3
<i>Geranium molle</i>	FACW**	15	2	10.5	2
<i>Agrostis tenuis</i>	FAC	15	2	10.5	2
Sum of Midpoints:				90.0	
Dominance Threshold:				45.0	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints: Dominance Threshold:					

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints: Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints: Dominance Threshold:					

% of Dominants that are OBL, FACW, and/or FAC: 1/1 = 100%

Hydrophytic Vegetation? YES

Comments: GRASSLAND.

Area is abandoned pasture. Pasture grasses give way to buttercup in lowest portions of small depression at head of drainage.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048046

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow Sites - Area 2
Field Investigator(s): AS/SL

Date: 11/29/94
Sample Plot #: 2

SOILS

SCS Mapping Unit: Alderwood Gravelly sandy loam, 6-15
Field Identification: Alderwood
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-10	loam	10YR 3/2				
B	10-18	sandy loam	10YR 4/2	7.5YR 4/4	c,1,d		

Landform/Topography: drainageway bottom, hilly
Comments:

Hydric Soils? YES Basis: low chroma, mottles

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: 10

Surface water depth: N/A
Depth to saturation: surface

- | | |
|--|--|
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Water seeping into pit at 4 inches. Oxidized root zones at 10-18 inches. Plot located in bottom of drainageway. Water flows to small culvert at Wetland D's west end.

Wetland Hydrology? YES Basis: saturation to surface and free standing water at 10 inches.

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: No recent disturbance
Problem area? no Basis: Normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048047

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 3
Field Investigator(s): AS/SL

Date: 11/30/94
Sample Plot #: 3

SOILS

SCS Mapping Unit: Indianola loamy fine sand, 4-15% silt
Field Identification: Inclusion
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-5	loam	10YR 2/2				
B	5-18	loam	10YR 3/2 10YR 3/3	10YR 3/4	f/c,1,f		

Landform/Topography: flat, barely depressional

Comments:

Hydric Soils? YES Basis: low chroma and mottles

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit: N/A

Surface water depth: N/A
Depth to saturation: N/A

- | | | | | | |
|---|--|--------------------------------|------------------------------|--|----------------------------------|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | -Oxidized root zones | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | -Water-stained leaves |
| <input type="checkbox"/> - | <input checked="" type="checkbox"/> No | -Water marks | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | -Surface scoured areas |
| <input type="checkbox"/> - | <input checked="" type="checkbox"/> No | -Drift lines | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | -Wetland drainage patterns |
| <input type="checkbox"/> - | <input checked="" type="checkbox"/> No | -Water-borne sediment deposits | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | -Morphological plant adaptations |

Comments: A few rhizospheres occur along old root channels. None apparent along live root channels.

Wetland Hydrology? NO Basis: Lacks hydrologic characteristics

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Hydrologic parameter does not satisfy wetland criteria.

AR 048049

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 11/30/94

Project/Site: SeaTac - Borrow sites - Area 3

Sample Plot #: 4

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Glyceria grandis</i>	OBL	5	1	3.0	1*
<i>Veronica americana</i>	OBL	1	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Spiraea douglasii</i>	FACW	5	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix lasiandra</i>	FACW+	25	3	20.5	1*
<i>Salix sitchensis</i>	FACW	20	3	20.5	1*
Sum of Midpoints:				41.0	
Dominance Threshold:				20.5	

% of Dominants that are OBL, FACW, and/or FAC: 5/5 = 100%

Hydrophytic Vegetation? YES

Comments: PFO/SS.

Plot located in depression and dominated by FACW vegetation.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
 Project/Site: SeaTac - Borrow sites - Area 3
 Field Investigator(s): AS/SL

Date: 11/30/94
 Sample Plot #: 4

SOILS

SCS Mapping Unit: Indianola loamy fine sand, 4-15% silt
 Field Identification: Inclusion
 Is soil on hydric soils list? no

Is soil a histosol? no
 Histic epipedon present? yes
 Is soil mottled? no
 Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-8	mucky peat	10YR 2/1				high
B	8-18	silt loam	5Y5/1	5Y6/1			low

Landform/Topography: flat, depressional
 Comments:

Hydric Soils? YES Basis: organics, low chroma, gleyed

HYDROLOGY

Is ground surface inundated? no
 Is soil saturated? yes
 Depth to free-standing water in pit: surface

Surface water depth:
 Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Water-stained leaves |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Large depression likely is saturated to surface for most of the year.

Wetland Hydrology? YES Basis: saturated to surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes
 Has the vegetation, soils, and/or hydrology been significantly disturbed? no
 Disturbed area? no Basis: no recent disturbance
 Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
 Is the hydric soil criterion met? YES
 Is the wetland hydrology criterion met? YES
 Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three criteria for wetland determination satisfied.

AR 048051

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 11/30/94

Project/Site: SeaTac - Borrow sites - Area 3

Sample Plot #: 5

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Athyrium filix-femina</i>	FAC	10	2	10.5	1*
<i>Solanum dulcamara</i>	FAC+	10	2	10.5	1*
<i>Ranunculus repens</i>	FACW	2	1	3.0	2
Sum of Midpoints:				24.0	
Dominance Threshold:				12.0	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Cornus stolonifera</i>	FACW	20	3	20.5	1*
<i>Spiraea douglasii</i>	FACW	20	3	20.5	1*
<i>Rubus spectabilis</i>	FAC+	2	1	3.0	2
Sum of Midpoints:				44.0	
Dominance Threshold:				22.0	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	35	4	38.0	1*
<i>Acer macrophyllum</i>	FACU	15	2	10.5	2*
Sum of Midpoints:				48.5	
Dominance Threshold:				24.3	

% of Dominants that are OBL, FACW, and/or FAC: 5/6 = 83%

Hydrophytic Vegetation? YES

Comments: UPLAND FOREST.

Plot located just south of Wetland A in north side of same large depression in which Plot 3 is located.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 3
Field Investigator(s): AS/SL

Date: 11/30/94
Sample Plot #: 5

SOILS

SCS Mapping Unit: Indianola loamy fine sand, 4-15% silt
Field Identification: Indianola
Is soil on hydric soils list? no

Is soil a histosol? no
Histoc epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-6	loam	10YR 3/2				
B1	6-12	loamy sand	2.5Y 4/3	10YR3/4,3/5			
B2	12-22	loamy sand	2.5Y 4/2				
B3	22-30	loam	10YR 2/1				

Landform/Topography: flat, barely depressional
Comments:

Hydric Soils? NO Basis: lack of hydric characteristics.

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation: 22 inches

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Oxidized rhizospheres were found at 22-30 inches. Soils appear moderately well drained.

Wetland Hydrology? NO Basis: Lack of hydrologic indicators.

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Soils and hydrologic parameters do not satisfy wetland criteria.

AR 048053

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 11/29/94

Project/Site: SeaTac - Borrow sites - Area 3

Sample Plot #: 6

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	85	6	85.5	1*
<i>Rubus spectabilis</i>	FAC+	10	2	10.5	2
<i>Laurus sp.</i>	FACU**	T	1	3.0	3

Sum of Midpoints: 99.0
Dominance Threshold: 49.5

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	90	6	85.5	1*
<i>Populus trichocarpa</i>	FAC	10	2	10.5	2

Sum of Midpoints: 96.0
Dominance Threshold: 48.0

% of Dominants that are OBL, FACW, and/or FAC: 1/2 = 50%
Hydrophytic Vegetation? NO

Comments: UPLAND FOREST.

Plot located in red alder dominated upland forest adjacent to Wetland B.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1986) may have been assigned an indicator status based on field observations and historic information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 3
Field Investigator(s): AS/SL

Date: 11/30/94
Sample Plot #: 6

SOILS

SCS Mapping Unit: Urban land
Field Classification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-3	loam	10YR 3/2				
B1	3-14	loamy sand	10YR 3/3	5YR 5/8 10YR 4/6	m, 1, d c, 2, f&d		
B2	14-24	loamy sand	2.5Y 4/4	10YR 3/3	c, 1&2, d		

Landform/Topography: flat to hummocky
Comments:

Hydric Soils? NO Basis: Lack of hydric characteristics

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation:

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Soils moist at time of investigation.

Wetland Hydrology? NO Basis: Lack of hydrologic characteristics.

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? NO
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: None of the parameters satisfy wetland determination criteria.

AR 048055

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 11/30/94

Project/Site: SeaTac - Borrow sites - Area 3

Sample Plot #: 7

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Athyrium filix-femina</i>	FAC	2	1	3.0	1*
<i>Equisetum arvense</i>	FAC	2	1	3.0	1*
<i>Polystichum munitum</i>	FACU	1	1	3.0	1
Sum of Midpoints:				9.0	
Dominance Threshold:				4.5	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus spectabilis</i>	FAC+	65	5	63.0	1*
<i>Rubus ursinus</i>	FACU	10	2	10.5	2
Sum of Midpoints:				73.5	
Dominance Threshold:				36.8	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	85	6	85.5	1*
Sum of Midpoints:				85.5	
Dominance Threshold:				42.8	

% of Dominants that are OBL, FACW, and/or FAC: 4/4 = 100%

Hydrophytic Vegetation? YES

Comments: PFO.

Plot located in red alder/salmonberry dominated forest in Wetland B.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and herbarium information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 3
Field Investigator(s): AS/SL

Date: 11/30/94
Sample Plot #: 7

SOILS

SCS Mapping Unit: Indiana loamy fine sand, 4-15% silt
Field Identification: Inclusion
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-14	loam	10YR 2/0				
B	14+	gravelly sandy loam	10YR 3/1				

Landform/Topography: 20 degree slope.

Comments:

Hydric Soils? YES Basis: low chroma

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: 10

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Water seeps from hillside at plot and along much of the western slope of Wetland B.

Wetland Hydrology? YES Basis: saturated to surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments: Plot located in Wetland B.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland determination criteria.

AR 048057

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/1/94

Project/Site: SeaTac - Borrow sites - Area 1

Sample Plot #: 8

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Juncus effusus</i>	FACW	15	2	10.5	2
<i>Agrostis tenuis</i>	FAC	65	5	63.0	1*
<i>Holcus lanatus</i>	FAC	2	1	3.0	3
<i>Taraxacum officinale</i>	FACU	1	1	3.0	3
Sum of Midpoints:				79.5	
Dominance Threshold:				39.8	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	2	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	T	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix babylonica</i>	FAC+	20	3	20.5	1*
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	

% of Dominants that are OBL, FACW, and/or FAC: 3/4 = 75%

Hydrophytic Vegetation? YES

Comments: PEM

Plot located in wet meadow adjacent to S. 216th. Other species present include EPWA and POTR sapling.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are ranked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and herbarium information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 1
Field Investigator(s): AS/SL

Date: 12/1/94
Sample Plot #: 8

SOILS

SCS Mapping Unit: Alderwood gravelly sandy loam, 6-15
Field Identification: Inclusion
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-18	loam	10YR3/3				
B	6-18	sandy loam	2.5Y4/3	10YR 4/6 10YR 3/6			

Landform/Topography: flat, slightly depressional

Comments: Soil likely is fill.

Hydric Soils? YES

Basis: Aquic moisture regime. The development of active rhizospheres in probable fill.

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: 12"

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Water entering soil pit at 5 inches. Source of hydrology is road runoff from S. 216th.

Wetland Hydrology? YES

Basis: saturation to surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes

Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no

Basis: no recent disturbance

Problem area? no

Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland determination criteria.

AR 048059

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/1/94

Project/Site: SeaTac - Borrow sites - Area 2

Sample Plot #: 9

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Taraxacum officinale</i>	FACU	1	1	3.0	3
<i>Cirsium arvense</i>	FACU+	1	1	3.0	3
<i>Festuca arundinacea</i>	FAC-	5	1	3.0	3
<i>Phleum pratense</i>	FAC-	5	1	3.0	3
<i>Poa sp.</i>	FACW-UPL**	30	4	38.0	2
<i>Agropyron repens</i>	FAC-	60	5	63.0	1*
Sum of Midpoints:				113.0	
Dominance Threshold:				56.5	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

% of Dominants that are OBL, FACW, and/or FAC: 0/1 = 0%

Hydrophytic Vegetation? NO

Comments: GRASSLAND/PASTURELAND.

Upland plot in abandoned pasture south of Wetland D.

To determine dominance, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and related information from the literature.

AR 048060

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 2
Field Investigator(s): AS/SL

Date: 12/1/94
Sample Plot #: 9

SOILS

SCC Mapping Unit: Alderwood gravelly sandy loam, 6-15
Field Identification:
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-3	loam	10YR 3/3				
B	3-18	sandy loam	10YR 3/3	10YR 5/8	1,3,1&d		

Landform/Topography: upslope of drainageway in horse pasture.
Comments: Soils varigated.

Hydric Soils? NO Basis: lack of hydric characteristics

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation:

- Yes No -Oxidized root zones
 Yes No -Water marks
 Yes No -Drift lines
 Yes No -Water-borne sediment deposits

- Yes No -Water-stained leaves
 Yes No -Surface scoured areas
 Yes No -Wetland drainage patterns
 Yes No -Morphological plant adaptations

Comments:

Wetland Hydrology? NO Basis: lack of hydrologic indicators

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments: Soils moist at the time of the investigation.

Is the hydrophytic vegetation criterion met? NO
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: None of the parameters satisfy wetland determination criteria.

AR 048061

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/6/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 10

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Ranunculus repens</i>	FACW	60	5	63.0	1*
<i>Juncus effusus</i>	FACW	20	3	20.5	2*
<i>Agrostis sp.</i>	FACW-FACU	15	2	10.5	3
Sum of Midpoints:				94.0	
Dominance Threshold:				47.0	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	6	2	10.5	1*
Sum of Midpoints:				10.5	
Dominance Threshold:				5.3	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	5	1	3.0	1*
<i>Populus trichocarpa</i>	FAC	4	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

% of Dominants that are OBL, FACW, and/or FAC: 4/5 = 80%

Hydrophytic Vegetation? YES

Comments: HERBACEOUS VEGETATION.

Plot located in roadside depression. ALRU and POTR rooted upslope.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048062

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/S: SeaTac - Borrow sites - Area 5
Field Investigator(s): AS/SL

Date: 12/6/94
Sample Plot #: 10

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Inclusion on hydric soils list?

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-9	gravelly sandy loam	10YR 3/3 10YR 3/2				
B1	9-14	gravelly sandy loam	10YR 4/4				
B2	14-18	sandy loam	2.5Y 4/4	10YR 5/8	f, 3,d		

Landform: topography: roadside depressional area
Comments: Flecks of rotten rock (5YR 5/8) throughout profile.

Hydric Soils? NO Basis: lack of hydric characteristics

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation: 14 inches

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Plot in roadside ditch/depression. Soils moist throughout at the time of the investigation.

Wetland Hydrology? YES Basis: saturation at 14 inches

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Soil parameter does not satisfy wetland determination criteria.

AR 048063

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/6/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 11

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Phalaris arundinacea</i>	FACW	20	3	20.5	1*
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	10	2	10.5	1*
Sum of Midpoints:				10.5	
Dominance Threshold:				5.3	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix sp.</i>	OBL-FACU	5	1	3.0	1*
<i>Populus trichocarpa</i>	FAC	2	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Populus trichocarpa</i>	FAC	35	4	38.0	1*
<i>Salix sp.</i>	OBL-FACU	5	1	3.0	2
<i>Alnus rubra</i>	FAC	5	1	3.0	2
Sum of Midpoints:				44.0	
Dominance Threshold:				22.0	

% of Dominants that are OBL, FACW, and/or FAC: 45 = 80%

Hydrophytic Vegetation? YES

Comments: PFO.

Plot located in roadside depression.

To determine dominance, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and recent information from the literature.

AR 048064

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Sites: SeaTac - Borrow sites - Area 5
Field Investigator(s): AS/SL

Date: 12/6/94
Sample Plot #: 11

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A1	0-4	loam	10YR 2/2				
A2	4-16	gravelly sandy loam	10YR 3/2				
B	16-18	silt loam	2.5Y 5/2	7.5 YR 4/6	m,3,p		

Landform/Topography: wide roadside depression

Comments: Silt loam is strongly cemented. Rotten reddish rock throughout profile.

Hydric Soils? YES Basis: low chroma, mottles

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: N/A

Surface water depth: N/A
Depth to saturation: ?

- Yes No -Oxidized root zones
- Yes No -Water marks
- Yes No -Drift lines
- Yes No -Water-borne sediment deposits

- Yes No -Water-stained leaves
- Yes No -Surface scoured areas
- Yes No -Wetland drainage patterns
- Yes No -Morphological plant adaptations

Comments: Water seeping into pit at 16 inches.

Wetland Hydrology? YES Basis: saturation and seepage above 18 inches

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland determination criteria.

AR 048065

INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

Project Number: 6943017

Date: 12/6/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 12

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints: Dominance Threshold:					
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	15	2	10.5	2*
<i>Rubus ursinus</i>	FACU	25	3	20.5	1*
Sum of Midpoints:				31.0	
Dominance Threshold:				15.5	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Betula papyrifera</i>	FAC*	5	1	3.0	1*
<i>Pseudotsuga menziesii</i>	FACU*	5	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Populus trichocarpa</i>	FAC	90	6	85.5	1*
<i>Betula papyrifera</i>	FAC*	3	1	3.0	2
Sum of Midpoints:				88.5	
Dominance Threshold:				44.3	

% of Dominants that are OBL, FACW, and/or FAC: 2/5 = 40%

Hydrophytic Vegetation? NO

Comments: FORESTED UPLAND.

Plot located to the west of Plot 11 in same depression.

To determine dominance, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and herbarium information from the literature.

AR 048066

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 5
Field Investigator(s): AS/SL

Date: 12/6/94
Sample Plot #: 12

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-10	loam	10YR 3/2 10YR 3/3				
B	10-18	gravelly sand	2.5Y 5/4 2.5Y 4/4	7.5YR 5/8	f&c,3,p		

Landform/Topography: flat, roadside depression

Comments:

Hydric Soils? NO Basis: Lack of hydric characteristics.

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation:

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? NO Basis: Lack of hydrologic indicators

SUMMARY

Normal environmental conditions exist at the plant community? yes
the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: None of the parameters satisfy the wetland criteria.

AR 048067

WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

Project Number: 6943017

Date: 12/6/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 13

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Agrostis</i> sp.	FACW-FACU	60	5	63.0	1*
<i>Carex</i> sp.	OBL-FAC	8	2	10.5	2
<i>Epilobium watsonii</i>	FACW	1	1	3.0	3
<i>Juncus effusus</i>	FACW	1	1	3.0	3
<i>Polystrichum minutum</i>	FACU	3	1	3.0	3
Sum of Midpoints:				82.5	
Dominance Threshold:				41.3	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Spiraea douglasii</i>	FACW	8	2	10.5	1*
<i>Rubus discolor</i>	FACU	4	1	3.0	2
<i>Rubus ursinus</i>	FACU	1	1	3.0	2
<i>Rubus laciniatus</i>	FACU+	1	1	3.0	2
Sum of Midpoints:				19.5	
Dominance Threshold:				9.8	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix</i> sp.	OBL-FACU	50	4	38.0	1*
<i>Populus trichocarpa</i>	FAC	45	4	38.0	2*
Sum of Midpoints:				76.0	
Dominance Threshold:				38.0	

% of Dominants that are OBL, FACW, and/or FAC: 4/4 = 100%

Hydrophytic Vegetation? YES

Comments: PFO

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048068

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 5
Field Investigator(s): AS/SL

Date: 12/6/94
Sample Plot #: 13

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-4	gravelly sandy loam	10YR 3/3				
B	4-16	sandy loam	5Y 5/1	10YR5/8	m, 1&2, p	5Y 5/1	

Landform/Topography: hilly

Comments: Cobbles prevent penetration below 16 inches. Wavy boundary between horizons.

Hydric Soils? **YES** Basis: Low chroma, mottles

HYDROLOGY

Is surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation: apx 10 inches

- | | |
|--|--|
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? **YES** Basis: Saturation, redoximorphic features.

SUMMARY

Do normal environmental conditions exist at the plant community? yes

Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no

Basis: no recent disturbance

Problem area? no

Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048069

WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

Project Number: 6943017

Date: 12/7/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 14

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
 Dominance Threshold:

Shrubs	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
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<i>Rubus discolor</i>	FACU	100	7	98.0	1*
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Sum of Midpoints: 98.0
 Dominance Threshold: 49.0

Saplings	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
 Dominance Threshold:

Trees	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
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<i>Alnus rubra</i>	FAC	60	5	63.0	1*
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<i>Populus trichocarpa</i>	FAC	10	2	10.5	2
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Sum of Midpoints: 73.5
 Dominance Threshold: 36.8

% of Dominants that are OBL, FACW, and/or FAC: 1/2 = 50%
 Hydrophytic Vegetation? YES

Comments: FORESTED UPLAND.

Plot located in red alder and blackberry dominated forest. Species outside plot include POMU, PTAR, and RUUR.

¹ To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

* Species that do not appear on the National List (Reed, 1983) may have been assigned an indicator status based on field observations and habitat information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 5
Field Investigator(s): AS/SL

Date: 12/7/94
Sample Plot #: 14

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-11	sandy loam	10YR 3/2				
B	11-20	sandy loam	2.5Y 4/4				

Landform/Topography: hillside plot in hilly area
Comments: Streaks occur from 14-20 inches - 10YR 5/6.

Hydric Soils? NO Basis: Lack of hydric characteristics

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation: 20 inches

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? NO Basis: Lack of hydrologic indicators

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Soils and hydrology parameters do not satisfy wetland criteria.

AR 048071

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/7/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 15

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Bromus sp.</i>	**	90	6	85.5	1*
Sum of Midpoints:				85.5	
Dominance Threshold:				42.8	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus ursinus</i>	FACU	2	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Robinia pseudo-acacia</i>	FACU	5	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Robinia pseudo-acacia</i>	FACU	25	3	20.5	1*
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	

% of Dominants that are OBL, FACW, and/or FAC: 0/4 = 0%

Hydrophytic Vegetation? NO

Comments: GRASSLAND

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and reliable information from the literature.

AR 048072

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017

Date: 12/7/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 15

Field Investigator(s): AS/SL

SOILS

SCS Mapping Unit: Not mapped (Urban land)

Is soil a histosol? no

Field Identification: Urban land

Histic epipedon present? no

Is soil on hydric soils list? no

Is soil mottled? no

Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A1	0-11	gravelly sandy loam	10YR 3/2				
A2	11-20	sandy loam	10YR 3/3				

Landform/Terrain: flat, top of hill

Comments:

Hydric Soils? NO

Basis: Lack of hydric characteristics.

HYDROLOGY

Is ground surface inundated? no

Surface water depth:

Is soil saturated? no

Depth to saturation:

Depth to free-standing water in pit:

Yes No -Oxidized root zones

Yes No -Water-stained leaves

Yes No -Water marks

Yes No -Surface scoured areas

Yes No -Drift lines

Yes No -Wetland drainage patterns

Yes No -Water-borne sediment deposits

Yes No -Morphological plant adaptations

Comments:

Wetland Hydrology? NO

Basis: Lack of hydrologic indicators.

SUMMARY

Do normal environmental conditions exist at the plant community? yes

Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no

Basis: no recent disturbance

Problem area? no

Basis: normal conditions observed

Comments:

Is the hydrophytic vegetation criterion met? NO

Is the hydric soil criterion met? NO

Is the wetland hydrology criterion met? NO

Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: None of the parameters satisfy the wetland criteria.

AR 048073

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/7/94

Project/Site: SeaTac - Borrow sites - Area 5

Sample Plot #: 16

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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<i>Spiraea douglasii</i>	FACW	95	6	85.5	1*
<i>Rubus laciniatus</i>	FACU+	T	1	3.0	2
<i>Rubus discolor</i>	FACU	T	1	3.0	2

Sum of Midpoints: 91.5
Dominance Threshold: 45.8

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
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Sum of Midpoints:
Dominance Threshold:

% of Dominants that are OBL, FACW, and/or FAC: 1/1 = 100%

Hydrophytic Vegetation? YES

Comments: SHRUBLAND.

Plot in monotypic stand of spirea. Appears area was drained many years ago to accommodate development. Rubus sp., ALRU, ACMA, PYRUS, and COCO occur as associated species outside of plot.

To determine dominance, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are ranked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048074

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 5
Field Investigator(s): AS/SL

Date: 12/7/94
Sample Plot #: 16

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
Oi	3-0	duff					
A1	0-20	loam	10YR 2/1				
B	20-24+	sandy loam	2.5Y 4/3	7.5YR 4/4	m, 1&2, d		

Landform/Topography: flat

Comments: Drain tile or old cement pipe found at 20 inches. Soils appear drained

Hydric Soils? NO Basis: Lack of hydric characteristics

HYDROLOGY

Ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation:

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Drain tile or cement pipe found at 20 inches. Area appears to have been drained.

Wetland Hydrology? NO Basis: Lack of hydrologic indicators.

SUMMARY

Do normal environmental conditions exist at the plant community? yes

Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance

Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Soils and hydrology parameters do not satisfy wetland criteria.

AR 048075

**INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/9/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 17

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Galium macrophyllum</i>	FACW-	1	1	3.0	3
<i>Equisetum arvense</i>	FAC	35	4	38.0	1*
<i>Agrostis tenuis</i>	FAC	25	3	20.5	2*
<i>Holcus lanatus</i>	FAC	5	1	3.0	3
<i>Festuca sp.</i>	FACW-UPL**	1	1	3.0	3
Sum of Midpoints:				67.5	
Dominance Threshold:				33.8	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	T	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	T	1	3.0	1
<i>Salix sitchensis</i>	FACW	5	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix sp.</i>	OBL-FACU	50	4	38.0	1*
<i>Populus trichocarpa</i>	FAC	7	2	10.5	2*
Sum of Midpoints:				48.5	
Dominance Threshold:				24.3	

% of Dominants that are OBL, FACW, and/or FAC: 5/6 = 83%

Hydrophytic Vegetation? YES

Comments: PFO.

Plot located in the willow dominated forest of Wetland G.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is irrevocably exceeded. All species contributing to that cumulative total plus any others having 20% of the total midpoint value are ranked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the measure.

AR 048076

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/SL

Date: 12/9/94
Sample Plot #: 17

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-30	sand	2.5Y 4/2				

Landform/Topography: flat area at base of large hill

Comments: sand gleyed at 32". Soil appears to be fill and eroded/deposited material from slope to east.

Hydric Soils? NO Basis: Lack of hydric characteristics.

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation:

- Yes No -Oxidized root zones
 Yes No -Water marks
 Yes No -Drift lines
 Yes No -Water-borne sediment deposits

- Yes No -Water-stained leaves
 Yes No -Surface scoured areas
 Yes No -Wetland drainage patterns
 Yes No -Morphological plant adaptations

Comments: Soil appears to be an aquent. Hydrology is inferred from this moisture regime and vegetation is hydrophytic.

Wetland Hydrology? YES Basis: Inferred from aquatic moisture regime and veg.

SUMMARY

Do normal environmental conditions exist at the plant community? no
Has the vegetation, soils, and/or hydrology been significantly disturbed? yes

Disturbed area? yes Basis: recent erosional deposition
Problem area? yes Basis: soils do not display hydric characteristics

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: Vegetation and hydrology parameters met. Recent soil deposition over hydric soil.

AR 048077

WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

Project Number: 6943017

Date: 12/7/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 18

Field Investigator(s): AS/SL

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Equisetum telmateia</i>	FACW	30	4	38.0	1*
<i>Veronica americana</i>	OBL	5	1	3.0	2
<i>Glyceria grandis</i>	OBL	5	1	3.0	2
<i>Holcus lanatus</i>	FAC	1	1	3.0	2
<i>Rorippa nasturtium-aquaticum</i>	OBL	1	1	3.0	2
Sum of Midpoints:				50.0	
Dominance Threshold:				25.0	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus spectabilis</i>	FAC+	T	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix sitchensis</i>	FACW	20	3	20.5	1*
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix lasiandra</i>	FACW+	55	5	63.0	1*
Sum of Midpoints:				63.0	
Dominance Threshold:				31.5	

% of Dominants that are OBL, FACW, and/or FAC: 4/4 = 100%

Hydrophytic Vegetation? YES

Comments: PFO.

Plot located in forested Wetland H.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are merged with an asterisk.

** Species that do not appear on the National List (Reed, 1986) may have been assigned an indicator status based on field observations and habitat information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/SL

Date: 12/7/94
Sample Plot #: 18

SOILS

SCS Mapcode Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-18	sand				5G 4/1	

Landform/Topography: flat, low area

Comments:

Hydric Soils? YES Basis: Gley soil

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: surface

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input type="checkbox"/> No -Oxidized root zones | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Water-stained leaves |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Water marks | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Water-borne sediment deposits | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? YES Basis: Saturation to surface and other indicators.

SUMMARY

Normal environmental conditions exist at the plant community? yes
Disturbance to vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048079

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/8/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 19

Field Investigator(s): JT/CW

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Glyceria grandis</i>	OBL	2	1	3.0	1*
<i>Ranunculus repens</i>	FACW	3	1	3.0	1*
<i>Scirpus microcarpus</i>	OBL	5	1	3.0	1*
<i>Urtica dioica</i>	FAC+	3	1	3.0	1*
<i>Phalaris arundinacea</i>	FACW	1	1	3.0	1*
Sum of Midpoints:				15.0	
Dominance Threshold:				7.5	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	5	1	3.0	1*
Sum of Midpoints:				3.0	
Dominance Threshold:				1.5	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Populus trichocarpa</i>	FAC	10	2	10.5	2
<i>Salix sitchensis</i>	FACW	15	2	10.5	2
<i>Salix lasiandra</i>	FACW+	35	4	38.0	1*
Sum of Midpoints:				59.0	
Dominance Threshold:				29.5	

% of Dominants that are OBL, FACW, and/or FAC: 6/7 = 86%
Hydrophytic Vegetation? YES

Comments: PFO.

Plot located in Wetland L.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): JT/CW

Date: 12/8/94
Sample Plot #: 19

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Inclusion
Is soil on hydric soils list? no

Is soil a histosol? no
Histoc epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-3	loam	10YR 4/1				med-high
B	3-13	mucky loam	10YR 2/2				high

Landform/Topography: flat, low area
Comments:

Hydric Soils? YES Basis: Low chroma and high organic content

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: 8 inches

Surface water depth:
Depth to saturation: 3 inches

Yes No -Oxidized root zones
 Yes No -Water marks
 Yes No -Drift lines
 Yes No -Water-borne sediment deposits

Yes No -Water-stained leaves
 Yes No -Surface scoured areas
 Yes No -Wetland drainage patterns
 Yes No -Morphological plant adaptations

Comments:

Wetland Hydrology? YES Basis: Saturation at 3 inches

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? yes
Is the hydric soil criterion met? yes
Is the wetland hydrology criterion met? yes
Is the vegetation unit or plot wetland? yes

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048081

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 20

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>moss</i>	**	5	1	3.0	2
<i>Equisetum arvense</i>	FAC	18	3	20.5	1*
Sum of Midpoints:				23.5	
Dominance Threshold:				11.8	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	25	3	20.5	2*
<i>Rubus spectabilis</i>	FAC+	70	5	63.0	1*
<i>Oemleria cerasiformis</i>	FACU	15	2	10.5	3
Sum of Midpoints:				94.0	
Dominance Threshold:				47.0	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	20	3	20.5	1*
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	

% of Dominants that are OBL, FACW, and/or FAC: 3/4 = 100%

Hydrophytic Vegetation? YES

Comments: PFO/SS.

Plot located in small PFO/SS portion of forested Wetland.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1986) may have been assigned an indicator status based on field observations and herbarium information from the literature.

AR 048082

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 20

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? yes
Histic epipedon present? yes
Is soil mottled? yes
Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
Oa	1-3	peaty muck	10YR 2/1				H
B	3-8	loamy sand		7.5YR 4/6	c, 1, d	5GY 4/1	H
2O	8-12	peaty muck	10YR 2/1				H
2B	12+	loamy sand	10YR 4/1				H

Landform/Topography: flat, low area

Comments:

Hydric Soils? YES Basis: Low chroma, organics.

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: 12 inches

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? YES Basis: Saturation to surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048083

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 21

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Inclusion
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-18	loam	10YR 2/1				high

Landform/Topography: flat, low area
Comments:

Hydric Soils? YES Basis: Low chroma

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? YES Basis: Saturation to surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048085

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/12/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 22

Field Investigator(s): AS/JT

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Phalaris arundinacea</i>	FACW	15	2	10.5	2*
<i>Urtica dioica</i>	FAC+	3	1	3.0	3
<i>Glyceria grandis</i>	OBL	15	2	10.5	2*
<i>Potentilla sp.</i>	OBL-FACU	20	3	20.5	1*
<i>Scirpus microcarpus</i>	OBL	1	1	3.0	3
<i>Equisetum arvense</i>	FAC	10	2	10.5	2*
Sum of Midpoints:				58.0	
Dominance Threshold:				29.0	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Sambucus racemosa</i>	FACU	15	2	10.5	1*
<i>Rubus discolor</i>	FACU	8	2	10.5	1*
<i>Rubus spectabilis</i>	FAC+	15	2	10.5	1*
Sum of Midpoints:				31.5	
Dominance Threshold:				15.8	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix lasiandra</i>	FACW+	60	5	63.0	1*
<i>Salix sitchensis</i>	FACW	20	3	20.5	2*
Sum of Midpoints:				83.5	
Dominance Threshold:				41.8	

% of Dominants that are OBL, FACW, and/or FAC: 7/9 = 78%

Hydrophytic Vegetation? YES

Comments: PFO.

Plot located in forested Wetland K.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 80% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are ranked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048086

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 22

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? yes
Histic epipedon present? yes
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
O1	0-2	loamy muck	10YR 2/0				H
O2	2-8	mucky loam	10YR 3/1				H
O3	8-18	mucky peat	10YR 3/2	10YR 2/1			H

Landform/Topography: flat, low area
Comments: Large woody debris present through profile.

Hydric Soils? YES Basis: Histosol

HYDROLOGY

Ground surface inundated? no
saturated? yes
Depth to free-standing water in pit: 7 inches

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? YES Basis: Saturation to the surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048087

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/12/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 23

Field Investigator(s): AS/JT

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>moss</i>		20	3	20.5	
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	5	1	3.0	2*
<i>Rubus ursinus</i>	FACU	7	2	10.5	1*
Sum of Midpoints:				13.5	
Dominance Threshold:				6.8	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix sp.</i>	OBL-FACU	40	4	38.0	2*
<i>Sambucus racemosa</i>	FACU	60	5	63.0	1*
Sum of Midpoints:				101.0	
Dominance Threshold:				50.5	

% of Dominants that are OBL, FACW, and/or FAC: 1/4 = 25%

Hydrophytic Vegetation? NO

Comments: FORESTED UPLAND.

Plot located upslope and south of Plot 22 and Wetland K.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is unnecessarily exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and historic information from the literature.

AR 048088

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): ASAJT

Date: 12/12/94
Sample Plot #: 23

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? no
Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
Oi	1-0	duff					
Oa	0-7	peat	7.5YR 3/2				H
B1	7-14	sandy loam	2.5Y 4/2				H
B2	14-18	sandy loam	2.5Y 3/2 2.5Y 4/2				H

Landform/Topography: upslope of wetland in rolling terrain
Comments:

Hydric Soils? NO Basis: Lack of hydric characteristics

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? no
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation:

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? NO Basis: Lack of hydrologic indicators

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal conditions observed

Comments:

Is the hydrophytic vegetation criterion met? NO
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: None of the parameters satisfy wetland criteria.

AR 048089

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/12/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 24

Field Investigator(s): AS/JT

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Typha latifolia</i>	OBL	12	2	10.5	3
<i>Juncus effusus</i>	FACW	50	4	38.0	1*
<i>Scirpus microcarpus</i>	OBL	20	3	20.5	2*
<i>Epilobium watsonii</i>	FACW	20	3	20.5	2*
<i>Equisetum arvense</i>	FAC	5	1	3.0	4
Sum of Midpoints:				92.5	
Dominance Threshold:				46.3	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix lasiandra</i>	FACW+	45	4	38.0	1*
<i>Salix sitchensis</i>	FACW	15	2	10.5	2
<i>Alnus rubra</i>	FAC	10	2	10.5	2
Sum of Midpoints:				59.0	
Dominance Threshold:				29.5	

% of Dominants that are OBL, FACW, and/or FAC: 4/4 = 100%

Hydrophytic Vegetation? YES

Comments: PFO/PEM.

Plot located on hillside in seep area in Wetland L. RUDI and CYSC located along south edge of wetland.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to the cumulative total pass any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048090

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 24

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
	0-8	sandy loam	10YR 3/2				
	8-18	gravelly sandy loam		7.5Y 4/4 7.5Y 4/6	c,1,d	5GY 4/1 5GY 3/1	M

Landform/Topography: 20 degree slope, hillside seep.

Comments:

Hydric Soils? YES Basis: Low chroma, gley, mottles

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: < 10 inches

Surface water depth:
Depth to saturation: surface

- Yes No -Oxidized root zones
- Yes No -Water marks
- Yes No -Drift lines
- Yes No -Water-borne sediment deposits

- Yes No -Water-stained leaves
- Yes No -Surface scoured areas
- Yes No -Wetland drainage patterns
- Yes No -Morphological plant adaptations

Comments:

Wetland Hydrology? YES Basis: Saturated to surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbance area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria

AR 048091

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/12/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 25

Field Investigator(s): AS/JT

Herbs & Bryophytes	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Ranunculus repens</i>	FACW	50	4	38.0	1*
<i>Equisetum arvense</i>	FAC	18	3	20.5	2*
Sum of Midpoints:				58.5	
Dominance Threshold:				29.3	

Shrubs	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Saplings	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Populus trichocarpa</i>	FAC	60	5	63.0	1*
<i>Alnus rubra</i>	FAC	40	4	38.0	2*
Sum of Midpoints:				101.0	
Dominance Threshold:				50.5	

% of Dominants that are OBL, FACW, and/or FAC: 4/4 = 100%

Hydrophytic Vegetation? YES

Comments: PFO.

Plot in slight depression. Deciduous forest overstory. Rubus/red alder upland outside of wetland.

¹ To determine comments, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total past any others having 20% of the total midpoint value are marked with an asterisk.

² Species that do not appear on the National List (Reed, 1986) may have been assigned an indicator status based on field observations and historic information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 25

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Inclusion
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	1-3	loam	10YR 3/1				low
E	3-17	silt loam		7.5YR 4/6	c, 1-2, d	10Y 5/1 10Y 4/1	
B2	17-20	sand		7.5YR 4/6	c, 1-2, d	10Y 4/1	

Landform/Topography: flat, slight depression

Comments:

Hydric Soils? YES Basis: Low chroma, mottles

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation: 18"

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? YES Basis: Saturation within 18 inches.

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048093

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017

Date: 12/12/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 26

Field Investigator(s): ASJT

Herbs & Bryophytes	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Scirpus microcarpus</i>	OBL	15	2	10.5	2*
<i>Equisetum arvense</i>	FAC	15	2	10.5	2*
<i>Phalaris arundinacea</i>	FACW	20	3	20.5	1*
<i>Poa</i> sp.	FACW-UPL ²	5	1	3.0	3
Sum of Midpoints:				44.5	
Dominance Threshold:				22.3	

Shrubs	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	tr	1	3.0	1*
<i>Ilex</i> sp.	FACU ²	tr	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	

Saplings	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	100	7	98.0	1*
Sum of Midpoints:				98.0	
Dominance Threshold:				49.0	

% of Dominants that are OBL, FACW, and/or FAC: 4/4 = 66%

Hydrophytic Vegetation? YES

Comments: PFO.

Plot located in roadside depression portion of Wetland P.

¹ To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

² Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and floristic information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 26

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Inclusion
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? yes
Is soil mottled? yes
Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
Oa	0-10	mucky loam	10YR 3/1				
B	10-18	sandy loam		7.5YR 4/6	f,1,f	5Y 2.5/1	

Landform/Topography: depression in flat area in rolling terrain

Comments:

Hydric Soils? YES Basis: Histic epipedon, low chroma, mottles

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit: 14 inches

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-stained leaves |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments:

Wetland Hydrology? YES Basis: Saturated at 14 inches

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048095

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 27

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Glyceria grandis</i>	OBL	2	1	3.0	3
<i>Scirpus microcarpus</i>	OBL	10	2	10.5	2
<i>Epilobium watsonii</i>	FACW	8	2	10.5	2
<i>Juncus effusus</i>	FACW	6	2	10.5	2
<i>Phalaris arundinacea</i>	FACW	30	4	38.0	1*
<i>Equisetum arvense</i>	FAC	5	1	3.0	3
<i>Polystichum munitum</i>	FACU	10	2	10.5	2
<i>Athyrium filix-femina</i>	FAC	50	4	38.0	1*
Sum of Midpoints:				124.0	
Dominance Threshold:				62.0	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	25	3	20.5	1*
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Populus trichocarpa</i>	FAC	20	3	20.5	1*
Sum of Midpoints:				20.5	
Dominance Threshold:				10.3	

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

% of Dominants that are OBL, FACW, and/or FAC: 3/4 = 75%
Hydrophytic Vegetation? YES

Comments: PEM.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is cumulatively exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are ranked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and floristic information from the literature.

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017
Project/Site: SeaTac - Borrow sites - Area 8
Field Investigator(s): AS/JT

Date: 12/12/94
Sample Plot #: 27

SOILS

SCS Mapping Unit: Not mapped (Urban land)
Field Identification: Urban land
Is soil on hydric soils list? no

Is soil a histosol? no
Histic epipedon present? no
Is soil mottled? yes
Is soil gleyed? yes

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-12	loam	10YR 2/0				
B	12-18	sandy loam		7.5YR 4/6	c, 1-2, d	10Y 4/1 10GY 4/1	

Landform/Topography: Slight slope. Slight depression.
Comments:

Hydric Soils? YES Basis: Low chroma, mottles, gley

HYDROLOGY

Is ground surface inundated? no
Is soil saturated? yes
Depth to free-standing water in pit:

Surface water depth:
Depth to saturation: surface

- | | |
|--|--|
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Oxidized root zones | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Water-stained leaves |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Water marks | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Surface scoured areas |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Drift lines | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Wetland drainage patterns |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Water-borne sediment deposits | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No -Morphological plant adaptations |

Comments: Water slowly seeping into pit at about 6 inches. Inundated areas throughout the wetland - 1-6 inches.

Wetland Hydrology? YES Basis: Saturation to surface

SUMMARY

Do normal environmental conditions exist at the plant community? yes
Has the vegetation, soils, and/or hydrology been significantly disturbed? no
Disturbed area? no Basis: no recent disturbance
Problem area? no Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048097

VEGETATION SAMPLING
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

Project Number: 6943017

Date: 12/20/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 28

Field Investigator(s): AS/CW

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Cirsium arvense</i>	FACU+	18	3	20.5	2*
<i>Festuca arundinacea</i>	FAC-	2	1	3.0	4
<i>Urtica dioica</i>	FAC+	10	2	10.5	3
<i>Phalaris arundinacea</i>	FACW	25	3	20.5	2*
<i>Brassica nigra</i>	FAC**	10	2	10.5	3
<i>Agrostis stolonifera</i>	FAC*	40	4	38.0	1*
Sum of Midpoints:				103.0	
Dominance Threshold:				51.5	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

% of Dominants that are OBL, FACW, and/or FAC: 2/3 = 67%

Hydrophytic Vegetation? YES

Comments: PEM

Plot located in flat area east of Lake Reba.

To determine dominants, list each species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is necessarily exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are ranked with an asterisk.

** Species that do not appear on the National List (Read, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048098

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

Project Number: 6943017

Date: 12/20/94

Project/Site: SeaTac - Borrow sites - Area 8

Sample Plot #: 28

Field Investigator(s): AS/CW

SOILS

SCS Mapping Unit: Not mapped (Urban land)

Is soil a histosol? no

Field Identification: Urban land

Histic epipedon present? no

Is soil on hydric soils list? no

Is soil mottled? no

Is soil gleyed? no

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-2	loam	10YR 2/1				m
B		gravelly sandy loam	10YR 2/1				m/h

Landform/Topography: flat

Comments: wood chunks below 8 inches.

Hydric Soils? YES

Basis: Low chroma

HYDROLOGY

Is ground surface inundated? no

Surface water depth:

Is soil saturated? yes

Depth to saturation: surface

Depth to free-standing water in pit: 8 inches

- Yes No -Oxidized root zones
 Yes No -Water marks
 Yes No -Drift lines
 Yes No -Water-borne sediment deposits

- Yes No -Water-stained leaves
 Yes No -Surface scoured areas
 Yes No -Wetland drainage patterns
 Yes No -Morphological plant adaptations

Comments: Pit dug during storm with heavy precipitation.

Wetland Hydrology? YES

Basis: saturation, standing water

SUMMARY

Do normal environmental conditions exist at the plant community? yes

Has the vegetation, soils, and/or hydrology been significantly disturbed? no

Disturbed area? no

Basis: no recent disturbance

Problem area? no

Basis: normal environmental conditions observed

Comments:

Is the hydrophytic vegetation criterion met? YES

Is the hydric soil criterion met? YES

Is the wetland hydrology criterion met? YES

Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three parameters satisfy wetland criteria.

AR 048099

**INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE**

ASSOCIATES

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 29
Date: 9/1/94

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Equisetum arvense</i>	FAC	60	5	63.0	1*
<i>Typha latifolia</i>	OBL	15	2	10.5	2
<i>Epilobium watsoni</i>	FACW	12	2	10.5	2
<i>Holcus lanatus</i>	FAC	6	2	10.5	2
<i>Agrostis sp.</i>	FACW-FACU	1	1	3.0	3
Sum of Midpoints:				97.5	
Dominance Threshold:				48.8	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus laciniatus</i>	FACU+	1	1	3.0	2
<i>Rubus discolor</i>	FACU	10	2	10.5	1*
Sum of Midpoints:				13.5	
Dominance Threshold:				6.8	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

% of Dominants that are OBL, FACW, and/or FAC: 1/2 = 50%
Hydrophytic Vegetation? YES

Comments:

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is irrevocably exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048100

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 29
Date: 9/1/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? YES
Is soil gleyed? YES

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-6"	loam	10YR 4/2				
B	6-12"	silt loam	5Y5/2 5Y5/1	10YR 5/6	C,1,P		med/hi

Landform/Topography: Steep fill material.

Comments: Soil on steep fill material deposited as foundation for runways

Hydric Soils? YES Basis: Low chroma, mottles

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? YES
Depth to free-standing water in pit: 12"

Surface water depth: NA
Depth to saturation: 8"

X Oxidized root zones
Water marks
Drift lines
Water-borne sediment deposits

Water-stained leaves
Surface scoured areas
X Wetland drainage patterns
Morphological plant adaptations

Comments: Water discharges along steep hillside (up to 45%).

Wetland Hydrology? YES Basis: Saturation, wetland drainage patterns, oxidized root zones.

SUMMARY

Do normal environmental conditions exist at the plant community? YES

Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO Basis: no recent disturbance

Problem area? NO Basis: normal environmental conditions observed

Comments: Wetland associated with a hillside seep.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met

AR 048101

INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

STAFIR/CI
ASSOCIATES

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 30
Date: 8/25/94

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Athyrium filix-femina</i>	FAC	35	4	38.0	1*
<i>Polystichum munitum</i>	FACU	10	2	10.5	3
<i>Equisetum telmateia</i>	FACW	25	3	20.5	2*
<i>Lysichiton americanum</i>	OBL	10	2	10.5	3
<i>Phalaris arundinacea</i>	FACW	5	1	3.0	4
Sum of Midpoints:				82.5	
Dominance Threshold:				41.3	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus spectabilis</i>	FAC+	35	4	38.0	1*
<i>Oemleria cerasiformis</i>	FACU	5	1	3.0	2
<i>Rubus ursinus</i>	FACU	5	1	3.0	2
<i>Corylus cornuta</i>	FACU	5	1	3.0	2
Sum of Midpoints:				47.0	
Dominance Threshold:				23.5	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	70	5	63.0	1*
<i>Acer macrophyllum</i>	FACU	10	2	10.5	2
Sum of Midpoints:				73.5	
Dominance Threshold:				36.8	

% of Dominants that are OBL, FACW, and/or FAC: 4/4 = 100%

Hydrophytic Vegetation? YES

Comments:

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048102

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 30
Date: 8/25/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? NO
Is soil gleyed? YES

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
	0-10"	sandy loam	10YR 3/1				med/hi
	10-18"	sandy loam				5GY 4/1 5Y 4/1	med/hi

Landform/Topography: East-west oriented ravine.

Comments:

Hydric Soils? YES Basis: Low chroma, gleyed colors

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? YES
Depth to free-standing water in pit: 20"

Surface water depth: NA
Depth to saturation: Surface

Oxidized root zones
Water marks
Drift lines
Water-borne sediment deposits

X Water-stained leaves
Surface scoured areas
X Wetland drainage patterns
Morphological plant adaptations

Comments: Plot located adjacent to small stream.

Wetland Hydrology? YES Basis: Saturation, wetland drainage patterns, water-stained leaves

SUMMARY

Do normal environmental conditions exist at the plant community? YES
Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO Basis: no recent disturbance
Problem area? NO Basis: normal environmental conditions observed

Comments: Located at west end of ravine. Stream enters culvert at this end and exits at 12th.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met.

AR 048103

INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

STAFFORD
ASSOCIATES

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 31
Date: 8/19/94

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Holcus lanatus</i>	FAC	30	4	38.0	1*
<i>Agrostis stolonifera</i>	FAC*	30	4	38.0	1*
<i>Agrostis tenuis</i>	FAC	25	3	20.5	2
<i>Rumex crispus</i>	FAC+	1	1	3.0	
<i>Juncus effusus</i>	FACW	6	2	10.5	
<i>Anthoxanthum odoratum</i>	FACU	10	2	10.5	
<i>Epilobium watsonii</i>	FACW	1	1	3.0	
Sum of Midpoints:				123.5	
Dominance Threshold:				61.8	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus discolor</i>	FACU	5	1	3.0	1*
<i>Cytisus scoparius</i>	UPL**	2	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

% of Dominants that are OBL, FACW, and/or FAC: 2/4 = 50%

Hydrophytic Vegetation? YES

Comments: DEPRESSIONAL AREA AT TOE OF SLOPE. SOME ALDER AND WILLOW TREES ALONG WETLAND EDGES AT SOUTHERN END. SHRUBS LARGELY ROOTED OUTSIDE OF WETLAND.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is unnecessarily exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048104

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 31
Date: 8/19/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? YES
Is soil gleyed? YES

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0 - 4"	loam	2.5Y 4/2				medium
B	4 - 12"	loam	2.5Y 4/2	7.5YR 4/6	M, 2, D		medium
C	12 - 18"	sandy loam	5Y 5/2				low

Landform/Topography: Depression at toe of slope.
Comments: B horizon is densely compacted hardpan.

Hydric Soils? YES Basis: Low chroma, mottles

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? NO
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: NA

X Oxidized root zones	Water-stained leaves
Water marks	Surface scoured areas
Drift lines	X Wetland drainage patterns
Water-borne sediment deposits	Morphological plant adaptations

Comments: Depression at toe of slope, oxidized root zones in upper portion of B horizon. Root penetration to 9 inches.

Wetland Hydrology? YES Basis: Oxidized root zones, wetland drainage patterns, hydric soil.

SUMMARY

Do normal environmental conditions exist at the plant community? YES
Has the vegetation, soils, and/or hydrology been significantly disturbed? NO
Disturbed area? NO Basis: No recent disturbance.
Problem area? NO Basis: Normal environmental conditions exist.

Comments: Wetland occurs between roadway and toe of slope, drains south to drop structure.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met.

AR 048105

WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

SHAPIRO &
ASSOCIATES

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 32
Date: 8/25/94

Herbs & Bryophytes	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Polystrichum munitum</i>	FACU	4	1	3.0	1*
				Sum of Midpoints:	3.0
				Dominance Threshold:	1.5

Shrubs	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus spectabilis</i>	FAC+	25	3	20.5	2*
<i>Rubus discolor</i>	FACU	40	4	38.0	1*
Unknown shrub		5	1	3.0	3
<i>Rubus ursinus</i>	FACU	20	3	20.5	2*
<i>Ilex sp.</i>	FACU ²	2	1	3.0	3
				Sum of Midpoints:	85.0
				Dominance Threshold:	42.5

Saplings	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
				Sum of Midpoints:	
				Dominance Threshold:	

Trees	Indicator Status ¹	% Areal Cover	Cover Class	Midpoint	Rank
<i>Acer macrophyllum</i>	FACU	15	2	10.5	2
<i>Alnus rubra</i>	FAC	60	5	63.0	1*
<i>Corylus cornuta</i>	FACU	10	2	10.5	2
				Sum of Midpoints:	84.0
				Dominance Threshold:	42.0

% of Dominants that are OBL, FACW, and/or FAC: 2/5 = 40%
Hydrophytic Vegetation? NO

Comments:

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

¹ Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048106

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 32
Date: 8/25/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? NO
Is soil gleyed? NO

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-4"	silt loam	10YR 4/2				med/hi
B1	4-16"	silt loam	10YR 4/3				med/hi
B2	16-18"	silt loam	10YR 3/3				med

Landform/Topography: East-west oriented ravine. Rolling terrain outside of steep ravine.

Comments:

Hydric Soils? NO Basis: Lack of hydric indicators.

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? NO
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: NA

Oxidized root zones
Water marks
Drift lines
Water-borne sediment deposits

Water-stained leaves
Surface scoured areas
Wetland drainage patterns
Morphological plant adaptations

Comments:

Wetland Hydrology? NO Basis: Lack of hydrologic indicators.

SUMMARY

Do normal environmental conditions exist at the plant community? YES
Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO Basis: no recent disturbance
Problem area? NO Basis: normal environmental conditions observed

Comments: Wetland located apx 150 feet southeast of Plot #8 at the top of the southern slope of the ravine.

Is the hydrophytic vegetation criterion met? NO
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: None of the wetland parameters met.

AR 048107

INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

SEAFIROG
ASSOCIATES

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 33
Date: 8/23/94

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Ranunculus repens</i>	FACW	9	2	10.5	2*
<i>Equisetum arvense</i>	FAC	4	1	3.0	
<i>Urtica dioica</i>	FAC+	2	1	3.0	
<i>Bidens cernua</i>	FACW+	4	1	3.0	
<i>Agrostis tenuis</i>	FAC	10	2	10.5	1*
<i>Taraxacum officinale</i>	FAC-	1	1	3.0	
<i>Poa sp.</i>	FACW-UPL**	5	1	3.0	
<i>Convolvulus arvensis</i>	FAC**	1	1	3.0	
<i>Polystichum munitum</i>	FACU	1	1	3.0	
Sum of Midpoints:				42.0	
Dominance Threshold:				21.0	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus spectabilis</i>	FAC+	10	2	10.5	2*
<i>Rubus discolor</i>	FACU	50	4	38.0	1*
<i>Rubus ursinus</i>	FACU	5	1	3.0	
<i>Oemleria cerasiformis</i>	FACU	1	1	3.0	
Sum of Midpoints:				54.5	
Dominance Threshold:				27.3	

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	80	6	85.5	1*
<i>Acer macrophyllum</i>	FACU	10	2	10.5	
Sum of Midpoints:				96.0	
Dominance Threshold:				48.0	

% of Dominants that are OBL, FACW, and/or FAC: 4/5 = 80%
Hydrophytic Vegetation? YES

Comments:

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048108

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 33
Date: 8/23/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? NO
Is soil gleyed? NO

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-7"	sandy loam	10YR 3/2				med/high
C	7-14"	sandy loam	10YR 3/3				medium
R	14"+	basalt regolith (glacial erratic)					

Landform/Topography: Topographic trough

Comments: East-west trending trough, west-central portion of POS property.

Hydric Soils? NO Basis: High chromas, no redoxymorphic features.

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? NO
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: NA

Oxidized root zones
Water marks
Drift lines
Water-borne sediment deposits

Water-stained leaves
Surface scoured areas
Wetland drainage patterns
Morphological plant adaptations

Comments: Ponding may occur in isolated depressions during wetter times of the year.

Wetland Hydrology? NO Basis: Lack of hydrologic indicators.

SUMMARY

Do normal environmental conditions exist at the plant community? YES

Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO Basis: No recent disturbance.

Problem area? NO Basis: Normal environmental conditions observed.

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Only one of three wetland parameters meet.

AR 048109

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 34
Date: 8/23/94

SOILS

Soil Series: Unclassified (Urban Land)
Soil Location: Urban Land
Is this a hydric soil? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? YES
Is soil gleyed? NO

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0-7"	loam	10YR 3/3				
B	7-18"	loam	10YR 3/4	7.5YR 3/4	F, 1, D		medium low

Landform/Topography: Hillside slope

Comments: Area topographically lower than Sample Plot #35, approximately 50 feet west.

Hydric Soils? NO Basis: High chroma

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? NO
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: NA

Oxidized root zones
Water marks
Drift lines
Water-borne sediment deposits

Water-stained leaves
Surface scoured areas
Wetland drainage patterns
Morphological plant adaptations

Comments:

Wetland Hydrology? NO Basis: Lack of hydrologic indicators.

SUMMARY

Do normal environmental conditions exist at the plant community? YES
Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO Basis: No recent disturbance.
Problem area? NO Basis: Normal environmental conditions observed.

Comments:

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? NO
Is the wetland hydrology criterion met? NO
Is the vegetation unit or plot wetland? NO

Rationale for jurisdictional decision: Only one of three wetland parameters met.

AR 048111

INTERMEDIATE-LEVEL ONSITE METHOD
VEGETATION UNIT SAMPLING PROCEDURE

SHAPIRO
ASSOCIATES

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 35
Date: 8/23/94

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Athyrium filix-femina</i>	FAC	45	4	38.0	1*
<i>Equisetum arvense</i>	FAC	25	3	20.5	2*
<i>Equisetum telmateia</i>	FACW	20	3	20.5	3*
<i>Urtica dioica</i>	FAC+	1	1	3.0	
<i>Pteridium aquilinum</i>	FACU	5	1	3.0	
Sum of Midpoints:				85.0	
Dominance Threshold:				42.5	
Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Rubus spectabilis</i>	FAC+	3	1	3.0	2*
<i>Rubus discolor</i>	FACU	5	1	3.0	1*
Sum of Midpoints:				6.0	
Dominance Threshold:				3.0	
Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					
Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	25	3	20.5	
<i>Acer macrophyllum</i>	FACU	85	6	85.5	1*
Sum of Midpoints:				106.0	
Dominance Threshold:				53.0	

% of Dominants that are OBL, FACW, and/or FAC: 4/6 = 67%
Hydrophytic Vegetation? YES

Comments: WETLAND ASSOCIATED WITH SIDEHILL SEEP.

To determine dominants, list rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habitat information from the literature.

AR 048112

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 35
Date: 8/23/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? YES
Is soil gleyed? YES

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0 - 9"	loam	10YR 2/1				high
Btg	9 - 14"	silty clay loam	10YR 5/1	5YR 4/6	C, 2 & 3, P		medium
C	14 - 18"+	sandy loam	10YR 4/1	5YR 4/6	C, 2 & 3, P	5B 5/1	medium

Landform/Topography: Hummocky protrusion on slope.

Comments: Mottles occur along root channels and pores in Btg horizon. Lenses of fine material (silts and clays) within C horizon.

Hydric Soils? YES Basis: Gleyed, low chroma, mottles.

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? YES
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: 18 inches

Oxidized root zones	
Water marks	
Drift lines	
Water-borne sediment deposits	
	X
	Water-stained leaves
	Surface scoured areas
	Wetland drainage patterns
	Morphological plant adaptations

Comments: Sample plot topographically higher than surrounding area, saturated soil may be result of artesian flow from area to east.

Wetland Hydrology? YES Basis: Saturation at 18", hydric soils.

SUMMARY

Do normal environmental conditions exist at the plant community? YES
Has the vegetation, soils, and/or hydrology been significantly disturbed? NO
Disturbed areas? NO Basis: No recent disturbance
Problem areas? NO Basis: Normal environmental conditions exist at site.

Comments: Wetland may be result of artesian flow from eastern area.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met.

AR 048113

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 36
Date: 8/23/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? YES
Is soil gleyed? NO

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gley Color	Organic Content
A	0 - 12"	loam	10YR 3/1				med/high
B	12 - 18"+	loam	2.5Y 4/2	7.5YR 5/6	C, 1 & 2, D		medium

Landform/Topography: Hillside seep
Comments: no root penetration below 6"

Hydric Soils? YES **Basis:** Low chroma, mottles

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? YES
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: 12"

Oxidized root zones
Water marks
Drift lines
Water-borne sediment deposits

Water-stained leaves
Surface scoured areas
Wetland drainage patterns
Morphological plant adaptations

Comments: Uphill edge of wetland saturated to ground surface, pockets of inundation.

Wetland Hydrology? YES **Basis:** Saturation at 12"

SUMMARY

Do normal environmental conditions exist at the plant community? YES
Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO **Basis:** No recent disturbance
Problem area? NO **Basis:** Normal environmental conditions exist

Comments: Wetland appears to be a seep from filled hillside.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met.

AR 048115

WETLAND VEGETATION
 INTERMEDIATE-LEVEL ONSITE METHOD
 VEGETATION UNIT SAMPLING PROCEDURE

SHAPIRO &
 ASSOCIATES

Project/Site: SeaTac - Operations area
 Field Investigator(s): AS, CW

Sample Plot #: 37
 Date: 8/25/94

Herbs & Bryophytes	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Typha latifolia</i>	OBL	5	1	3.0	3
<i>Holcus lanatus</i>	FAC	28	4	38.0	1*
<i>Agrostis stolonifera</i>	FAC+	15	2	10.5	2*
<i>Juncus effusus</i>	FACW	7	2	10.5	2
<i>Eleocharis sp.</i>	OBL	5	1	3.0	3
<i>Carex pachystachya</i>	FAC	5	1	3.0	3
<i>Dactylis glomerata</i>	FACU	10	2	10.5	2
<i>Rumex crispus</i>	FAC+	5	1	3.0	3
		15	2	10.5	2*
<i>Equisetum arvense</i>	FAC	1	1	3.0	3
Sum of Midpoints:				95.0	
Dominance Threshold:				47.5	

Shrubs	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
Sum of Midpoints:					
Dominance Threshold:					

Saplings	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Salix lasiandra</i>	FACW+	10	2	10.5	1*
<i>Alnus rubra</i>	FAC	15	2	10.5	1*
Sum of Midpoints:				21.0	
Dominance Threshold:				10.5	

Trees	Indicator Status**	% Areal Cover	Cover Class	Midpoint	Rank
<i>Alnus rubra</i>	FAC	3	1	3.0	2
<i>Populus trichocarpa</i>	FAC	10	2	10.5	1*
<i>Betula papyrifera</i>	FAC+	6	2	10.5	1*
<i>Acer macrophyllum</i>	FACU	4	1	3.0	2
Sum of Midpoints:				27.0	
Dominance Threshold:				13.5	

% of Dominants that are OBL, FACW, and/or FAC: 7/7 = 100%
 Hydrophytic Vegetation? YES

Comments: EPILOBIUM WATSONII ALSO IS PRESENT IN THE PLOT AT 1%. IT IS ASSUMED THAT, GIVEN THE STATUS OF KNOWN PLANTS, THAT THE UNKNOWN GRASS IS FAC.

To determine dominants, first rank species by midpoints. Then sum midpoints in order until 50% of total for all species (dominance threshold) is immediately exceeded. All species contributing to this cumulative total plus any others having 20% of the total midpoint value are marked with an asterisk.

** Species that do not appear on the National List (Reed, 1988) may have been assigned an indicator status based on field observations and habits information from the literature.

AR 048116

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 37
Date: 8/25/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydrology list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? YES
Is soil gleyed? NO

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A	0-8"	gravelly sandy loam	10YR 3/2				med
B	8-16"	sandy loam	2.5Y 4/2	7.5YR 4/6	C,3,D		low-med

Landform/Topography: Slight depression on topographically high area. Surrounding terrain is hilly.
Comments: Soils extremely compact.

Hydric Soils? Yes **Basis:** Low chroma, mottles

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? NO
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: NA

Oxidized root zones	Water-stained leaves
Water marks	Surface scoured areas
Drift lines	X Wetland drainage patterns
Water-borne sediment deposits	Morphological plant adaptations

Comments:

Wetland Hydrology? YES **Basis:** Hydric soils, wetland drainage patterns, obligate vegetation.

SUMMARY

Do normal environmental conditions exist at the plant community? YES
Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO **Basis:** no recent disturbance
Problem area? NO **Basis:** normal environmental conditions observed

Comments: Located apx 100 feet south of Plot #6. Highly compacted soils in slight depression.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met.

AR 048117

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 38
Date: 8/30/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? YES
Is soil gleyed? NO

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Clay Color	Organic Content
A1	0-4"	sandy loam	10YR 4/2				
A2	4-9"	fine sandy loam	10YR 5/2	10YR 5/6	C,1,F		
C1	9-14"	gravelly loam	10YR 4/2	7.5YR 4/4	M,1,D		
C2	14-18+"	gravelly loam	10YR 4/3	7.5YR 4/4			

Landform/Topography: Flat area level with runways.

Comments: Little black nodules in C2 horizon could be Mn.

Hydric Soils? YES Basis: Low chroma, mottles.

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? NO
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: NA

Oxidized root zones	
Water marks	
Drift lines	
Water-borne sediment deposits	
	X
	Water-stained leaves
	Surface scoured areas
	Wetland drainage patterns
	Morphological plant adaptations

Comments: Drainage drop structures are positioned in the center of the wetland and in the southern corner.

Wetland Hydrology? YES Basis: Hydric soils, wetland drainage patterns

SUMMARY

Do normal environmental conditions exist at the plant community? YES

Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO Basis: no recent disturbance

Problem area? NO Basis: normal environmental conditions observed

Comments: Deep tire ruts left during the wet season.

Is the hydrophytic vegetation criterion met? YES
Is the hydric soil criterion met? YES
Is the wetland hydrology criterion met? YES
Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met.

AR 048119

**WETLAND DETERMINATION
INTERMEDIATE-LEVEL ONSITE METHOD
SOILS, HYDROLOGY & SUMMARY**

**SHAPIRO &
ASSOCIATES**

Project/Site: SeaTac - Operations area
Field Investigator(s): AS, CW

Sample Plot #: 39
Date: 8/19/94

SOILS

SCS Mapping Unit: Unclassified (Urban Land)
Field Identification: Urban Land
Is soil on hydric soils list? NO

Is soil a histosol? NO
Histic epipedon present? NO
Is soil mottled? NO
Is soil gleyed? NO

Horizon	Horizon Depth	Texture	Matrix Color	Mottle Color	Occurrence of Mottles	Gray Color	Organic Content
Oi	1-0"	bryophyte mat	10YR 2/1				high
A	0-3"	loamy coarse sand	10YR 4/1				medium
C	3-16"+	very gravelly loamy coarse sand	10YR 4/1				medium

Landform/Topography: Depressional area between two roadways.

Comments: Enclosed depression with evidence of prolonged inundation, maybe stormwater detention area.

Hydric Soils? YES **Basis:** Aquic moisture regime, low chroma

HYDROLOGY

Is ground surface inundated? NO
Is soil saturated? NO
Depth to free-standing water in pit: NA

Surface water depth: NA
Depth to saturation: NA

Oxidized root zones	
X Water marks	X Water-stained leaves
X Drift lines	X Surface scoured areas
X Water-borne sediment deposits	X Wetland drainage patterns
	X Morphological plant adaptations

Comments: Algal mats on ground surface, water marks on buttressed tree trunks.

Wetland Hydrology? YES **Basis:** Algal mats, water marks, wetland drainage patterns.

SUMMARY

Do normal environmental conditions exist at the plant community? YES

Has the vegetation, soils, and/or hydrology been significantly disturbed? NO

Disturbed area? NO **Basis:** No recent disturbance

Problem area? NO **Basis:** Normal environmental conditions observed.

Comments: Area maybe stormwater detention area.

Is the hydrophytic vegetation criterion met? YES

Is the hydric soil criterion met? YES

Is the wetland hydrology criterion met? YES

Is the vegetation unit or plot wetland? YES

Rationale for jurisdictional decision: All three wetland parameters met.

AR 048121