

**CITY OF KIRKLAND
RESIDENCE XII
RENOVATION AND EXPANSION PROJECT
CRITICAL AREAS REPORT**

King County, Washington

Prepared for:

RESIDENCE XII

12029 113th Avenue NE

Kirkland, Washington 98034

Prepared by:

DAVID EVANS AND ASSOCIATES, INC.

415 - 118th Avenue SE

Bellevue, Washington 98005-3553

RESX0000-0001

August 17, 2011

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Scott Swarts

Sr. Fish and Wildlife Biologist

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ACRONYMS

| Acronyms | Meaning |
|----------|--|
| BMPs | Best Management Practices |
| CESCL | Certified Erosion and Sediment Control Lead |
| City | City of Kirkland |
| Corps | U.S. Army Corps of Engineers |
| DEA | David Evans and Associates, Inc. |
| DP | Data plot |
| Ecology | Washington State Department of Ecology |
| EFH | Essential Fish Habitat |
| ESA | Endangered Species Act |
| gsf | gross square feet |
| I-405 | Interstate 405 |
| KZC | Kirkland Zoning Code |
| LWD | Large woody debris |
| NHP | Natural Heritage Program |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollution discharge Elimination System |
| NWI | National Wetlands Inventory |
| OBL | Obligate wetland |
| OHWM | Ordinary High Water Mark |
| PEM | Palustrine emergent |
| PFO | Palustrine forested |
| PHS | Priority habitats and species |
| POW | Palustrine open water |
| PSS | Palustrine Scrub-Shrub |
| RM | River Mile |
| SCS | Soil Conservation Service |
| SWPM | Stormwater Pollution Manual |
| SWPPP | Stormwater Pollution Prevention Plan |
| USDA | U.S. Department of Agriculture |
| USDI | U.S. Department of the Interior |
| USFWS | U.S. Fish and Wildlife Service |
| WDFW | Washington Department of Fish and Wildlife |
| WDNR | Washington State Department of Natural Resources |
| WRIA | Water Resource Inventory Area |
| WSGA | Washington State Gap Analysis |

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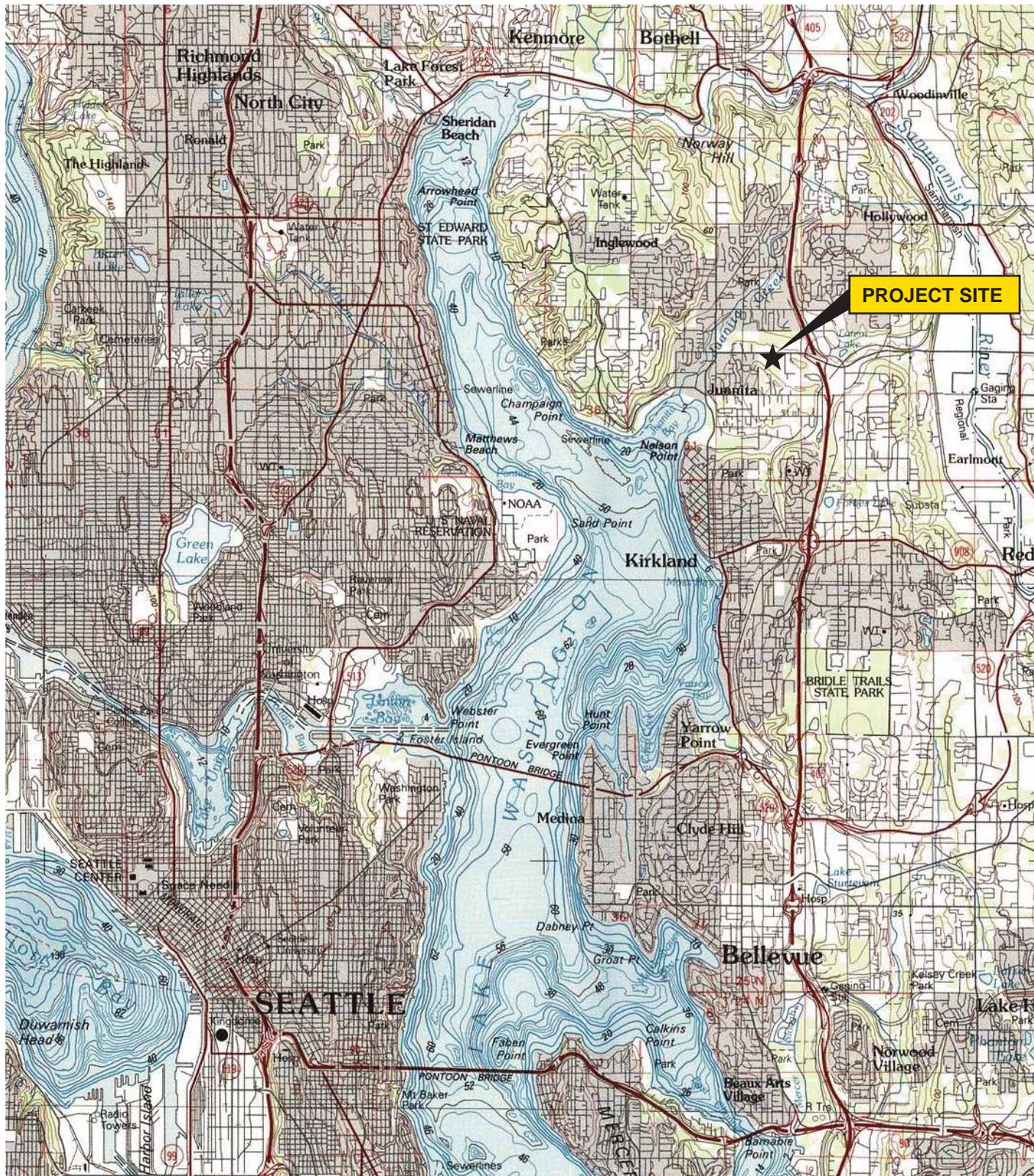
1.0 INTRODUCTION

At the request of Residence XII, David Evans and Associates, Inc. (DEA) conducted this investigation to document the presence of critical areas, existing habitat conditions, level of potential wildlife use in the project vicinity, project-related impacts, and mitigation and monitoring requirements for the proposed Residence XII Renovation and Expansion Project. This investigation was conducted as part of the process associated with obtaining approval from the City of Kirkland (City) for wetland buffer reduction pursuant to Kirkland Zoning Code (KZC) 90.60.2.a.2 (buffer reduction with enhancement).

The proposed project site is located within the city of Kirkland, Washington (Section 29, Township 26 north, Range 05 east, W.M.) (**Figures 1, 2, and 3**). The project site is located approximately one-half mile west of Interstate 405 (I-405), and one-quarter mile south of NE 124th Street, at 12029 113th Avenue NE. The project site is within the Juanita Creek subbasin of Water Resource Inventory Area (WRIA) 8: Cedar-Sammamish Basin. The approximate latitude and longitude of the central project area is 47.70820° N by 122.19111° W at an elevation of 164 feet above sea level. The Residence XII site consists of five properties, including King County parcels 2926059124, 2926059126, 2926059180, 2926059181, and 2926059182. The total project site covers approximately 2.94 acres. The existing Residence XII facility is on parcel number 2926059124 and covers approximately 1.37 acres. Parcel numbers 2926059181, 2926059180, and 2926059182 each contain a single family residence. Parcel number 2926059126 consists of a grassy field sloping gradually to the west toward the Heronfield Wetland (Juanita 6). Wetland buffer enhancement is proposed within Parcel number 2926059126.

Residence XII is a drug and alcohol rehabilitation convalescent center that currently contains 25 beds, 31 parking stalls, and encompasses 18,065 gross square feet (gsf). The proposed project will expand the existing facility by approximately 18,108 gsf. Additional parking, stormwater treatment, landscaping, and utility infrastructure improvements would also be required. **Appendix A** contains a copy of the most recent version of the site plan, which is subject to change during the permitting process.

The project site is partially encumbered by wetland buffers, which have increased in width since the facility was originally constructed. The original buffer was 50 feet when the existing facility was constructed in the mid 1990s. The buffer width has increased to 100 feet based on changes to the KZC. Expansion of the existing facility will not result in any wetland fill. Although potential buffer impacts have been avoided to the maximum extent possible by modifying the design (increasing height and shifting the footprint to the east), expansion of the existing facility would intrude into the 100-foot wetland buffer. Therefore, Residence XII proposes to reduce the existing 100-foot buffer to 67 feet and provide buffer enhancement pursuant to KZC 90.60.2.a.2. This action would reduce the 100-foot-wide buffer by 17,765 square feet. Additional impacts from a proposed trail and stormwater spreader bar would result in an additional 1,828 square feet of impact. Therefore, the total amount of buffer impact is approximately 19,593 square feet (0.45 acre). A mitigation plan is included with this Critical Areas Report that has been updated per City comments. The mitigation plan includes enhancing 26,491 square feet (0.61 acre) of existing degraded buffer along a Type I/Category II wetland. Based on the wetland and buffer functional analysis conducted by DEA, the proposed mitigation will provide a significant functional lift compared to the existing condition, especially for wildlife and wildlife habitat. The planting plan includes a diverse assemblage of native trees and shrubs, and habitat features. Monitoring requirements, irrigation, and performance standards are also addressed.



Source: USGS Topographic Maps, TOPO

*City of Kirkland Residence XII
Renovation and Expansion Critical Areas Report*

Vicinity Map

RESX0000-0001

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Figure 1

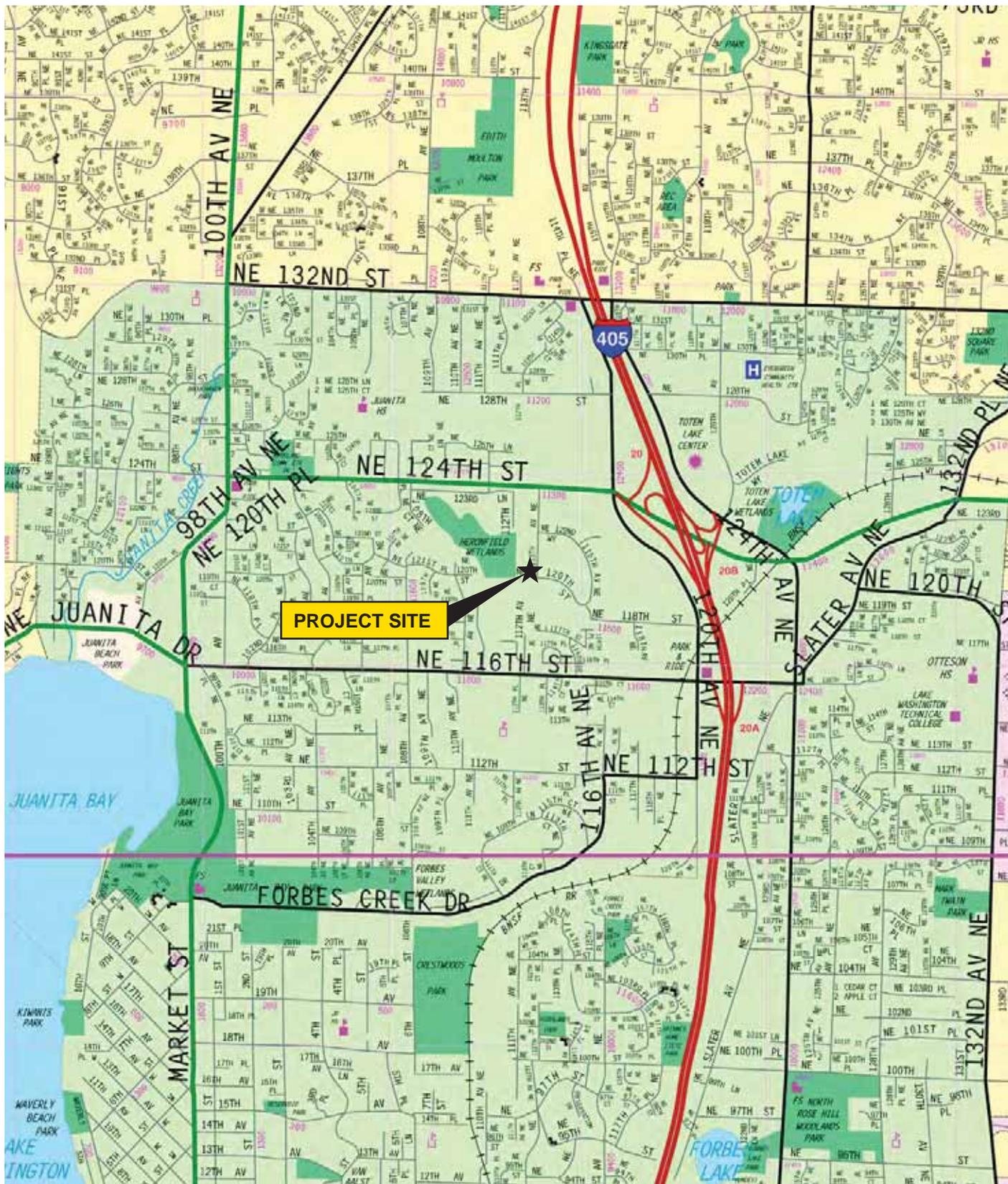


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Scale in Miles

GX1937



Source: The Thomas Guide Digital Edition

SCALE: 1" = 1900'



City of Kirkland Residence XII
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Site Map

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Figure 2



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Source: Terra Server USA

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Aerial Site Photo 1

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Figure 3a



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Note: Project boundaries are approximate.

| | | | |
|---|---|-------------------------|--|
| <p>Source: Terra Server USA</p>  | <p><i>City of Kirkland Residence XII Renovation and Expansion Critical Areas Report</i></p> | |  <p>DAVID EVANS AND ASSOCIATES INC.</p> |
| | <p><i>Aerial Site Photo 2</i></p> | | |
| | <p>RESX0000-0001</p> | <p><i>Figure 3b</i></p> | |
| | <p>January 2010</p> | | |

Gx1980

2.0 METHODS

2.1 PRELIMINARY DATA GATHERING AND REVIEW

Published information about local critical areas was reviewed for evidence of wetlands, streams, and potential wildlife habitat. This report was prepared following the review of project plans, public domain resource data, and multiple site visits.

The Washington Department of Fish and Wildlife (WDFW) – Priority Habitat Species (PHS) program (WDFW 2008), and the Washington State Department of Natural Resources (WDNR) Washington Natural Heritage Program (NHP) (WDNR 2010) were consulted for documented occurrences of priority habitats or species, rare plants, and high quality native ecosystems in the project vicinity. Priority habitats include, but are not limited to, such features as high quality wetlands, riparian areas, snag-rich areas, caves, cliffs, oak woodlands, rocky shorelines, and old-growth forests. Priority species are plants and animals listed by the state or federal government as endangered, threatened, sensitive, candidate, or species of concern. The potential use of the project area by mammals, birds, amphibians, and reptiles was investigated through review of Washington State Gap Analysis (WSGA) data. The information reviewed included:

- WDFW – PHD data dated July 14, 2008
- WDNR – NHP data for King County dated February 2009 (checked January 2010), available on the world wide web at: <http://www1.dnr.wa.gov/nhp/refdesk/lists/plantsxco/king.html>
- WDNR – NHP *Sections that Contain Natural Heritage Features* dated July 2009 (checked January 2010), available on the world wide web at: http://www.dnr.wa.gov/Publications/amp_nh_trs.pdf
- National Wetlands Inventory (NWI), Kirkland Quadrangle, 1:24,000, United States Department of Interior – Fish and Wildlife Service (USDI 1988)
- United States Geological Survey mapping via National Geographic TOPO mapping software
- Kirkland’s Streams, Wetlands and Wildlife Study, July 1998
- *A Catalog of Washington Streams and Salmon Utilization – Volume 1 – Puget Sound Region*. Washington Department of Fisheries (Williams et al. 1975)
- *Salmon and Steelhead Habitat Limiting Factors Report for the Cedar – Sammamish Basin (Water Resource Inventory Area 8)* (Kerwin 2001)
- *Breeding Birds of Washington State: Location Data and Predicted Distributions* (Smith et al. 1997)
- *Terrestrial Mammals of Washington State: Location Data and Predicted Distributions* (Johnson and Cassidy 1997)
- *Amphibians and Reptiles of Washington State: Location Data and Predicted Distributions* (Dvornich et al. 1997)
- United States Department of Agriculture – Soil Conservation Service: *Soil Survey of the King County Area*, Washington (USDA 1973)

- *Residence XII Properties Wetland Delineation Study – Project # 060701.13* prepared by The Watershed Company dated October 2, 2006; includes a delineation sketch, data forms, and field rating form (The Watershed Company 2006)
- Cooke Scientific – *Residence XII Proposed Expansion Critical Area Reconnaissance* dated December 20, 2004 (Cooke Scientific 2004)
- Wetland Determination of the Huber Property (DEA 1990)
- Conceptual Mitigation Plan for the Huber Property (DEA 1992)
- Wetland Verification Letter for the Residence XII Property (DEA 1994)

2.2 WETLAND FUNCTION ASSESSMENT

Wetlands and their buffers are known to perform significant ecological functions, some of which are of immediate value to human society. Although these functions are complex, interrelated, and difficult to assess and quantify, the Semi-Quantitative Assessment Methodology provides a rapid method for rating functions of wetlands and buffers (Cooke Scientific 2000). This rating method generates a relative score for up to eight wetland functions, including flood/storm water control, base flow/ground water support, erosion/shoreline protection (only used for riverine or lacustrine wetlands), water quality improvement, natural biological support, overall habitat function, specific habitat functions, and cultural/socioeconomic value. The relative score for each function was broken down into a low, medium, or high level of value (**Table 1**).

Table 1: Functional Value Assessment

| General Functional Value | Functional Rating Raw Score | | | | | | | |
|--------------------------|-----------------------------|-----------|------------------------------|---------------------|----------------------------|--------------------------|---------------------------|-------------------------|
| | Flood/Storm Water Control | Base Flow | Erosion Shoreline Protection | Water Quality Impr. | Natural Biological Support | Overall Habitat Function | Specific Habitat Function | Cultural/Socio-economic |
| Low | 5 - 7 | 5 - 7 | 0 - 3 | 5 - 7 | 12 - 19 | 3 - 4 | 5 - 7 | 6 - 9 |
| Medium | 8 - 11 | 8 - 11 | 4 - 6 | 8 - 11 | 20 - 28 | 5 - 7 | 8 - 11 | 10 - 14 |
| High | 12 - 15 | 12 - 15 | 7 - 9 | 12 - 15 | 29 - 36 | 8 - 9 | 12 - 15 | 15 - 18 |

2.3 FIELD INVESTIGATION

DEA performed multiple site visits during August 2008 and September 2009 to verify preliminary data findings, document existing habitat conditions and wildlife use, assess on-site wetland mitigation potential, and re-delineate the wetland boundary along the edge of the existing Residence XII building.

The wetland edge was delineated based on the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (U.S. Army Corps of Engineers [Corps] 2008). Two data plots were recorded; the data forms are contained within **Appendix B**. Wetlands were rated based on the Washington State Wetland Rating System for Western Washington (Hruby 2004). The Washington State Department of Ecology (Ecology) rating method also provides a mechanism for assessing wetland function based on the score for water quality, hydrology, and habitat. A copy of the completed rating form is within **Appendix C**. Plants were identified based on *A Field Guide to the Common Wetland Plants of Western Washington & Northwestern Oregon* (Cooke 1997).

3.0 RESULTS

3.1 PRELIMINARY DATA GATHERING AND REVIEW

3.1.1 WDFW PHS Data

The WDFW PHS data did not identify priority wildlife heritage points or priority habitat points in the immediate vicinity of the project site. The closest priority habitat site is a bald eagle (*Haliaeetus leucocephalus*) nest located along the Lake Washington shoreline that is over 1.5 mile southwest of the project site. The western portion of Heronfield Wetlands (Juanita 6) is identified as a priority habitats and species polygon associated with a small tributary stream that drains to Lake Washington. The PHS data further states most of this area is heavily developed as urban housing and/or industrial, and that some of these wetlands have an open water component. The mainstem of Juanita Creek is mapped as occurring approximately one mile northeast of the project site. Juanita Creek is identified by the WDFW as containing priority anadromous and resident fish, including fall Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), sockeye salmon (*O. nerka*), and resident cutthroat trout (*O. clarki*).

3.1.2 WDNR NHP Data

The WDNR reports that 26 rare plants occur in King County (**Table 2**). However, no rare plants have been identified by the WDNR as occurring on site or in the immediate vicinity of the project area.

Table 2: Rare Plants of King County

| Common Name | Scientific Name | State Status ¹ | Federal Status ¹ | Historic Record |
|------------------------------|-----------------------------------|---------------------------|-----------------------------|-----------------|
| Swamp Sandwort | <i>Arenaria paludicola</i> | X | LE | Yes |
| Stalked Moonwort | <i>Botrychium pedunculosum</i> | S | SC | No |
| Alaska Harebell | <i>Campanula lasiocarpa</i> | S | None | No |
| Bristly Sedge | <i>Carex comosa</i> | S | None | No |
| Large-awn Sedge | <i>Carex macrochaeta</i> | T | None | Yes |
| Few-flowered Sedge | <i>Carex pauciflora</i> | S | None | No |
| Long-styled Sedge | <i>Carex stylosa</i> | S | None | No |
| Clubmoss Cassiope | <i>Cassiope lycopodioides</i> | T | None | No |
| Golden Paintbrush | <i>Castilleja levisecta</i> | E | LT | Yes |
| Golden Chinquapin | <i>Chrysolepis chrysophylla</i> | S | None | No |
| Tall Bugbane | <i>Cimicifuga elata</i> | S | SC | Yes |
| Spleenwort-leaved goldthread | <i>Coptis asplenifolia</i> | S | None | No |
| Toothed Wood Fern | <i>Dryopteris carthusiana</i> | R1 | None | No |
| Black Lily | <i>Fritillaria camschatcensis</i> | S | None | No |
| Floating Water Pennywort | <i>Hydrocotyle ranunculoides</i> | S | None | No |
| Canadian St. John's-wort | <i>Hypericum majus</i> | S | None | No |
| Water Lobelia | <i>Lobelia dortmanna</i> | T | None | No |
| Bog Clubmoss | <i>Lycopodiella inundata</i> | S | None | Yes |
| Treelike Clubmoss | <i>Lycopodium dendroideum</i> | S | None | No |
| White Meconella | <i>Meconella oregana</i> | T | SC | Yes |
| Branching Montia | <i>Montia diffusa</i> | S | None | Yes |
| Texas toadflax | <i>Nuttallanthus texanus</i> | S | None | Yes |
| Choris' Bog-orchid | <i>Platanthera chorisiana</i> | T | None | No |
| White-top Aster | <i>Sericocarpus rigidus</i> | S | SC | No |
| Humped Bladderwort | <i>Utricularia gibba</i> | R1 | None | Yes |
| Flat-leaved Bladderwort | <i>Utricularia intermedia</i> | S | None | No |
| Lesser Bladderwort | <i>Utricularia minor</i> | R1 | None | No |

Note 1. Status Key: E = endangered, T = threatened, S = sensitive, R1 = review group 1 (potential concern but need more field work), R2 = review group 2 (potential concern but unresolved taxonomic questions), LT = listed threatened, SC = species of concern, and Yes under Historic Record indicates the most recent sighting in the county is before 1977.

The 26 rare plants identified as potentially occurring in King County by the WDNR typically have very specific habitat requirements. These range from being associated with prairie/grassland habitats, bogs and fens, freshwater wetlands or lake margins, high elevation/sub alpine habitats, old growth forests, or coniferous forests. Based on a review of *Sections that Contain Natural Heritage Features*, no occurrences have been documented in Section 29, Township 26 north, Range 05 east (WDNR 2010).

3.1.3 Streams

Williams et al. (1975) describes Juanita Creek (stream number 08-0230) as a 3.5-mile-long stream with at least six tributaries that add 7.6 additional miles of stream (**Figure 4**). The main tributaries are Simonds, Upper West, Lower West, and Totem Lake.

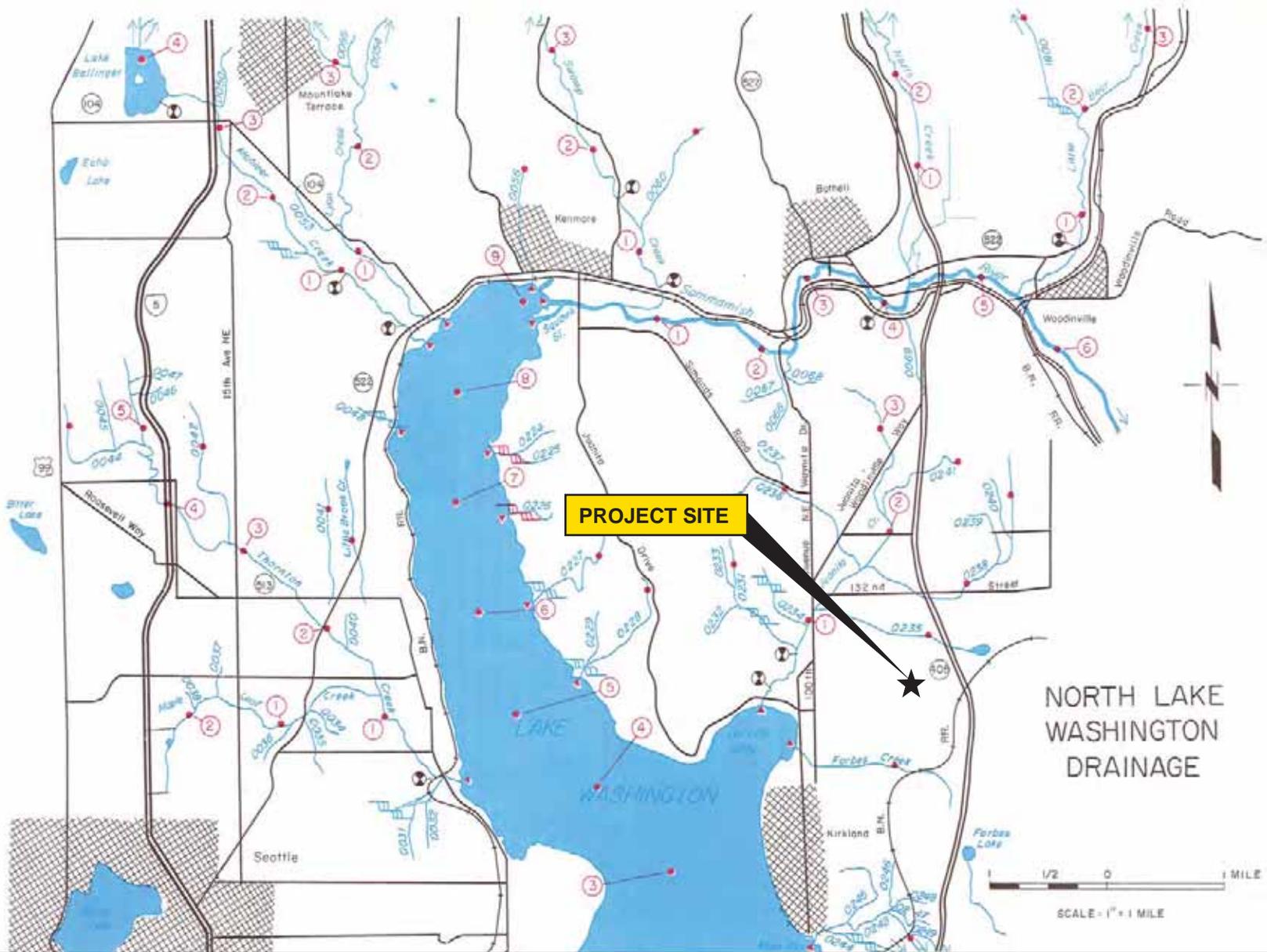
Tributary 08-0235 is the closest mapped stream, which is approximately three-eighths of a mile north of the project site. *Kirkland's Streams, Wetlands and Wildlife Study* includes some additional stream segments that hydrologically interconnect the project area wetland to Tributary 08-0235 (**Figure 5**) (The Watershed Company 1998).

Anadromous salmonid use includes coho (*O. kisutch*) and sockeye (*O. nerka*) salmon (Williams et al. 1975). Cutthroat trout (*O. clarki*), kokanee (*O. nerka*), sculpins (*Cottus* spp.), western brook lamprey (*Lampetra richardsoni*), and three-spined sticklebacks (*Gasterosteus aculeatus*) are also present in Juanita Creek (The Watershed Company 1998).

Stream Habitat. Habitat conditions in Juanita Creek are variable, but typical of most urbanized streams in that habitat conditions have been degraded. According to Kerwin (2001), the primary limiting factors affecting Juanita Creek include:

- “No fish passage barriers have been documented in the mainstem Juanita Creek but barriers exist in tributaries;
- High levels of fines are present that effectively limit the success of egg incubation;
- Channel complexity and connectivity with the floodplain and adjacent stream reaches are reduced due to road crossings/culverts, streambank armoring, channel incision and instability, and historical and on-going clearing and development in riparian areas;
- Riparian buffers on the mainstem vary from less than 10 to a maximum of 50 feet; and
- The presence of pesticides may limit natural production of salmonids.”

For a detailed description of existing conditions in the Juanita Creek basin, see *Salmon and Steelhead Habitat Limiting Factors Report for the Cedar – Sammamish Basin (Water Resource Inventory Area 8)* (Kerwin 2001) and *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company 1998).



Source: Williams et al., 1975

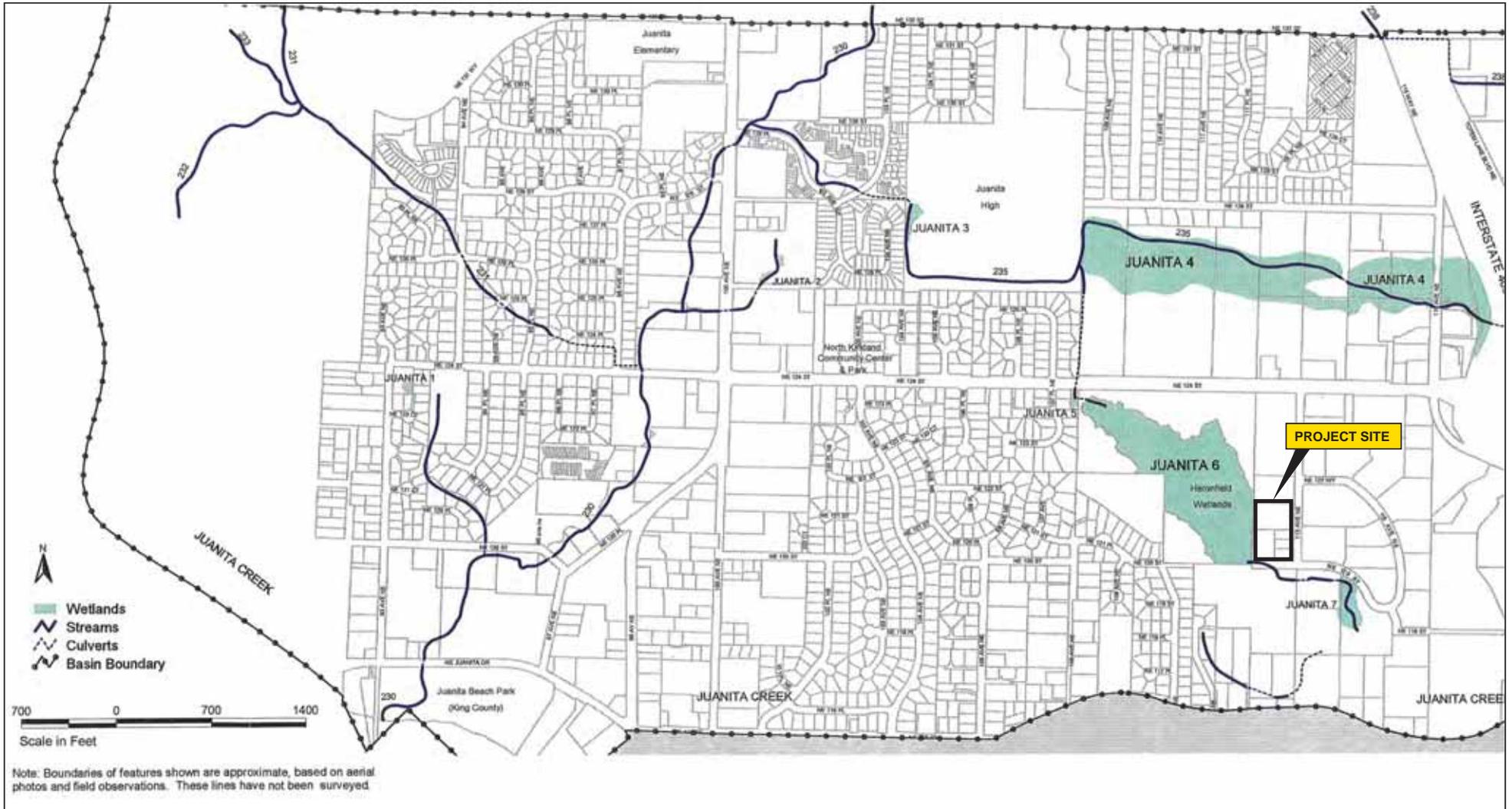
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WDFW Stream Map

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Figure 4





Source: City of Kirkland Wetlands and Streams, July 1998

City of Kirkland Residence XII
Renovation and Expansion Critical Areas Report

City of Kirkland's Wetland Map

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Figure 5



Habitat Summary. Existing stream and watershed conditions were quantified by using watershed and habitat parameters as defined by the “Matrix of Pathways and Indicators” developed by the National Marine Fisheries Service (NMFS). The “Matrix of Pathways and Indicators” summarizes important parameters for six major pathways, including:

1. Water Quality
2. Habitat Access
3. Habitat Elements
4. Channel Condition and Dynamics
5. Flow/Hydrology
6. Watershed Conditions

These six major pathways are further broken down into a total of 18 indicators. As an example, the water quality pathway is composed of three indicators: temperature, sediment/turbidity, and chemical contamination/nutrients. The indicator conditions are classified as either “properly functioning,” “at risk,” or “not properly functioning.” Criteria for each condition is defined by a range or goal based on the best available scientific data available, but criteria are not absolute and may be adjusted for unique watersheds (NOAA Fisheries 1996).

The U.S. Fish and Wildlife Service (USFWS) utilize two additional pathways that specifically address bull trout, including subpopulation characteristics and integration of species and habitat conditions (USFWS 1998). The subpopulation characteristic pathway is composed of four indicators including subpopulation size, growth and survival, life history diversity and isolation, and persistence and genetic integrity. **Table 3** summarizes the baseline conditions based on NMFS and USFWS criteria.

Table 3: Matrix of Pathways and Indicators Summary

| PATHWAY | INDICATORS | BASELINE CONDITIONS |
|---------------------------------|------------------------------------|--------------------------|
| | | Juanita Creek |
| Water Quality | Temperature | At Risk |
| | Sediment | Not Properly Functioning |
| | Chemical Contamination & Nutrients | Not Properly Functioning |
| Habitat Access | Physical Barriers | Functioning at Risk |
| Habitat Elements | Substrate | Not Properly Functioning |
| | Large Woody Debris (LWD) | Not Properly Functioning |
| | Pool Frequency | At Risk |
| | Pool Quality/Depth | Not Properly Functioning |
| | Off-Channel Habitat | Not Properly Functioning |
| | Refugia | Not Properly Functioning |
| Channel Conditions and Dynamics | Width/Depth Ratio | Properly Functioning |
| | Streambank Condition | Not Properly Functioning |
| | Floodplain Connectivity | Functioning at Risk |
| Flow/Hydrology | Change in Peak/Base Flows | Not Properly Functioning |
| | Increase in Drainage Network | Not Properly Functioning |

| PATHWAY | INDICATORS | BASELINE CONDITIONS Juanita Creek |
|--|--|--------------------------------------|
| Watershed Conditions | Road Density and Location | Not Properly Functioning |
| | Disturbance History | Not Properly Functioning |
| | Riparian Reserve/Conservation Areas | Not Properly Functioning |
| Subpopulation Characteristics (bull trout) | Subpopulation Size | Not Properly Functioning |
| | Growth and Survival | Not Properly Functioning |
| | Life History Diversity and Isolation | Not Properly Functioning |
| | Persistence and Genetic Integrity | Not Properly Functioning |
| Species and Habitat | Species Integration/Habitat Conditions | Not Properly Functioning |

Note: Baseline conditions are based on a review of *Habitat Inventory and Assessment of Juanita Creek in 2000* (King County 2002); *Reviving Urban Streams: Land Use, Hydrology, Biology, and Human Behavior* (Booth et al. 2004); Washington Department of Ecology 303(d) listings; and multiple site visits for various projects.

3.1.4 Wetlands

The NWI – Kirkland, Washington (1988) map (**Figure 6**) depicts a large wetland complex existing south and west of the project area. This wetland complex apparently consists of palustrine forest (PFOA), palustrine scrub-shrub (PSSA), and palustrine emergent (PEMA and PEMC) components.

Kirkland's Streams, Wetlands and Wildlife Study (The Watershed Company 1998), depicts the same wetland as the NWI map, but labels the wetland to the west of the project site as Juanita 6 or Heronfield Wetlands (**Figure 5**). This report states Juanita 6 is approximately 15.63 acres large; composed of PFO, PSS, and PEM wetland classes; contains numerous snags and cavities; signage along portions of its boundary provide educational information; and that buffers are generally absent except along the southwest edge.

3.1.5 On-Site Wetland Delineation History

The wetland edge behind (west and north of) the existing Residence XII building on Parcel number 2926059124, the west and south sides of Parcel number 2926059126, and the south side of Parcel number 2926059182 have been delineated multiple times using different delineation manuals. DEA conducted the first wetland delineation for what would become Residence XII (previously known as the Huber Property) during April 1990 and again during January 1994, utilizing the 1989 *Federal Manual for Identification and Delineation of Jurisdictional Wetlands*. It is interesting to note that use of the 1989 manual was short-lived. In 1987, the Corps came out with the *Corps of Engineers Wetlands Delineation Manual*. The 1987 manual was then replaced by the 1989 manual. However, in 1991, Congress withdrew the 1989 manual due to several “issues.” An official Memorandum of Agreement between multiple federal agencies was published in the federal register on January 19, 1994, stating they would all utilize the 1987 manual, which once again became the primary delineation manual for purposes of determining jurisdiction under Section 404 of the Clean Water Act. The 1987 manual was the primary delineation manual from 1994 through 2008. The *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997) is basically the 1987 manual with additional guidance and supplemental information. DEA re-delineated this edge on September 15, 2009, utilizing the 2008 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*, which now supersedes the 1987 manual. In this case, the wetland edge would be identical regardless of using the 2008 Corps wetland manual or 1997 Ecology wetland manual. Besides the different methods, the project site has changed significantly since the original wetland edge was delineated approximately 19 years ago. The site was previously graded, and the on-site wetland consisted of emergent species. The site and

surrounding uplands are now mostly paved, while the on-site portion of Heronfield (Juanita 6) wetland is now primarily forested with red alder. Some of the upland plots near the 1990 wetland edge originally met the hydrology indicator, but lacked hydric soils and hydrophytic vegetation due to fill and grading activities. The passage of time has resulted in a significant change in both vegetation and soil. When comparing the results from 1990 and 2009, these combined factors resulted in the wetland edge moving closer to the Residence XII facility.

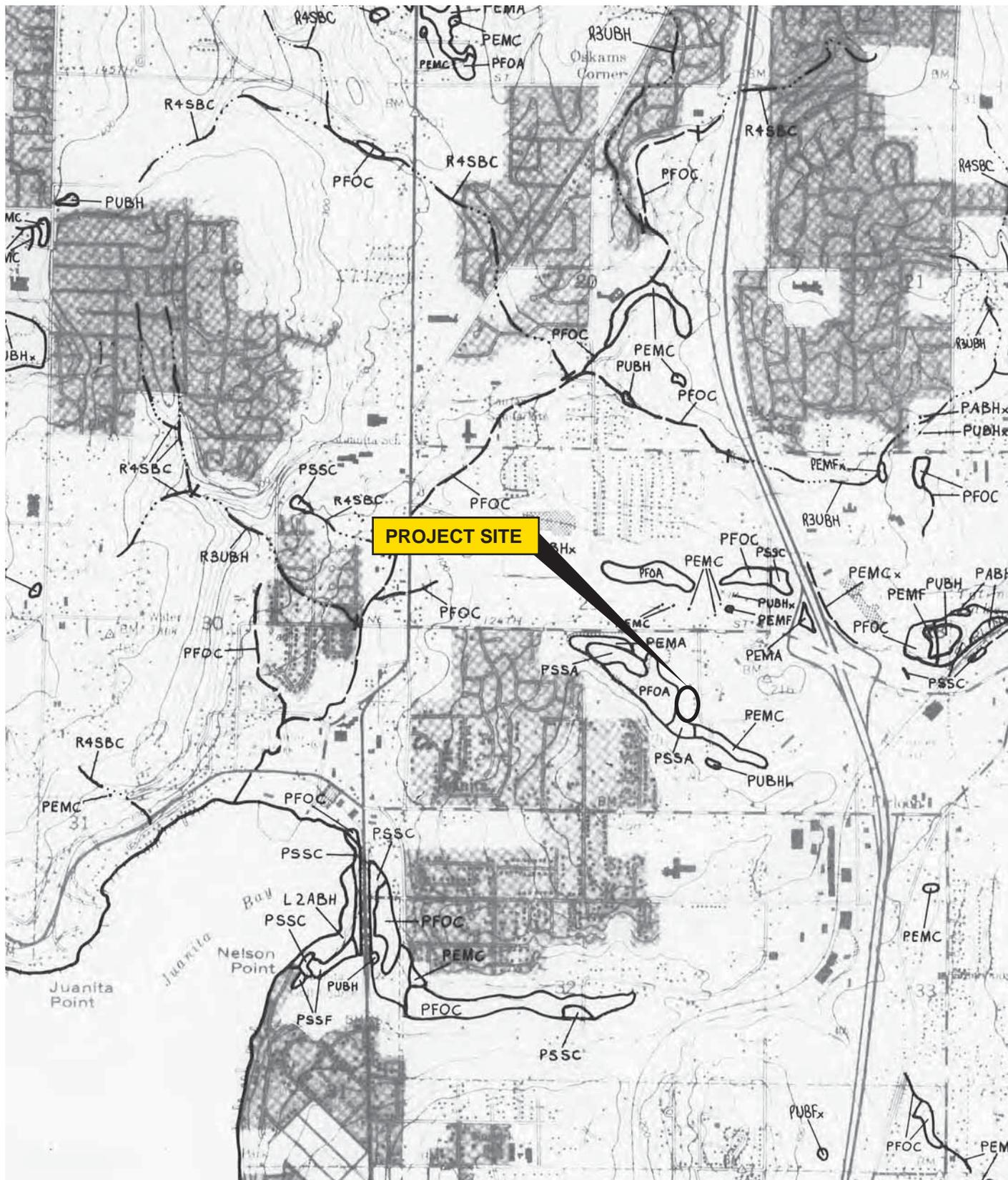
The northern parcels, which were purchased by Residence XII in 2006, were investigated for wetlands by Cooke Scientific on October 5, 2004 (**Appendix D**), and The Watershed Company on September 18, 2006 (**Appendix E**). The Watershed Company re-delineated the wetland edge on January 18, 2008, utilizing the 1997 Ecology manual. Cooke Scientific performed a wetland reconnaissance that documented the presence of wetlands abutting Parcels 2926059182 and 2926059126, while The Watershed Company delineated the wetland edges twice (2006 and 2008). No wetlands are present on or immediately adjacent to Parcel numbers 2926059181 and 2926059180.

3.1.6 U.S. Department of Agriculture Soil Data

The U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) mapped soils in the project area as consisting of Kitsap silt loam (KpB) on 2 to 8 percent slopes and Seattle muck (Sk). The Kitsap silt loam is located near or along 113th Avenue East, while the Seattle muck is located to the west (**Figure 7**). The USDA SCS Hydric Soils of the State of Washington (USDA 1991) list for King County includes Seattle muck as a hydric soil.

The typical soil profile of Kitsap silt loam is very dark brown (10YR 2/2) silt loam and dark grayish brown (10YR 4/2) from 0 to 5 inches, dark yellowish-brown (10YR 3/4) and brown (10YR 5/3) silt loam from 5 to 24 inches. This soil shifts to an olive-gray (5Y 5/2) silty clay loam with prominent mottles of dark yellowish brown and strong brown (10YR 4/4 and 7.5YR 5/8) from 24 to 60 inches deep.

The Seattle series is made up of very poorly drained organic soils located in depressions and valleys on the glacial till plain and in river and stream valleys. The subsurface of Seattle muck is described as stratified mucky peat, muck, and peat that is formed mostly from sedges. The typical profile is black muck at the surface to about 11 inches deep underlain by dark reddish-brown, black, very dark brown, and dark-brown muck and mucky peat that extends to a depth of 60 inches or more.



Source:
U.S. Department of the Interior, National Wetlands Inventory



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National Wetland Inventory Map

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Figure 6



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3.1.7 Amphibians and Reptiles

The WSGA data for amphibians and reptiles contains limited site-specific occurrence data, but includes a map for each species outlining its core and peripheral zones (Dvornich et al. 1997). These zones represent the potential distribution of each species based on the presence of suitable habitat within each zone. Therefore, the species outlined below in **Table 4** have the potential to occur in the general project area if suitable habitat is present.

Table 4: Amphibians and Reptiles

| Common Name | Scientific Name |
|----------------------------------|--------------------------------|
| Northwestern Salamander | <i>Ambystoma gracile</i> |
| Long-toed Salamander | <i>Ambystoma macrodactylum</i> |
| Pacific Giant Salamander | <i>Dicamptodon tenebrosus</i> |
| Roughskin Newt | <i>Taricha granulosa</i> |
| Western Redback Salamander | <i>Plethodon vehiculum</i> |
| Ensatina | <i>Ensatina eschscholtzii</i> |
| Western Toad | <i>Bufo boreas</i> |
| Pacific Treefrog | <i>Hyla regilla</i> |
| Red-legged Frog | <i>Rana aurora</i> |
| Bullfrog | <i>Rana catesbeiana</i> |
| Painted Turtle | <i>Chrysemys picta</i> |
| Slider | <i>Trachemys scripta</i> |
| Northern Alligator Lizard | <i>Elgaria coerulea</i> |
| Western Terrestrial Garter Snake | <i>Thamnophis elegans</i> |
| Northwestern Garter Snake | <i>Thamnophis ordinoides</i> |
| Common Garter Snake | <i>Thamnophis sirtalis</i> |
| Rubber Boa | <i>Charina bottae</i> |

3.1.8 Mammals

Based on a review of WSGA data (Johnson and Cassidy 1997), 27 mammals have been documented in Township 26 North by Range 05 East (**Table 5**). However, this list is not all-inclusive and only includes species that were documented in the WSGA database prior to 1997.

Table 5: Mammal Record Summary for T26N R05E

| # | Common Name | Scientific Name |
|-----|--------------------------|----------------------------------|
| 1. | Bendire's Shrew | <i>Sorex bendirii</i> |
| 2. | Montane Shrew | <i>Sorex monticolus</i> |
| 3. | Trowbridge's Shrew | <i>Sorex trowbridgii</i> |
| 4. | Vagrant Shrew | <i>Sorex vagrans</i> |
| 5. | Shrew-mole | <i>Neurotrichus gibbsii</i> |
| 6. | Coast Mole | <i>Scapanus orarius</i> |
| 7. | Townsend's Mole | <i>Scapanus townsendii</i> |
| 8. | Little Brown Myotis | <i>Myotis lucifugus</i> |
| 9. | Hoary Bat | <i>Lasiurus cinereus</i> |
| 10. | Silver-haired Bat | <i>Lasionycteris noctivagans</i> |
| 11. | Snowshoe Hare | <i>Lepus americanus</i> |
| 12. | Mountain Beaver | <i>Aplodontia rufa</i> |
| 13. | Townsend's Chipmunk | <i>Tamias townsendii</i> |
| 14. | Douglas' Squirrel | <i>Tamiasciurus douglasii</i> |
| 15. | Northern Flying Squirrel | <i>Glaucomys sabrinus</i> |
| 16. | Creeping Vole | <i>Microtus oregoni</i> |

| # | Common Name | Scientific Name |
|-----|-----------------------|----------------------------|
| 17. | Townsend's Vole | <i>Microtus townsendii</i> |
| 18. | Muskrat | <i>Ondatra zibethicus</i> |
| 19. | Pacific Jumping Mouse | <i>Zapus trinotatus</i> |
| 20. | House Mouse | <i>Mus musculus</i> |
| 21. | Black Rat | <i>Rattus rattus</i> |
| 22. | Coyote | <i>Canis latrans</i> |
| 23. | Long-tailed Weasel | <i>Mustela frenata</i> |
| 24. | Mink | <i>Mustela vison</i> |
| 25. | Striped Skunk | <i>Mephitis mephitis</i> |
| 26. | Spotted Skunk | <i>Spilogale gracilis</i> |
| 27. | Bobcat | <i>Lynx rufus</i> |

Other species not documented in the WSGA database that could potentially utilize the project vicinity include the Virginia opossum (*Didelphis virginiana*), California myotis (*Myotis californicus*), long-eared myotis (*Myotis evotis*), long-legged myotis (*Myotis volans*), Yuma myotis (*Myotis yumanensis*), big brown bat (*Eptesicus fuscus*), Townsend's big-eared bat (*Plecotus townsendii*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), beaver (*Castor canadensis*), forest deer mouse (*Peromyscus keeni*), deer mouse (*Peromyscus maniculatus*), long-tailed vole (*Microtus longicaudus*), nutria (*Myocastor coypus*), Norway rat (*Rattus norvegicus*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), and ermine (*Mustela erminea*).

3.1.9 Birds

Based on a review of WSGA data, approximately 75 bird species could potentially nest within a few miles of the project area (Smith et al. 1997). This determination is based on combining confirmed, probable, and possible breeding evidence. It is important to note that the species listed in **Table 6** are not necessarily associated with the project area, but could potentially utilize the project vicinity for nesting, foraging, or during migration.

Table 6: Breeding Bird Summary

| # | Common Name | Scientific Name |
|-----|----------------------|---------------------------------|
| 1. | Pied-billed Grebe | <i>Podilymbus podiceps</i> |
| 2. | Great Blue Heron | <i>Ardea herodias</i> |
| 3. | Green Heron | <i>Butorides virescens</i> |
| 4. | Canada Goose | <i>Branta canadensis</i> |
| 5. | Wood Duck | <i>Aix sponsa</i> |
| 6. | Green-winged Teal | <i>Anas crecca</i> |
| 7. | Mallard | <i>Anas platyrhynchos</i> |
| 8. | Gadwall | <i>Anas strepera</i> |
| 9. | Common Merganser | <i>Mergus merganser</i> |
| 10. | Osprey | <i>Pandion haliaetus</i> |
| 11. | Bald Eagle | <i>Haliaeetus leucocephalus</i> |
| 12. | Cooper's Hawk | <i>Accipiter cooperii</i> |
| 13. | Red-tailed Hawk | <i>Buteo jamaicensis</i> |
| 14. | California Quail | <i>Callipepla californica</i> |
| 15. | Virginia Rail | <i>Rallus limicola</i> |
| 16. | American Coot | <i>Fulca americana</i> |
| 17. | Killdeer | <i>Charadrius vociferus</i> |
| 18. | Spotted Sandpiper | <i>Actitis macularia</i> |
| 19. | Glaucous-winged Gull | <i>Larus glaucescens</i> |
| 20. | Rock Dove | <i>Columba livia</i> |
| 20. | Band-tailed Pigeon | <i>Columba fasciata</i> |
| 21. | Vaux's Swift | <i>Chaetura vauxi</i> |

| # | Common Name | Scientific Name |
|-----|-----------------------------|----------------------------------|
| 22. | Rufous Hummingbird | <i>Selasphorus rufus</i> |
| 23. | Belted Kingfisher | <i>Ceryle alcyon</i> |
| 24. | Red-breasted Sapsucker | <i>Sphyrapicus ruber</i> |
| 25. | Downy Woodpecker | <i>Picoides pubescens</i> |
| 26. | Hairy Woodpecker | <i>Picoides villosus</i> |
| 27. | Northern Flicker | <i>Colaptes auratus</i> |
| 28. | Pileated Woodpecker | <i>Dryocopus pileatus</i> |
| 29. | Olive-sided Flycatcher | <i>Contopus borealis</i> |
| 30. | Western Wood-Pewee | <i>Contopus sordidulus</i> |
| 31. | Willow Flycatcher | <i>Empidonax traillii</i> |
| 32. | Pacific-slope Flycatcher | <i>Empidonax difficilis</i> |
| 33. | Tree Swallow | <i>Tachycineta bicolor</i> |
| 34. | Violet-green Swallow | <i>Tachycineta thalassina</i> |
| 35. | Cliff Swallow | <i>Hirundo pyrrhonota</i> |
| 36. | Barn Swallow | <i>Hirundo rustica</i> |
| 37. | Steller's Jay | <i>Cyanocitta stelleri</i> |
| 38. | American Crow | <i>Corvus brachyrhynchos</i> |
| 39. | Black-capped Chickadee | <i>Parus atricapillus</i> |
| 40. | Chestnut-backed Chickadee | <i>Parus rufescens</i> |
| 41. | Bushtit | <i>Psaltriparus minimus</i> |
| 42. | Red-breasted Nuthatch | <i>Sitta canadensis</i> |
| 43. | Brown Creeper | <i>Certhia americana</i> |
| 44. | Bewick's Wren | <i>Thryomanes bewickii</i> |
| 45. | Winter Wren | <i>Troglodytes troglodytes</i> |
| 46. | Marsh Wren | <i>Cistothorus palustris</i> |
| 47. | Golden-crowned Kinglet | <i>Regulus satrapa</i> |
| 48. | Swainson's Thrush | <i>Catharus ustulatus</i> |
| 49. | American Robin | <i>Turdus migratorius</i> |
| 50. | Cedar Waxwing | <i>Bombycilla cedrorum</i> |
| 51. | European Starling | <i>Sturnus vulgaris</i> |
| 52. | Hutton's Vireo | <i>Vireo huttoni</i> |
| 53. | Warbling Vireo | <i>Vireo gilvus</i> |
| 54. | Orange-crowned Warbler | <i>Vermivora celata</i> |
| 55. | Yellow Warbler | <i>Dendroica petechia</i> |
| 56. | Black-throated Gray Warbler | <i>Dendroica nigrescens</i> |
| 57. | Common Yellowthroat | <i>Geothlypis trichas</i> |
| 58. | Wilson's Warbler | <i>Wilsonia pusilla</i> |
| 59. | Western Tanager | <i>Piranga ludoviciana</i> |
| 60. | Black-headed Grosbeak | <i>Pheucticus melanocephalus</i> |
| 61. | Spotted Towhee | <i>Pipilo maculatus</i> |
| 62. | Savannah Sparrow | <i>Passerculus sandwichensis</i> |
| 63. | Song Sparrow | <i>Melospiza melodia</i> |
| 64. | White-crowned Sparrow | <i>Zonotrichia leucophrys</i> |
| 65. | Dark-eyed Junco | <i>Junco hyemalis</i> |
| 66. | Red-winged Blackbird | <i>Agelaius phoeniceus</i> |
| 67. | Brewer's Blackbird | <i>Euphagus cyanocephalus</i> |
| 68. | Brown-headed Cowbird | <i>Molothrus ater</i> |
| 69. | Bullock's Oriole | <i>Icterus bullockii</i> |
| 70. | Purple Finch | <i>Carpodacus purpureus</i> |
| 71. | House Finch | <i>Carpodacus mexicanus</i> |
| 72. | Red Crossbill | <i>Loxia curvirostra</i> |
| 73. | Pine Siskin | <i>Carduelis pinus</i> |
| 74. | American Goldfinch | <i>Carduelis tristis</i> |
| 75. | House Sparrow | <i>Passer domesticus</i> |

3.1.10 Federally Listed Species

The USFWS species list for King County (revised August 1, 2011) includes species listed as threatened or endangered (**Appendix F**). Based on a review of existing habitat conditions and the WDFW PHS data, federally listed species under the jurisdiction of the USFWS do not exist within the immediate project area. Juanita Creek does not provide suitable habitat for bull trout, nor has it been designated as critical habitat.

The NMFS has jurisdiction over federally listed anadromous salmonids, marine mammals and turtles, designated Chinook salmon critical habitat, and essential fish habitat (EFH) (**Appendix G**). Chinook salmon and steelhead trout, which are both listed as threatened species, have been documented in Juanita Creek, but use is likely to be extremely limited. Juanita Creek has not been designated as Chinook salmon critical habitat.

3.2 FIELD INVESTIGATION

DEA performed multiple site visits, but the primary field investigation took place on August 6, 2008. The purpose of the field investigation was to verify past wetland classifications, rate the wetland based on Ecology methodology, document wetland and buffer conditions, and review the areas subject to development. Site photos are contained within **Figure 8**.

3.2.1 Wetlands

One large wetland complex exists along the western and southern edges of the project site. The City classifies this wetland as Type 1, which requires a 100-foot buffer and additional 10-foot setback for structures. Based on the Ecology Rating Method, Wetland A (Heronfield [Juanita 6]) would be a Category II wetland based on functions (**Table 7, Appendix C**). Wetland A received a total score of 67 points, which consisted of 26 points for water quality functions, 20 points for hydrologic functions, and 21 points for habitat functions.

Table 7: Wetland Summary

| Wetland ID | Ecology Category | Ecology Wetland Class | Total Wetland Functions Score | Water Quality Functions Score | Hydrology Functions Score | Wildlife Functions Score | City of Kirkland Buffer Width |
|------------|------------------|-----------------------|-------------------------------|-------------------------------|---------------------------|--------------------------|-------------------------------|
| A | II | Depressional | 67 | 26 | 20 | 21 | 100 feet |



PHOTO 1



PHOTO 2

- ① Signage at entrance to Residence XII.
- ② View of Residence XII from 113th Avenue NE.

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Renovation and Expansion Critical Areas Report*

Site Photos

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Figure 8



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PHOTO
3



PHOTO
4

3 View of SW corner of existing facility where infill is proposed.

4 View of SW corner from within proposed mitigation area.

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Figure 8



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PHOTO 5



PHOTO 6

5 Close-up of SW corner. Note that this area provides no wetland function.

6 View of western edge of existing facility and stormwater desuperation trench.

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Figure 8



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PHOTO 7



PHOTO 8

7 Western side of existing facility. Wetland edge is near base of fill slope.

8 Interior of western wetland that has been enhanced.

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Figure 8



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PHOTO
9



PHOTO
10

- 9 Overview of proposed mitigation area.
- 10 Southern edge of proposed mitigation area.

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Figure 8



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PHOTO
11



PHOTO
12

- ①① Outlet of Heron Field Wetlands prior to flow being routed under NE 124th Street.
- ①② Local wildlife utilizing the existing wetland buffer.

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Site Photos

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Figure 8



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Wetland A

Wetland A (Heronfield Wetland [Juanita 6]) is located immediately west and south of the project site. It is approximately 15.6 acres and composed of PFO, PSS, and PEM wetland classes. Dominant tree species within Wetland A include red alder (*Alnus rubra*) and Pacific willow (*Salix lucida*). Western red cedar (*Thuja plicata*) is also present, but generally sparse or scattered. Several of the western red cedar trees are snags, while others appear stressed. A few black cottonwood (*Populus balsamifera*) trees are also present. The PSS component is composed of Sitka willow (*Salix sitchensis*), red osier dogwood (*Cornus sericea*), and hardhack (*Spiraea douglasii*). The PEM component is dominated by cattail (*Typha latifolia*), but other species such as small-fruited sedge (*Scirpus microcarpus*), soft rush (*Juncus effuses*), reed canarygrass (*Phalaris arundinacea*), lady fern (*Athyrium filix-femina*), bittersweet nightshade (*Solanum dulcamara*), Himalayan blackberry (*Rubus procerus*), and reedtop (*Agrostis alba*) are present along the disturbed pasture edge. Numerous other species are present within the wetland and adjacent uplands.

The following data is specific to the data plots (DPs) documented by DEA when delineating the wetland edge immediately adjacent to the existing facility on September 15, 2009. Please refer to **Appendices D and E** for additional information on data gathered by others during earlier investigations of the project area. Two data plots were recorded for Wetland A. DP 1 was located within an area that had been replanted with native vegetation as part of the mitigation process for buffer reduction. DP 2 was located atop what appears to be the building pad. Data forms are contained within **Appendix B**.

Soils. A summary of the soils within each DEA DP follows:

DP 1: The entire soil profile from the surface to a depth of 20 plus inches had been previously disturbed. The soil matrix consisted of 60 percent dark gray (Gley 1 4/N) silt loam with mottles. Mottles covered 20 percent of the soil profile and consisted of a yellowish red (5YR 4/6) color. The remaining 20 percent of the soil profile was intermixed with brown (10YR 5/3) silt loam. Based on this information, it was determined these soils were hydric (Indicators S6, F2, and F3).

DP 2: The entire soil profile consisted of compacted fill material. The soil matrix consisted of very dark grayish-brown (10YR 3/2) gravelly loam without mottles. The soil profile consisted of approximately 45 percent soil, while the remainder consisted of gravel. Based on this information it was determined these soils were not hydric.

Hydrology. Hydrology in Wetland A appears to be dominated by groundwater and runoff from adjacent uplands. Soils were saturated at 10 inches at DP 1, while groundwater was present at 16 inches. Soils were saturated to the surface downslope of DP 1. No surface water was present during the September 15, 2009, site visit. No ground water or saturated soils were encountered at DP 2.

Vegetation. Vegetation at DP 1 was dominated by red alder and giant horsetail (*Equisetum telmaeia*). Other species within DP 1 included sapling (planted) Sitka spruce (*Picea sitchensis*), Nootka rose (*Rosa nutkana*), common snowberry (*Symphoricarpos albus*), and Pacific ninebark (*Physocarpus capitatus*). Additional species have been planted within the mitigation area, but they were outside the confines of DP 1. Vegetation at DP 2 consisted of mowed upland lawn grasses.

Classification. Wetland A was previously rated as a Type 1 wetland, which requires a 100-foot buffer. Based on the Ecology Rating system, Wetland A would be rated as a Category II wetland. Wetland A received a total score of 67 points based on functions, which is at the upper end of this category (Category II = 51 to 69 points). The total score of 67 points is based on 26 points for water quality functions, 20

points for hydrology functions, and 21 points for wildlife functions. Since Wetland A is hydrologically connected via seasonal surface flow to Juanita Creek, it is within the jurisdiction of the Corps.

3.2.1.1 Wetlands Based on the Semi-Quantitative Assessment Method

A wetland functional assessment based on the Semi-Quantitative Assessment Method (Cooke Scientific 2000) was also completed for Wetland A. The completed assessment form is included within **Appendix H. Table 8** summarizes the general score (low, medium, or high) of each function. The erosion/shoreline protection function is only appropriate for riverine or lacustrine wetlands (Cooke Scientific 2000).

Table 8: Existing Wetland Functional Value Summary

| Wetland | Flood/Storm Water Control | Base Flow | Erosion Shoreline Protection | Water Quality Imp. | Natural Biological Support | Overall Habitat Function | Specific Habitat Function | Cultural/Socio-economic |
|---------|---------------------------|-------------|------------------------------|--------------------|----------------------------|--------------------------|---------------------------|-------------------------|
| A | High (13) | Medium (11) | NA | High (15) | Medium (24) | Medium (6) | Medium (10) | Medium (10) |

* raw functional value scores included in parentheses

Flood/Storm Water Control. Wetlands have the opportunity to provide flood and stormwater control by impounding excess water and releasing it slowly. This reduces the potential flooding downstream of the wetland. Wetland functional performance is based upon size, type, shape, amount of depressional area, and type of outlet.

This function was assessed by determining the wetland size within the landscape context, the type of wetland (riverine, mid-slope, or depressional), the type of outlet, and the location within the watershed (upper, middle, or lower portion of the drainage). Wetland A received a high score because it is relatively large, located in the upper drainage basin, and has a constricted outlet (culvert).

Base Flow/Ground Water Support. Wetlands provide base flow and groundwater support by impounding water for a period of time and letting it slowly infiltrate and recharge groundwater. This helps maintain aquifers within the drainage basin.

This function was assessed by determining the wetland size within the landscape context, the type of wetland, the location within the drainage, and the duration of saturation present within the wetland. Wetland A received a medium score since it is relatively large, located in the upper drainage basin, and has a constricted outlet (culvert). It almost received a high score, and would have, if not for vegetation being less than 20 percent obligate species.

Erosion/Shoreline Protection. This function is only applicable for riverine or lacustrine wetlands.

Water Quality Improvement. Through a variety of actions, wetlands can improve water quality within a watershed. This can occur through the impoundment of water and settling of particulates. This can be enhanced by increased amounts of vegetation within a wetland that may act to slow water and/or trap particulates.

The Cooke method assessed this function by quantifying the speed of water flow through the site, the amount of vegetation present, the level of development within the watershed (opportunity), the amount of overland flow contained within the wetland, and the type of soil. Wetland A scored high since hydrologic flow through the wetland is slow; vegetation is thick, located in the upper basin; and soil is organic muck.

Natural Biological Support. Wetlands provide biological support to flora and fauna by providing a variety of habitat types, habitat features, organic matter, and well-vegetated buffers. The function was

assessed by the wetland's size, amount of vegetation layers, number of habitat types, plant diversity, habitat features, and buffer condition.

Wetland A scored medium for this function. It did not receive a high score since the presence of surface water is seasonal and its buffer is very disturbed.

Overall Habitat Functions. This function illustrates the overall size, diversity, and relative importance within the watershed of a given wetland. Wetland A scored medium since it has a moderate habitat diversity and sanctuary or refuge function; and moderate invertebrate, amphibian, and mammal habitat. Wetland A has low fish habitat function, but high bird habitat function.

Specific Habitat Functions. This function assesses the wetland's ability to provide specific habitat support to invertebrates, amphibians, fish, mammals, and birds. Wetland A scored medium since it has moderate invertebrate, amphibian, and mammal habitat function. Wetland A has low fish habitat function, but high bird habitat function.

Cultural/Socioeconomic. This function assesses the value that the wetland provides to society, including educational opportunities, commercial, recreational, and historical. Wetland A received a medium score for this function, although it has the potential for a higher score.

3.2.2 Streams

A small non-fish bearing tributary to Juanita Creek flows through Wetland A. Based on the WDNR Stream Typing System (WAC 222-16-030(4)), this would be a Type Ns stream, which is defined as perennial or intermittent seepage, ponds, and drainage ways having short periods of spring or storm runoff. Type Ns waters do not contain fish. Based on the City of Kirkland classification system, this would be a Class C stream, which requires a 35-foot buffer within a primary basin. This stream is off-site and the buffer requirements for Wetland A extend beyond the buffer requirements for this stream.

3.2.3 Uplands

Uplands in the project vicinity are primarily developed. The dominant vegetation type is mowed grass. The on-site remnant pasture area is dominated by orchard grass (*Dactylis glomerata*), red fescue (*Festuca rubra*), and red clover (*Trifolium pretense*). Other grasses and weeds are present. Several native and ornamental trees and shrubs are present around the existing facility and three single-family homes that comprise the overall project area. Dominant upland native trees include big-leaf maple (*Acer macrophyllum*) and Douglas fir (*Pseudotsuga menziesii*).

3.2.4 Wildlife

Although the project area is generally developed, and commercial and residential areas abut portions of the project site, a significant amount of wildlife habitat is associated with Wetland A. Approximately 15.6 acres of wetland habitat are associated with Wetland A, but upland/buffer habitat is generally lacking. The availability of PFO, PSS, and PEM habitat types covering a relatively large area provides potential habitat for a diverse assemblage of wildlife in the project vicinity.

Wildlife observations were recorded during the various site visits and are summarized below in **Table 9**. It is important to note that the following list of species is limited to those observed during the site visits and is not all-inclusive. Numerous species will only use the project area seasonally or during migration; others may be very rare, cryptic, or nocturnal. Surveys were not conducted to target specific species.

Table 9: Project Area Wildlife Observations

| # | Common Name |
|----|----------------------------------|
| 1. | Western Terrestrial Garter Snake |
| 2. | American Robin |
| 3. | Dark-eyed Junco |
| 4. | Black-capped Chickadee |
| 5. | American Crow |
| 6. | Song Sparrow |
| 7. | Steller's Jay |

4.0 HABITAT IMPACTS

Residence XII proposes to reduce the buffer of Wetland A through buffer reduction with enhancement pursuant to KZC Section 90.60 – *Wetland Buffer Modifications*, Subsection 2 – Modification of Wetland Buffers when Wetland Is Not to be Modified. The existing standard buffer would be 100 feet wide, whereas the reduced buffer would be 67 feet wide (**Appendix I**). A buffer reduction of 33 feet would remove or eliminate 17,765 square feet from the standard 100-foot buffer. However, the “impact” would have minimal effect on the wetland as approximately half the buffer area to be reduced is composed of impervious surface (existing building and parking area); the remaining half is composed primarily of mowed pasture. A trail is proposed within the outer 50 percent of the original 100-foot buffer, which adds an additional 1,464 square feet, and a stormwater dispersal spreader bar would add 364 square feet of impact. Therefore, the total amount of buffer impact is 19,593 square feet (0.45 acre).

Land within the reduced 67-foot-wide buffer is distributed across two parcels (2926059124 and 2926059126). The existing facility is on parcel 2926059124. This area includes most of the existing facility and a portion of the parking lot where the roundabout is located. Parcel number 2926059126 is the pasture where enhancement is proposed. A total of 26,491 square feet (0.61 acre) of existing pasture would be converted to a forested buffer with shrubs and habitat features at a ratio of 1.48:1.

4.1 WETLAND FUNCTIONS ANALYSIS

Potential project-related impacts to wetland functions were analyzed by comparing pre-project function scores with anticipated post-project conditions. Pre-project conditions factor in existing vegetation, structures, and disturbance within the project area. Post-project conditions factor in the reduced buffer width, new trail network, construction and operation of the expanded facility, and implementation of the enclosed mitigation plan. Post-project conditions are separated into three categories:

1. Degrade. This condition is applicable if the function is anticipated to be degraded by the proposed project.
2. Maintain. This condition is applicable if the function is anticipated to be maintained by the proposed project.
3. Improve. This condition is applicable if the function is anticipated to be improved by the proposed project.

Table 10 summarizes wetland functions based on both the Ecology method and the Semi-Quantitative method, and the anticipated post-project condition to each function. This analysis indicates that the wildlife-related functions of Wetland A will be improved, while functions associated with water quality and hydrology will be maintained. The improvement in wildlife-related functions is based on two primary factors. First, a significant portion (>50 percent) of the area where buffer would be reduced is currently

paved. Areas that are not paved contain primarily pasture grasses. Secondly, the mitigation plan includes planting 317 trees, 888 shrubs, 275 ferns, 3 snags, and 2 downed logs in an area currently dominated by pasture grasses. The mitigation plan will enhance 26,491 square feet (0.6 acre) of wetland buffer. **Appendix I** contains a complete set of the mitigation design plans.

Table 10: Wetland Function Summary

| Pre-Project | Post-Project | PROJECT EFFECTS TO FUNCTIONS |
|---|--------------|---|
| Ecology Method | | |
| Water Quality Score = 26 | Maintain | No change to this function is anticipated. |
| Hydrology Score = 20 | Maintain | No change to this function is anticipated. |
| Wildlife Score = 21 | Improve | An improvement to this function is anticipated. |
| Semi-Quantitative Assessment Method | | |
| Flood/Storm Water Control = High (13 points) | Maintain | No change to this function is anticipated. |
| Base Flow = Medium (11 points) | Maintain | No change to this function is anticipated. |
| Water Quality Improvement = High (15 points) | Maintain | No change to this function is anticipated. |
| Natural Biological Support = Medium (24 points) | Improve | An improvement to this function is anticipated. |
| Overall Habitat Function = Medium (6 points) | Improve | An improvement to this function is anticipated. |
| Specific Habitat Function = Medium (10 points) | Improve | An improvement to this function is anticipated. |
| Cultural/Socio-economic = Medium (10 points) | Improve | An improvement to this function is anticipated. |

The City of Kirkland specifies specific wetland functions that must be addressed within a Critical Areas Report (KZC 90.60 2.b.). The following section describes how each specific function will be influenced by the completed project.

Habitat: The enhancement of 26,491 square feet (0.61 acre) of wetland buffer within an existing pasture will increase the general habitat suitability in the project area. Functional buffer habitat is lacking around the predominance of Heronfield Wetland, which would be improved by the proposed project. Furthermore, the installation of habitat features such as snags with nest and bat boxes, downed logs, addition of numerous mast-producing (seeds, nuts, samara, etc.) shrubs and trees; and addition of shrubs and trees suitable for nesting, foraging, roosting, and escape cover will increase this function for numerous species of wildlife.

Water Quality: No measurable change to this function is anticipated. Water quality typically factors in the receiving water, pollutant source(s), and what exists between the receiving water and pollutant source. In this specific case, the receiving water is Juanita Creek. The pollutant source is an expanded facility. Between the receiving water and pollutant source is a wetland and its associated buffer.

1. Juanita Creek is a salmonid-bearing stream with water quality problems. This stream has been on the Ecology 303(d) list for violation of dissolved oxygen, temperature, and fecal coliform standards. Contaminants such as bis(2-ethylhexyl)phthalate (from plastics), PAHs (from vehicles), metals (from vehicles, roofs, culverts, plus), and pesticides (from residential, landscaping, agricultural [historic]) have been documented in Juanita Creek.
2. The potential pollutant source would be the expanded facility. The project will be required to conform to the *2009 King County Stormwater Pollution Manual (SWPM)*, which provides improved water quality treatment than what was outlined in previous manuals. Primary contaminants of concern from an expanded facility would be PAHs and metals.

3. Tributary 08-0235 is the closest mapped stream, which is approximately three-eighths of a mile north of the project site. Stormwater runoff from the site will first be run through a water quality/detention system per the 2009 King County SWPM. The outfall would likely be located within the buffer. Treated stormwater runoff would then flow subsurface through the buffer before reaching Wetland A. Subsurface flows would then commingle with other water and then slowly move through Wetland A before reaching tributary 08-0235.

Stormwater detention: No measurable change to this function is anticipated. The project will be required to implement stormwater detention per the 2009 King County SWPM.

Groundwater recharge: No measurable change to this function is anticipated. Although the project will add new impervious surface, the potential to recharge groundwater will still be available as site runoff moves through the buffer and Wetland A.

Shoreline Protection: No measurable change to this function is anticipated since shoreline protection is not applicable to this specific project.

Erosion Protection: No measurable change to this function is anticipated. The project will be required to obtain a Clear and Grade permit from the City of Kirkland prior to construction of the expansion. This will include implementation of a Stormwater Pollution Prevention Plan (SWPPP). Additional erosion control requirements would likely be dictated by Ecology as part of the National Pollution Discharge Elimination System (NPDES) permit process, which would also include inspection of erosion control measures by a Certified Erosion and Sediment Control Lead (CESCL).

The buffer enhancement work has minimal potential to deliver sediment to Wetland A. This conclusion is based on the application of hog fuel over disturbed soils, which will act as a barrier against runoff. Therefore, the amount of newly exposed soils will be minimal. A straw wattle will be installed between the enhancement area and Wetland A, which will further reduce the potential of on-site erosion leaving the project site (**Appendix I**).

4.2 SALMONID HABITAT EFFECTS MATRIX

The following Salmonid Habitat Effects Matrix (**Table 11**) describes potential impacts to salmonid habitat downslope of the project area resulting from both construction and operation of the expanded facility. It considers all life stages and all salmonids (resident and anadromous), not just federally listed salmonids as would be the case in Endangered Species Act (ESA) documentation. The project effects to baseline conditions factor in best management practices (BMPs) and mitigation activities that would be implemented as part of the overall project. It is assumed that BMPs and mitigation actions will be successful, and monitored as appropriate. The effects to baseline conditions can be maintain, degrade, or improve. These effects can also change over time and vary, depending on if considering either the local or watershed scale.

Table 11: Salmonid Habitat Project Effects Matrix

| PATHWAY | INDICATORS | PROJECT EFFECTS TO BASELINE CONDITIONS |
|--|--|--|
| Juanita Creek | | |
| Water Quality | Temperature | Maintain. No trees will be removed within the existing 100-foot buffer. Approximately 317 trees will be planted as part of the mitigation plan. The extended distance between the project site and Juanita Creek further reduces the likelihood of any project-related actions impacting the temperature indicator. |
| | Sediment | Maintain. This conclusion is based on implementation of a SWPPP, NPDES, and CESCL monitoring requirements, plus the extended distance between the project site and Juanita Creek. |
| | Chemical Contamination and Nutrients | Maintain. No change in chemical contamination and nutrients is anticipated to result from this project due to implementation of stormwater treatment measures and extended distance between the project site and Juanita Creek. |
| Habitat Access | Physical Barriers | Maintain. No in-water work is proposed. |
| Habitat Elements | Substrate | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | LWD | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Pool Frequency | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Pool Quality | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Off-Channel Habitat | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Refugia | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| Channel Conditions and Dynamics | Width/Depth Ratio | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Streambank Condition | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Floodplain Connectivity | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| Flow/Hydrology | Change in Peak/Base Flows | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Increase in Drainage Network | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| Watershed Conditions | Road Density and Location | Maintain. No new roads are required for this project. |
| | Disturbance History | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| | Riparian Reserve | Maintain. No change to this indicator is anticipated due to the extended distance between the project site and Juanita Creek. |
| Bull Trout Subpopulation Characteristics within Subpopulation Watersheds | Subpopulation Size | Maintain. No change in the subpopulation size indicator is anticipated. |
| | Growth and Survival | Maintain. No change in the growth and survival indicator is anticipated. |
| | Life History Diversity and Isolation | Maintain. No change in the life history diversity and isolation indicator is anticipated. |
| | Persistence and Genetic Integrity | Maintain. No change in the persistence and genetic integrity indicator is anticipated. |
| | Species Integration/Habitat Conditions | Maintain. No change in the species integration/habitat conditions indicator is anticipated. |

4.3 WILDLIFE IMPACTS

The general project vicinity is used by numerous species of wildlife. These include amphibians, reptiles, mammals, and birds. However, the project area provides limited habitat value due to existing conditions. The project area includes existing single family homes and pasture. Therefore, wildlife impacts would primarily be associated with short-term disturbance during construction. Implementation of the proposed mitigation plan would significantly improve wildlife habitat at the local scale.

4.4 WATER QUALITY IMPACTS

No impacts to water quality are anticipated since ground disturbing activity will not occur adjacent to any stream. This conclusion is based on implementation of a SWPPP, NPDES requirements, Clear and Grade Permit requirements, and CESCL monitoring requirements, plus the extended distance between the project site and Juanita Creek. Stormwater runoff will be treated per the 2009 King County SWPM.

4.4.1 Conservation and Performance Measures

General

- A Temporary Erosion and Sediment Control Plan will be developed and implemented.
- A qualified CESCL will inspect all sediment control measures during construction.
- A Spill Prevention Control and Countermeasures Plan that meets the standards will be developed and implemented for the project to ensure that all pollutants and products will be controlled and contained.
- Construction impacts will be confined to the minimum area necessary to complete the project.
- Implementation of the Mitigation Plan will occur.

Water Quality/Erosion Control

- All erosion control measures will be installed according to City standards and will be inspected and maintained throughout the life of the project.
- Staging and soil stockpile areas will be limited to those outlined in the clearing and grading permit. Staging areas will be fenced.
- Spill kits will be kept on-site.
- Fuels and other potentially hazardous materials will be kept in a secured area. Secured means fenced, and locked during non-work hours.
- Secondary containment will be required for all hazardous materials. Spill containment is required for generators, parked equipment, porta-potty, fuels, solvents, etc.
- Wash water resulting from wash down of equipment or work areas will be contained for proper treatment and/or disposal, and will not be directly discharged into state waters.
- There will be no discharge of oil, fuels, or chemicals to surface waters, or onto land where there is a potential for reentry into surface waters.
- No cleaning solvents or chemicals used for tools or equipment cleaning will be discharged to ground or surface waters.

- The contractor will regularly check fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc. for leaks, and will maintain and store materials properly to prevent spills.

5.0 CRITICAL AREAS CODE

In Kirkland, wetlands and their buffers are regulated under Chapter 90 – Drainage Basins, of the KZC. Residence XII proposes to reduce the buffer of Wetland A through buffer reduction with enhancement pursuant to KZC Chapter 90 – Drainage Basins, Section 90.60 – Wetland Buffer Modifications, Subsection 2 – Modification of Wetland Buffers when Wetland Is Not to be Modified.

5.1 WETLAND BUFFER MODIFICATION

Wetland buffer widths may be reduced through buffer reduction with enhancement by up to one-third of the standard width, which in this case would be reducing the standard 100-foot buffer to 67 feet. Buffer reduction is allowed when the applicant (Residence XII) demonstrates the proposed enhancement will result in the reduced buffer functioning at a higher level than the existing standard buffer. As outlined in **Section 6** of this report, wetland functions will be enhanced by implementing the proposed mitigation plan. Subsection 2(b) of the KZC also states an improvement or land surface modification shall be approved in a wetland buffer only if:

1) It is consistent with *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company 1998) and the *City of Kirkland Sensitive Areas Recommendations Report* (Adolfson Associates, Inc. 1998);

- The proposed project is consistent with both documents identified in condition number one. *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company 1998) was reviewed as part of the preliminary data gathering and review process (**Figure 5**). The proposed project is also consistent with *City of Kirkland Sensitive Areas Recommendations Report* (Adolfson Associates, Inc. 1998) for Type 1 wetlands in that the proposed buffer reduction with enhancement does not exceed one-third the standard 100-foot buffer. Since the proposed mitigation plan includes planting numerous native shrubs and trees where pasture grasses currently dominate, a significant improvement in wildlife habitat function is anticipated.

2) It will not adversely affect water quality;

- The proposed project will not adversely affect water quality. Design of the stormwater treatment system will adhere to the *2009 King County Surface Water Design Manual* (King County 2009). Treated stormwater will then be routed to the buffer edge, where additional treatment will occur as stormwater runoff flows subsurface through the buffer prior to reaching the wetland edge. Treated stormwater would then travel a minimum of 1,700 linear feet (0.32 mile) through Wetland A from the on-site edge to the culvert under NE 124th Street before entering the approximately 700-foot-long culvert that eventually discharges to tributary 08-0235 of Juanita Creek (08-0230) (**Figure 5**).

3) It will not adversely affect fish, wildlife, or their habitat;

- The proposed project will improve wildlife habitat within the project area. No fish habitat occurs in or near the project area. The conclusion of an improvement to wildlife and wildlife habitat is based on converting approximately 0.61 acre of existing pasture into shrub and forest buffer. The species mix includes all native species, which will provide forage, cover, and nesting habitat for wildlife. The mitigation plan also includes habitat features such as snags with bird and bat boxes,

and downed logs. Vegetated buffer habitat dominated by native shrubs and trees is generally lacking along the edge of the Heronfield Wetland.

- 4) It will not have an adverse effect on drainage and/or stormwater detention capabilities;
 - The proposed project will not have an adverse effect on drainage and/or stormwater detention capabilities since drainage and storm water will be contained and treated on-site prior to release. Design will be based on the *2009 King County Surface Water Design Manual* (King County 2009).
- 5) It will not lead to unstable earth conditions or create an erosion hazard;
 - The proposed project will not lead to unstable earth conditions or create an erosion hazard. No steep slopes or erosion hazard areas exist on the project site. Erosion control measures will be required to be installed and monitored as part of the permit process.
- 6) It will not be materially detrimental to any other property or the city as a whole;
 - The proposed project will not be materially detrimental to any other property or the city as a whole. This conclusion is based on, in part, due to adherence to all applicable city-related code requirements associated with design, construction, traffic, stormwater, environmental, and maintenance.
- 7) Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;
 - Fill material will not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat.
- 8) All exposed areas are stabilized with vegetation normally associated with native wetland buffers, as appropriate; and
 - All plantings within the mitigation area will consist of native vegetation. All areas that are disturbed will be covered with hog fuel. The proposed trail will be covered by permeable crushed rock.
- 9) There is no practicable or feasible alternative development proposal that results in less impact to the buffer.
 - The footprint of the proposed expanded facility has gone through numerous revisions in order to avoid or minimize impacting sensitive areas to the maximum extent possible. The current footprint avoids being within the reduced wetland buffer. The proposed trail has also gone through numerous revisions to minimize the size of its overall footprint, increase distance between the trail and wetland, and keeps the enhanced buffer functioning as wildlife habitat.

6.0 MITIGATION

Mitigation is proposed as part of the buffer reduction process. Reducing the existing 100-foot-wide buffer by one-third would result in a 67-foot-wide buffer or reduction of 17,765 square feet. The proposed trail would add an additional 1,464 square feet of impact. The total amount of “impact” that must be mitigated for is 19,593 square feet. The mitigation plan proposes to enhance 26,491 square feet of existing degraded buffer within existing pasture. **Appendix I** contains a complete set of design drawings that outlines plant selection, size, quantity, and location requirements. The mitigation plan also outlines site preparation,

irrigation, plant material, installation, fencing, warranty, final acceptance, and maintenance requirements. Furthermore, the plan contains monitoring and performance standards. The plan included in **Appendix I** incorporates City comments, but is not considered the final set. Please refer to the final approved set on file at the City or Residence XII for purposes of construction and regulatory compliance.

7.0 REFERENCES

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APPENDIX A

SITE PLAN

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APPENDIX B

WETLAND DATA PLOT FORMS

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

Project/Site: Residence XII City/County: Kirkland/King Sampling Date: 9-15-09
 Applicant/Owner: Residence XII State: WA Sampling Point: DP 1
 Investigator(s): Scott Swarts Section, Township, Range: 29, 26N, 5E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 10
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Seattle Muck NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|---|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Remarks: DP 1 is within a previous mitigation area. | |

VEGETATION – Use scientific names of plants.

| <u>Tree Stratum</u> (Plot size: <u>10 ft radius</u>) | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|----------------------------------|-------------------|------------------|---|
| 1. <u>Alnus rubra</u> | 100 | yes | FAC | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| <u>100</u> = Total Cover | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| Sapling/Shrub Stratum | (Plot size: <u>5 ft radius</u>) | | | |
| 1. <u>Picea sitchensis</u> (sapling) | 5 | no | FAC | |
| 2. <u>Symphoricarpos albus</u> | 5 | no | FACU | |
| 3. <u>Rosa nutkana</u> | 5 | no | FAC | |
| 4. <u>Physocarpus capitatus</u> | 5 | no | FACW | |
| 5. _____ | _____ | _____ | _____ | |
| <u>20</u> = Total Cover | | | | |
| Herb Stratum | (Plot size: <u>5 ft radius</u>) | | | |
| 1. <u>Equisetum telmateia</u> | 30 | yes | FACW | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | 30 | _____ | _____ | |
| _____ = Total Cover | | | | |
| Woody Vine Stratum | (Plot size: _____) | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>40</u> | | | | |

Remarks: Within an old mitigation area.

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

Project/Site: Residence XII City/County: Kirkland/King Sampling Date: 9-15-09
 Applicant/Owner: Residence XII State: WA Sampling Point: DP 2
 Investigator(s): Scott Swarts Section, Township, Range: 29, 26N, 5E
 Landform (hillslope, terrace, etc.): terrace made of fill - building pad Local relief (concave, convex, none): none Slope (%): _____
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Kitsap silt loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|---|--|
| Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| <u>Tree Stratum</u> (Plot size: <u>10 ft radius</u>) | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|--|
| 1. <u>Alnus rubra</u> | 45 | yes | FAC | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B) |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | _____ | _____ | _____ | |
| <u>Sapling/Shrub Stratum</u> (Plot size: _____) | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| <u>Herb Stratum</u> (Plot size: <u>5 ft radius</u>) | | | | Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 1. <u>mowed lawn grasses and clover</u> | 100 | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | _____ | _____ | _____ | |
| <u>Woody Vine Stratum</u> (Plot size: _____) | | | | Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| _____ = Total Cover | _____ | _____ | _____ | |
| % Bare Ground in Herb Stratum _____ | | | | |

Remarks: Red alder over-hanging upland plot. Roots of red alder in wetland. Building pad is elevated several feet above upper wetland edge.

APPENDIX C
ECOLOGY WETLAND RATING FORM

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WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Juanita 6 or Heronfield Wetland Date of site visit: August 6, 2008

Rated by Scott Swarts Trained by Ecology? Yes No Date of training: 11/06

SEC: 29 TOWNSHIP: 29N RANGE: 5E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure Estimated size **15 +/- Acres**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II III IV

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

| | |
|-----------------------------------|-----------|
| Score for Water Quality Functions | 26 |
| Score for Hydrologic Functions | 20 |
| Score for Habitat Functions | 21 |
| TOTAL score for Functions | 67 |

Category based on SPECIAL CHARACTERISTICS of wetland

I II Does not Apply

| |
|-----------|
| II |
|-----------|

Final Category (choose the “highest” category from above)

Summary of basic information about the wetland unit

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

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

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

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

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

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

Classification of Wetland Units in Western Washington

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

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

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

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

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

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

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

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

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

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

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

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

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

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

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).

NO - go to 5 YES – The wetland class is **Slope**

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

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

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

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

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

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

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

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

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

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

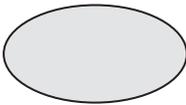
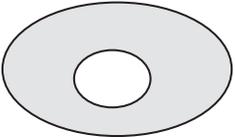
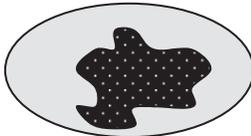
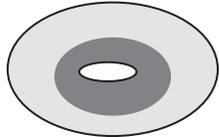
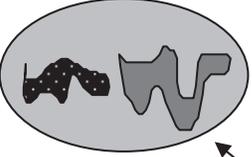
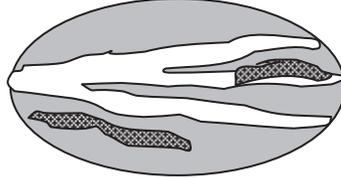
| <i>HGM Classes within the wetland unit being rated</i> | <i>HGM Class to Use in Rating</i> |
|---|--|
| Slope + Riverine | Riverine |
| Slope + Depressional | Depressional |
| Slope + Lake-fringe | Lake-fringe |
| Depressional + Riverine along stream within boundary | Depressional |
| Depressional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

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

| D Depressional and Flats Wetlands | | Points |
|---|---|---|
| HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation | | (only 1 score per box) |
| D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion? | | <i>(see p.46)</i> |
| D | <p>D 3.1 Characteristics of surface water flows out of the wetland unit</p> <p>Unit is a depression with no surface water leaving it (no outlet) points = 3</p> <p>Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2</p> <p>Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1</p> <p><i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i></p> <p>Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 0</p> | 2 |
| D | <p>D 3.2 Depth of storage during wet periods</p> <p><i>Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).</i></p> <p>Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7</p> <p>The wetland is a "headwater" wetland" points = 5</p> <p>Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5</p> <p>Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3</p> <p>Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1</p> <p>Marks of ponding less than 0.5 ft points = 0</p> | 5 |
| D | <p>D 3.3 Contribution of wetland unit to storage in the watershed</p> <p><i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i></p> <p>The area of the basin is less than 10 times the area of unit points = 5</p> <p>The area of the basin is 10 to 100 times the area of the unit points = 3</p> <p>The area of the basin is more than 100 times the area of the unit points = 0</p> <p>Entire unit is in the FLATS class points = 5</p> | 3 |
| D | <p>Total for D 3 <i>Add the points in the boxes above</i></p> | 10 |
| D | <p>D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?</p> <p>Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur.</p> <p><i>Note which of the following indicators of opportunity apply.</i></p> <p>X Wetland is in a headwater of a river or stream that has flooding problems</p> <p>X Wetland drains to a river or stream that has flooding problems</p> <p>— Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems</p> <p>X Other <u>Juanita Creek contains salmonids</u></p> <p>YES multiplier is 2 NO multiplier is 1</p> | <p><i>(see p. 49)</i></p> <p>multiplier</p> <p><u>2</u></p> |
| D | <p>TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4</p> <p style="text-align: right;"><i>Add score to table on p. 1</i></p> | 20 |

| These questions apply to wetlands of all HGM classes. | | Points (only 1 score per box) | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|------------|---|-----------------|------------|--|-----------------|------------|--|----------------|------------|--|--|--|---|--|--|--|--|--|---|--|--|---|
| HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat | | | | | | | | | | | | | | | | | | | | | | | | | |
| H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species? | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>H 1.1 <u>Vegetation structure</u> (see p. 72) <i>Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <p><input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have >30% cover)</p> <p><i>If the unit has a forested class check if:</i> <input checked="" type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon</p> <p><i>Add the number of vegetation structures that qualify. If you have:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 20%;">4 structures or more</td> <td style="width: 30%; text-align: right;">points = 4</td> </tr> <tr> <td>Map of Cowardin vegetation classes</td> <td>3 structures</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td></td> <td>2 structures</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td></td> <td>1 structure</td> <td style="text-align: right;">points = 0</td> </tr> </table> | | 4 structures or more | points = 4 | Map of Cowardin vegetation classes | 3 structures | points = 2 | | 2 structures | points = 1 | | 1 structure | points = 0 | <p>Figure ___</p> <p style="text-align: center;">4</p> | | | | | | | | | | | | |
| | 4 structures or more | points = 4 | | | | | | | | | | | | | | | | | | | | | | | |
| Map of Cowardin vegetation classes | 3 structures | points = 2 | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 structures | points = 1 | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 structure | points = 0 | | | | | | | | | | | | | | | | | | | | | | | |
| <p>H 1.2. <u>Hydroperiods</u> (see p. 73) <i>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count. (see text for descriptions of hydroperiods)</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Permanently flooded or inundated</td> <td style="width: 20%;">4 or more types present</td> <td style="width: 30%; text-align: right;">points = 3</td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flooded or inundated</td> <td>3 types present</td> <td style="text-align: right;">points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td>2 types present</td> <td style="text-align: right;">point = 1</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td>1 type present</td> <td style="text-align: right;">points = 0</td> </tr> <tr> <td><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Lake-fringe wetland = 2 points</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Freshwater tidal wetland = 2 points</td> <td></td> <td></td> </tr> </table> <p style="text-align: right;">Map of hydroperiods</p> | <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present | points = 3 | <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present | points = 2 | <input type="checkbox"/> Occasionally flooded or inundated | 2 types present | point = 1 | <input checked="" type="checkbox"/> Saturated only | 1 type present | points = 0 | <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | | <input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | | <input type="checkbox"/> Lake-fringe wetland = 2 points | | | <input type="checkbox"/> Freshwater tidal wetland = 2 points | | | <p>Figure ___</p> <p style="text-align: center;">2</p> |
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present | points = 3 | | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present | points = 2 | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present | point = 1 | | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> Saturated only | 1 type present | points = 0 | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Lake-fringe wetland = 2 points | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Freshwater tidal wetland = 2 points | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (<i>different patches of the same species can be combined to meet the size threshold</i>) <i>You do not have to name the species.</i> <i>Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</i></p> <p style="text-align: center;">If you counted:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 20%;">> 19 species</td> <td style="width: 30%; text-align: right;">points = 2</td> </tr> <tr> <td>List species below if you want to:</td> <td>5 - 19 species</td> <td style="text-align: right;">points = 1</td> </tr> <tr> <td></td> <td>< 5 species</td> <td style="text-align: right;">points = 0</td> </tr> </table> | | > 19 species | points = 2 | List species below if you want to: | 5 - 19 species | points = 1 | | < 5 species | points = 0 | <p style="text-align: center;">2</p> | | | | | | | | | | | | | | | |
| | > 19 species | points = 2 | | | | | | | | | | | | | | | | | | | | | | | |
| List species below if you want to: | 5 - 19 species | points = 1 | | | | | | | | | | | | | | | | | | | | | | | |
| | < 5 species | points = 0 | | | | | | | | | | | | | | | | | | | | | | | |

Total for page __8__

| | |
|--|--|
| <p>H 1.4. Interspersion of habitats (see p. 76) Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> <div style="text-align: center;">  <p>High = 3 points</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p style="text-align: center;">NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p> | <p>Figure <u> </u></p> <p>2</p> <p>Close call between medium and high</p> |
| <p>H 1.5. Special Habitat Features: (see p. 77) <i>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>)</p> <p><input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</p> <p style="text-align: center;">NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p> | <p>3</p> |
| <p>H 1. TOTAL Score - potential for providing habitat <i>Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</i></p> | <p>13</p> |

Comments

| | |
|--|----------|
| <p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW (see p. 82)</u> Which of the following priority habitats are within 330ft (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i> <i>These are DFW definitions. Check with your local DFW biologist if there are any questions.</i></p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.8 ha (2 acres).</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> Old-growth forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.</p> <p><input type="checkbox"/> Mature forests: Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.</p> <p><input type="checkbox"/> Prairies: Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.</p> <p><input type="checkbox"/> Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> Caves: A naturally occurring cavity, recess, void, or system of interconnected passages</p> <p><input type="checkbox"/> Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.</p> <p><input checked="" type="checkbox"/> Urban Natural Open Space: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other <i>priority habitats</i>, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.</p> <p><input type="checkbox"/> Estuary/Estuary-like: Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.</p> <p><input type="checkbox"/> Marine/Estuarine Shorelines: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).</p> <p style="padding-left: 40px;">If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points</p> <p><i>Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)</i></p> | <p>3</p> |
|--|----------|

| | |
|---|----|
| <p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p>The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p>There is at least 1 wetland within ½ mile. points = 2</p> <p>There are no wetlands within ½ mile. points = 0</p> | 3 |
| <p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p> | 8 |
| <p>TOTAL for H 1 from page 14</p> | 13 |
| <p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p> | 21 |

| | |
|--|----------------------|
| <p>SC 2.0 Natural Heritage Wetlands (see p. 87) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i> S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___</p> <p>YES ___ – contact WNHP/DNR (see p. 79) and go to SC 3.2 <input type="checkbox"/> NO ___</p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I <input type="checkbox"/> NO ___</p> | <p>Cat. I</p> |
| <p>SC 3.0 Bogs (see p. 87) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> No - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 <input type="checkbox"/> No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog. <ol style="list-style-type: none"> 1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)? 2. YES = Category I No ___ Is not a bog for purpose of rating | <p>Cat. I</p> |

APPENDIX D

COOKE SCIENTIFIC 2004 CRITICAL AREAS RECONNAISSANCE

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COOKE SCIENTIFIC

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December 20, 2004

Sharon Chambers
Residence XII
12029-113th Ave NE
Kirkland, WA 98034

RE: Residence XII Proposed Expansion Critical Area Reconnaissance

Dear Ms. Chambers:

Cooke Scientific (CS) was asked to perform a critical areas reconnaissance of four parcels located to the south and west of the existing Residence XII facility, along 113th Ave NE in Kirkland, Washington (Figures 1 and 2). All right-of-entry to these properties was granted by the owner prior to the site visit. Prior to the site visit, all areas within 100 feet of the properties were also visually inspected for the presence of wetlands, streams, steep slopes, and sensitive wildlife habitat. This work was performed on October 5, 2004.

The four tax parcels investigated include (Figures 2, 4, and 6):

292605-9180
292605-9181
292605-9182
292605-9126

Parcel 9181 is a 0.22-acre lot. Parcel 9180 is located directly to the south of this parcel and is also 0.22 acre in size. Parcel 9182 is the southernmost parcel in the group and is also 0.22 acre in size. Parcel 9126 is 0.85 acre in size and is a large mowed field located to the west of parcels 9181, 9180, and 9182.

Wetland Delineation Methodology

CS staff examined the four parcels using the methods described in the *Washington State Wetlands Identification and Delineation Manual* (WDOE 1997), to determine the presence of wetlands on these properties. CS field ecologists used the routine on-site determination method to place the wetland boundary line on parcel 9126 and to determine that no wetland exists on parcel 9182. The methodology outlined in this method is based upon the examination of three elements of the landscape: (1) the vegetation (and if hydrophytic, or wet-loving, plants are present); (2) the soils (and if hydric, or wet-associated, characteristics are present); and (3) the hydrology (and if wetland-associated water regimes are present). Characteristics of all three elements must be found for a positive wetland determination to be made for a particular area, unless problem areas or atypical situations are encountered—a situation also covered in the state manual, should it occur.

Review of Existing Public Domain Information

The City of Kirkland wetland inventory identifies one large wetland complex, the Type 1 Heronfield wetlands west and south of parcel 9126 (Figures 3 and 4). Samantha Updegrave, City of Kirkland staff, has stated that the wetland boundary was placed there because that is all that was identified by the city, but that wetlands may continue onto parcel 9126 (Pers. comm. October 2004). A report on file for the parcel south of the NE 120th Street right-of-way was performed by Adolfsen and Associates (February 2001), the City's wetland consultant at the time. A large Type I wetland was identified on this parcel and is identified as being a part of the Heronfield wetland to the west.

Current Site Conditions

All four parcels are located to the south of the current Residence XII property (Figure 4). Parcels 9180, 9181, and 9182 all front 113th Avenue NE and include homes. Parcel 9126 is located to the west of these three parcels and is currently a mowed field that slopes downhill to the southwest from the three eastern parcel boundaries. It contains wetland along its western edge (Figure 6). The highest portion of the site is parcel 9181. The other three parcels slope to the southwest from this parcel.

The three parcels located along 113th Avenue NE currently are all upland areas. The soils, hydrology, and vegetation are all upland in character.

Although NE 120th Street is identified on City maps, it is in reality only an easement and is currently vegetated wetland. The southernmost edge of parcel 9126 was clearly graded in the past and was either filled along the edge of the property line onto the easement of NE 120th, or local soils were pushed to this edge so that the wetland line appears to be currently past the road easement/property line boundary, and closer to the centerline of the road. There is a small drop-off of a few feet at this edge, right to the wetland. The wetland is composed of standing water (as of the October site visit), and willows and hardhack spirea are the dominant plants growing in the wetland/road right-of-way.

Wetland Description on Parcel 9126

The Heronfield wetlands located to the west and south of parcel 9126, currently encroach into this parcel, between 25 and 53 feet along the western edge. Figure 6 is an approximation of the wetland boundary and was drawn using a tape on compass. The parcel is 161 feet wide in an east-west direction. The northwest corner matches the wetland edge on the Residence XII property, and the southern edge merges with the wetland along the fill edge that abuts the centerline of the road easement for NE 120th Street.

This wetland is highly disturbed along this edge because the field has been graded and possibly also filled in the past; the soils were disturbed and all the native vegetation was cut. Now, only grasses, sedges, and herbs are present. The dominant grass is redtop (*Agrostis gigantea*). The property boundary also is marked by the graded/fill edge and the vegetation changes to red osier dogwood (*Cornus sericea*), hardhack spirea (*Spirea douglasii*), Sitka willow (*Salix sitchensis*), and red alder (*Alnus rubra*). The southern corner of the property and

off-site wetland is dominated by cattail (*Typha latifolia*), small-fruited bulrush (*Scirpus microcarpus*), lady fern (*Athyrium filix-femina*), soft rush (*Juncus effusus*), and bittersweet nightshade (*Solanum dulcamara*). The small-fruited bulrush has been mowed on the southwest edge and corner of the parcel.

The soils just off-site are an organic muck (10YR 2/1) from 0 to 10 inches. The soils are dominated by a silty loam (10YR 2/1 to 2/2), underlain by a clay loam (5Y 2/1) at between 6 and 14 inches. Although the scale makes it difficult to determine exactly where the soils units are located, it appears that at least parcel 9126 have soils that have been mapped as Seattle Muck and Bellingham Silt Loam, both hydric (wetland) soils (Figure 5, Snyder and Pringle 1973). The upland soils mapped just adjacent to 113th Ave NE is Kitsap silt loam, a moderately well drained soil that formed in glacial lake deposits under a cover of conifers and shrubs. The upper profiles are silty sediments at a depth from 18 to 40 inches

The Seattle soil is a very poorly drained organic soil that formed in material derived primarily from sedges. The soils are in depressions and valleys on the glacial till plain and also in river and stream valleys. In a representative profile, the surface layer is lack muck about 11 inches thick. It is underlain by a dark reddish-brown, black, or very dark brown, and a dark-brown muck and mucky peat that extends to a depth of 60 inches or more. The Bellingham soils are poorly drained soils that formed in alluvium, under grass and sedges. These soils are nearly level and are mostly in depressions on the upland glacial till plain. In a representative profile, the surface layer is very dark brown silt loam about 11 inches thick. The subsoil is a mottled gray silty clay loam about 49 inches thick.

No functional assessment was recorded because the wetland in this area is continually mowed and performs at the lowest level for all functions, compared to the wetland just to the west.

Upland Conditions in the Field and in Lots 9181, 9180, and 9182

The upland vegetation in the field consists of orchard grass (*Dactylis glomerata*), red fescue (*Festuca rubra*), red clover (*Trifolium pratense*), and a wild geranium (*Geranium* spp).

The soils are a sandy gravelly loam and were very dry and bright in color (10YR 4/3) at the time of the site visit in October, despite the fact that it had been raining for a week prior. The fescue grass follows the topography, and soils mark the upland/wetland edge.

The vegetation in the lots along 113th Avenue NE is dominated by turf grasses, mostly Kentucky bluegrass (*Poa* spp.). Many ornamental shrubs and trees have been planted in each lot. The soils are a very bright, silty, sandy gravelly loam. The vegetation and soils along the southern edge of Lot 9182 are both marginal upland. The soils are a 10YR 2/2 but showed no redoximorphic accumulations (mottles), or other redoximorphic features (no oxidized rhizospheres). The vegetation was mowed Kentucky bluegrass. The soils were very moist, but again, it had been raining for the week preceding the site visit. There was a definite fill edge just south of the fenced property line and wetland just to the south of this sill edge.

Historic Aerial Photograph Investigation

CS staff were able to locate the attached aerial photographs.

- ◆ 1985: Taken on 8-14-85. Two-thirds Lot 9126 was wetland at the time of this photograph.
- ◆ SP1985: Taken after 9-1-85. This photo shows that both lots 9181 and 9182 have been developed and a house constructed on each. and the entire wetland area and much
- ◆ SP1989: Most or all of Lot 9126 has been graded and/or filled right to the property edge and now appears to be upland. The extent of the western edge is difficult to determine if the wetland boundary extends into the lot, or if the fill and property boundary are the same.
- ◆ Sound Block 1994: Photo taken 11-26-94. Parcel 9126 still mowed and wetland boundary still appears to be the southern property line.
- ◆ NW1995: Photo appears to be taken during the summer months. The northwestern corner and entire southern edge of Lot 9126 have been filled or cleared and appear dry. The wetland line now extends towards the centerline of NE 120th St and so has been filled in the last 6-10 months.
- ◆ NWC 2001. Conditions on Parcel 9126 appear to have remained the same since 1994. The field is still mowed. Wetland vegetation has appeared along the western parcel edge. The wetland boundary/fill edge still appears to be south of the southern property boundary.

We have determined the following:

1. Grading was performed and fill was possibly added to Parcel 9126 after August 14 1985 and prior to the summer of 1989. The extent of the grading and/or if fill was added is not known.
2. The wetland certainly extended farther east on Lot 9126 prior to the grading and fill activity. No record of approval or violation exists in the file for this fill (Desiree Goble Pers Comm. 10/04)
3. The southern extent of the fill was expanded between November or 1994 and summer of 1995 to closer to the centerline of the road right-of-way for NE 120th St.

Regulatory Information

The parcels in question are zoned "Office" by the City's comprehensive plan (Figure 2).

The City of Kirkland regulates wetlands under its Sensitive Areas Ordinance (No. 3706, in Section 90.20 of the Kirkland Zoning Code). The approximate wetland boundary identified on parcel 9126 identifies the continuation of the Heronfield wetlands onto the site. The wetland likely continued farther east on parcel 9126 prior to 1985. It is up to the City to determine the regulatory boundary. A 100-

foot buffer would be required from the edge of the wetland to the east of the wetland edge. Any development would be required to move an additional 15 feet to the east of the 100-foot buffer as a City ordinance-required building setback line (BSBL). Parcels 9181 and 9180 would be mostly developable.

It is up to the City to determine where the buffer would be placed on parcel 9182, since the Heronfield wetlands also extend south of all the parcels, including what has been identified as the right-of-way for NE 120th Street. It is not clear from my conversations with City staff whether the road right-of-way is to be considered jurisdictional wetland (in which case the buffer would begin at the fill edge of the NE 120th right-of-way), or if NE 120th will not be considered jurisdictional wetland (in which case the City likely will determine that the Adolfsen wetland boundary, identified on the parcel to the south of NE 120th Street, is the beginning of the buffer). Whether the buffer would extend across NE 120th also is unclear.

Additionally, the wetland report on file with the City states that the buffer for this Adolfsen-defined wetland would only be 50 feet. It is not clear why the buffer was designated as 50 feet, since this wetland is clearly a continuation of the Heronfield wetland, which is a Type 1 wetland requiring a 100-foot buffer. These questions will need to be resolved by the City in order to determine how much of parcel 9182 would be available for development.

Please call if you have additional questions or comments.

Sarah Spear Cooke, Ph.D.
Certified Wetland Scientist, Cooke Scientific

References:

Adolfson and Associates, February 2001. *Wetland Delineation on the Schott Property, Southwest Corner of 113th Avenue NE and NE 120th Street, Kirkland, Washington.*

Samantha Updegrave, City of Kirkland Planning staff. Pers. comm. October 2004.

Desiree Goble, City of Kirkland Planning staff. Pers comm. October 2004.

Snyder, D.E. P. Gale, and R. Pringle. 1973. Soils Survey of King County Area, Washington. U.S.D.A. Soil Conservation Service. 103 pp. plus maps.

Washington State Department of Ecology. 1997. *Washington State Wetlands Identification and Delineation Manual*. Publication No. 96-94. March 1997. Washington State Department of Ecology, Olympia, Washington.

Figures:

Figure 1. Vicinity Map, Residence XII and Reconnaissance Area

Figure 2. Zoning Lots, Residence XII and Reconnaissance Area

Figure 3. City of Kirkland Wetlands Inventory Map, Residence XII and Reconnaissance Area

Figure 4. Kirkland Inventoried Wetland Map and Aerial Photograph of the Reconnaissance Area.

Figure 5. NRCS Soils Map, residence XII and Reconnaissance Areas

Figure 6. Residence XII, New Parcel Reconnaissance, Approximate Wetland Boundary Map, Parcels 9126, 9180, 9181, 9182

Photos:

Photo Sheet 1: NW Corner Parcel 9126, NE Corner Parcel 9126, SW corner Parcel 9126, SE edge parcel 9126

Photo Sheet 2: Northern edge Parcel 9126, S edge Parcels 9126 and 9182, central east Parcel 9126, SW edge parcel 9126 looking west

Photo Sheet 3: Fille edge NE 120th, Sedges in wetland field Parcel 9126, Snag in adjacent Herronfield wetland, Wetland soil in parcel 9126

Aerial Photographs:

1985 (8-14-85)

SP1985

SP1989

Sound Block 1994

NW1995

NWC 2001

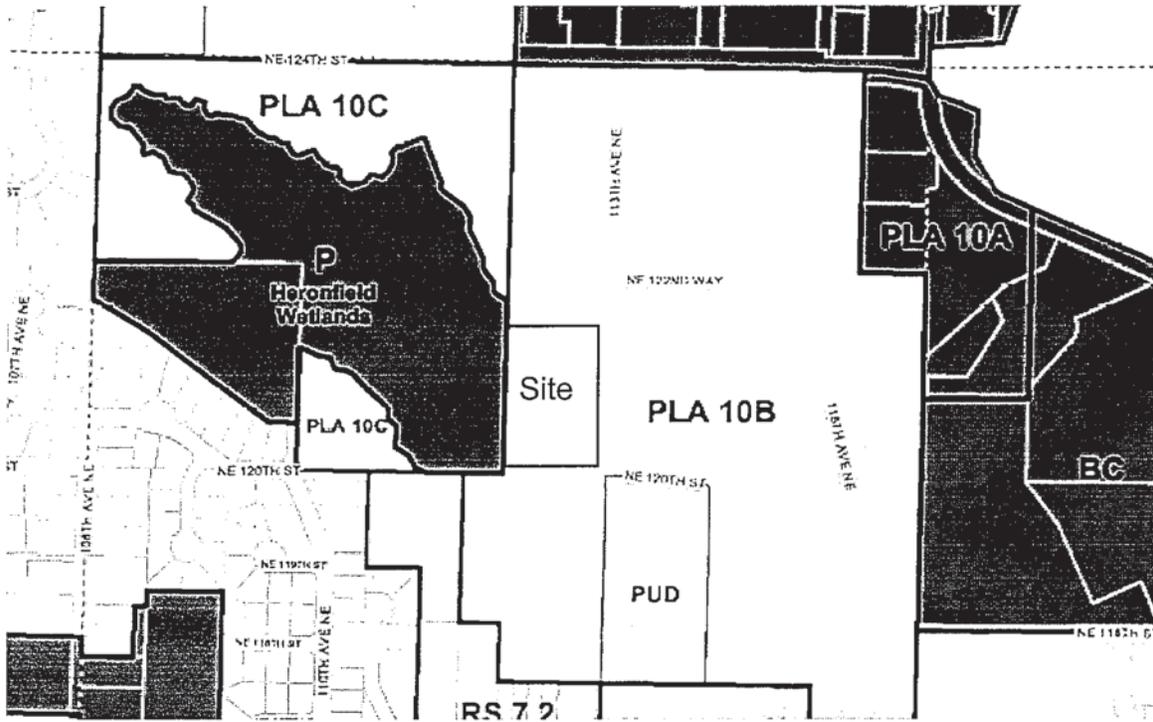


Figure 2. Zoning Lots, Residence XII and Reconnaissance Area

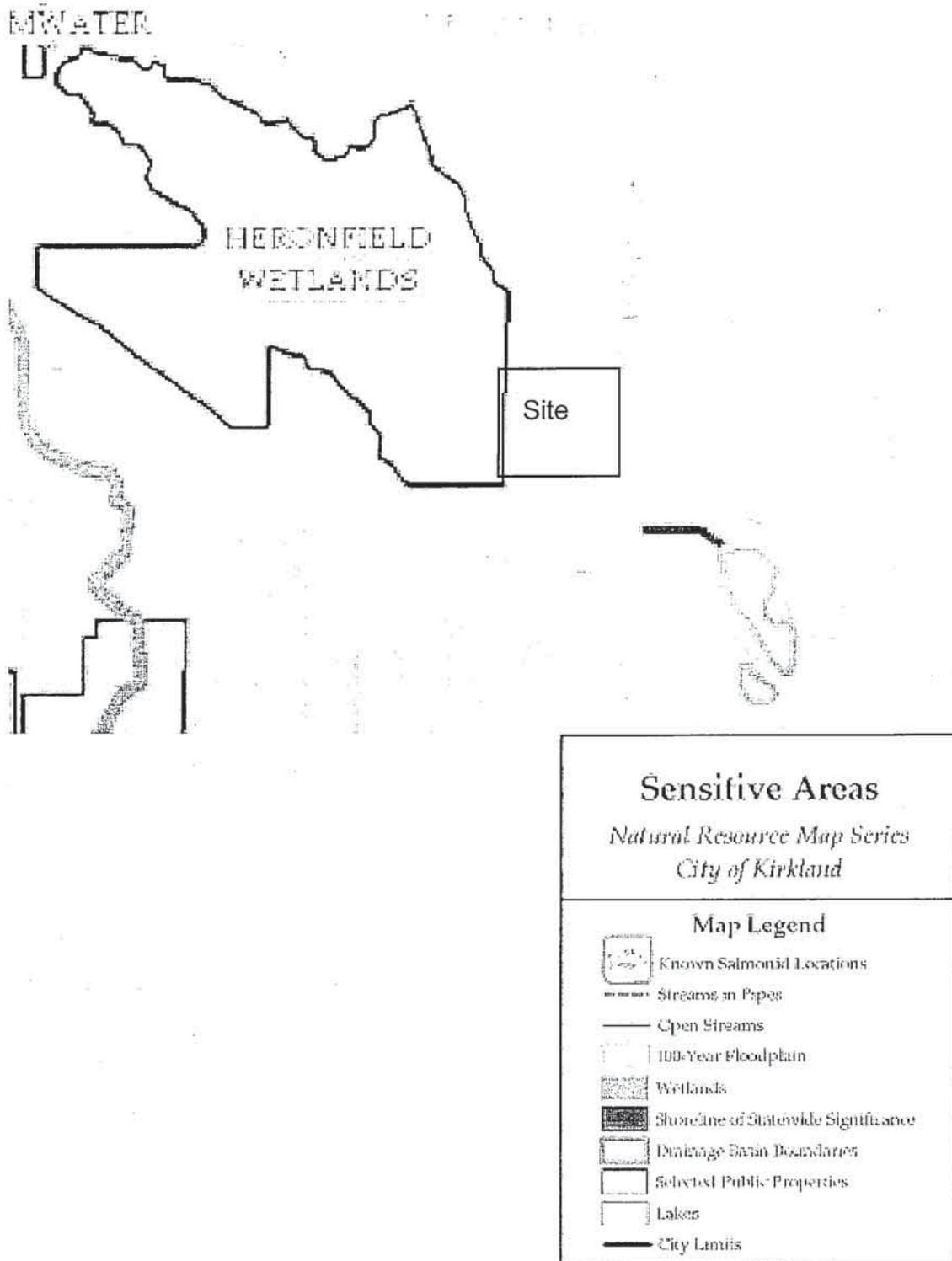


Figure 3. City of Kirkland Wetlands Inventory Map, Residence XII and Reconnaissance Area

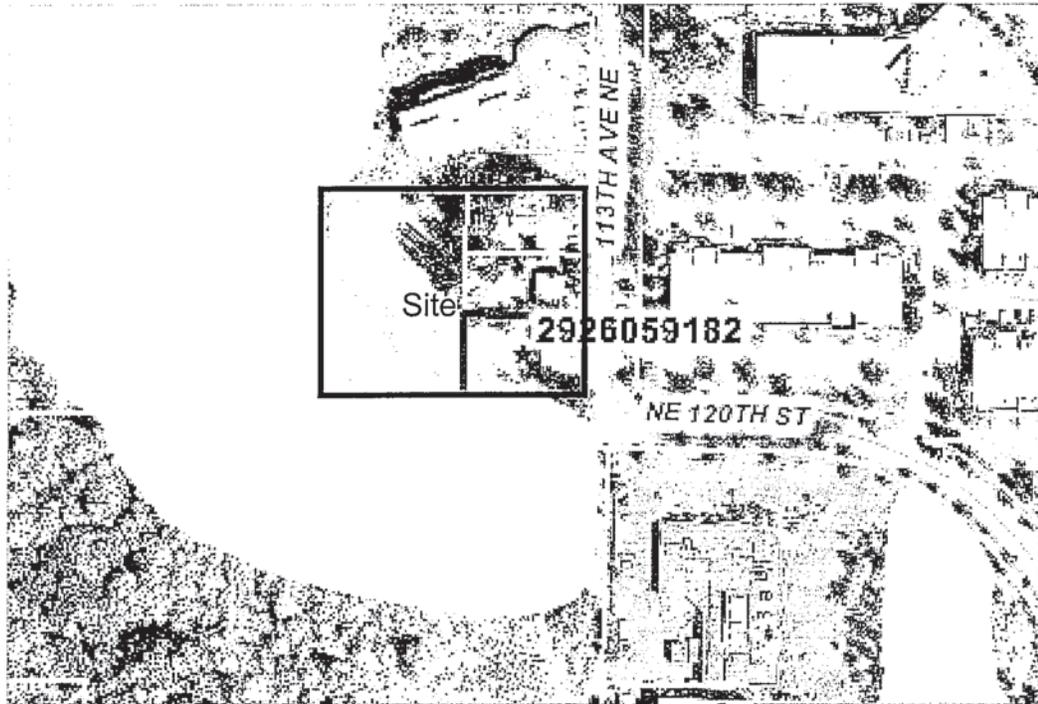
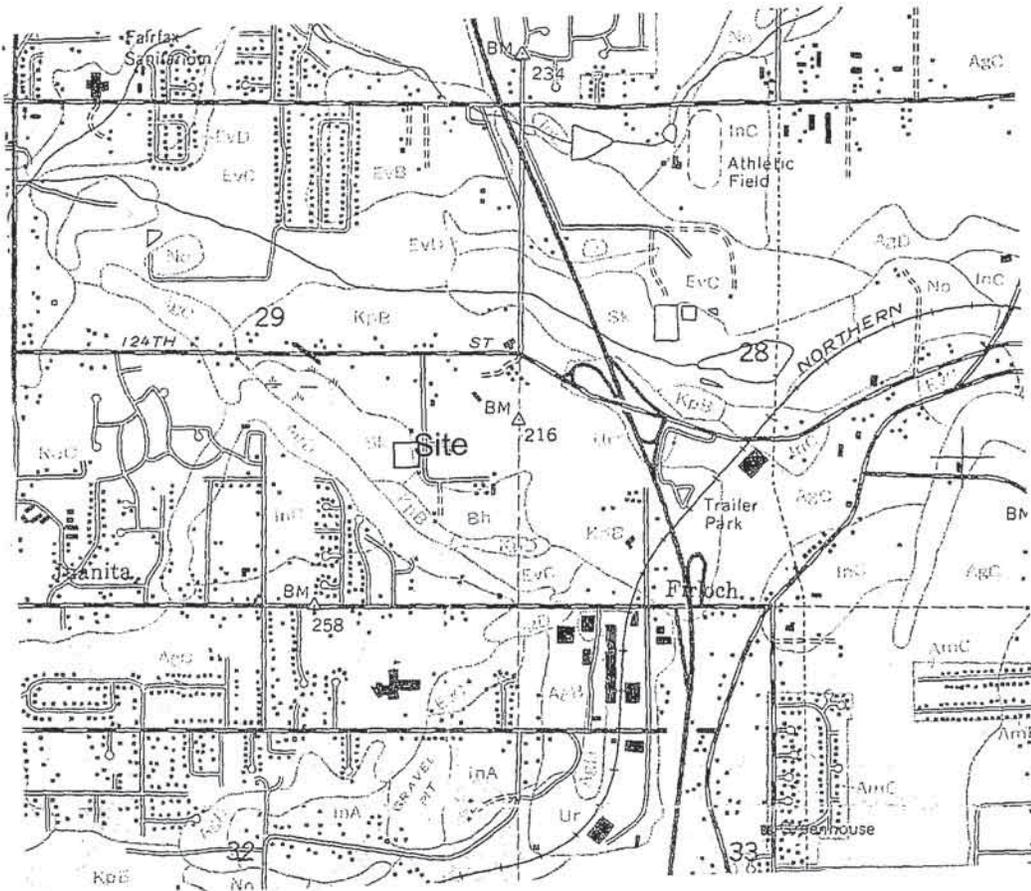


Figure 4. Kirkland Inventoried Wetland Map and, Aerial Photograph of the Reconnaissance Area.



Figure 1. Vicinity Map, Residence XII and Reconnaissance Area



Sk = Seattle Muck
Bh= Belingham Silt Loam
KpB = Kitsap Silt Loam

Figure 5. NRCS Soils Map, Residence XII and Reconnaissance Area

APPENDIX E

THE WATERSHED COMPANY 2006 WETLAND DELINEATION STUDY

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October 2, 2006

Desiree Goble
City of Kirkland Planning Department
123 Fifth Avenue
Kirkland, WA 98033
Fax (425) 587-3253

Via email:

Re: **Residence XII Properties Wetland Delineation Study –project # 060701.13**

Dear Desiree:

On September 18, 2006, The Watershed Company Senior Ecologist Hugh Mortensen and Ecologist Mike Foster conducted a wetland delineation study at four parcels located northeast of the intersection of 113th Avenue NE and NE 120th Street in the City of Kirkland (parcel numbers 292605-9126, 292605-9180, 292605-9181, 292605-9182).

This letter summarizes the findings of this study and details applicable federal, state, and local wetland regulations. The following attachments are included:

- Wetland Delineation Sketch
- Wetland Determination Data Forms
- Wetland Field Rating Form

Methods

The subject property was evaluated for wetlands using methodology from the *Washington State Wetlands Identification and Delineation Manual* (Manual) (Washington Department of Ecology [Ecology] 1997). Wetland boundaries were determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Manual were determined to be wetland. Soil, vegetation, and hydrologic data were sampled at several locations on the property to make the determination. We recorded data at two of these locations.

The boundary of Wetland A along the property edge is marked with 13 pink- and black-striped flags. Data points are marked with yellow- and black-striped flags.

Wetland A was classified using Kirkland's *Wetland Field Data Form*. We used observations in the field, aerial photos from King County's mapping website (iMap), and information gathered from Kirkland's *Sensitive Areas* map to rate the wetland found on the subject site.

D. Goble
October 2, 2006
Page 2 of 3

Findings

Wetland A is depressional. Wetland conditions found at this site are consistent with the wetland area depicted on Kirkland's *Sensitive Areas* map. The primary water source for the subject wetland is groundwater.

A small stream course flows several feet off-site to the south of the parcels in question and flows west into Wetland A. The stream was not flagged, as it is located off-site to the south. The buffer requirements for Wetland A supersede the buffer requirements for this stream.

The soil at 10 inches at data point 1 (see Delineation Sketch) is a greenish gray (10Y 6/1) sandy gravelly clay soil. The soil was nearly saturated on the day of our site visit. Reed canarygrass (*Phalaris arundinacea*), red clover (*Trifolium pratense*) and willow (*Salix* spp.) are the dominant species in Wetland A. Cattails (*Typha latifolia*), red alder (*Alnus rubra*), birds-foot trefoil (*Lotus corniculatus*), buttercup (*Ranunculus* spp.) and lady fern (*Athyrium filix-femina*) are also present.

The upland is characterized by a grayish brown (10YR 5/2) sandy clay soil at 10 inches. Reed canarygrass and other mowed grasses dominate the area. The soil was dry at 10 inches at the time of our visit.

Local Regulations

In Kirkland, wetlands are regulated under Chapter 90, Drainage Basins, of the Kirkland Zoning Code (KZC). According to KZC 90.45, buffer width determinations for wetlands are based on both wetland type and basin category. Using the City of Kirkland wetland rating system, Wetland A qualifies as a Type 1 wetland because it contains at least ¼-acre of organic soils. Wetland A is in the Juanita Creek basin, a primary basin. Type 1 wetlands in primary basins in Kirkland require 100-foot buffers. Furthermore, Kirkland requires that there be “[a] setback distance of 10 feet from a designated or modified wetland or stream buffer within which no buildings or other above-ground structures may be constructed....” (KZC 90.30, Definitions). As stated before, wetland buffer requirements on the parcels supersede stream buffer requirements.

Modification of wetland buffers is permitted pursuant to KZC 90.60 through either buffer averaging or reduction with enhancement, but not a combination of the two.

State and Federal Regulation

Wetlands are also regulated by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. Any filling of Waters of the State, including wetlands (except isolated wetlands), would likely require notification and permits from the Corps. This wetland would not be considered isolated by the Corps. Federally permitted actions that could affect endangered species (i.e. Chinook salmon or bull trout) may also require a biological assessment study and consultation with the U.S. Department of Fish and Wildlife and/or the National Marine Fisheries

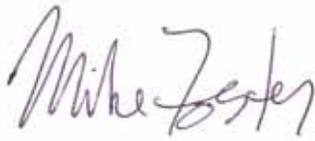
D. Goble
October 2, 2006
Page 3 of 3

Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from the State Department of Ecology.

Generally, neither the Corps nor Ecology regulates wetland buffers.

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

Sincerely,

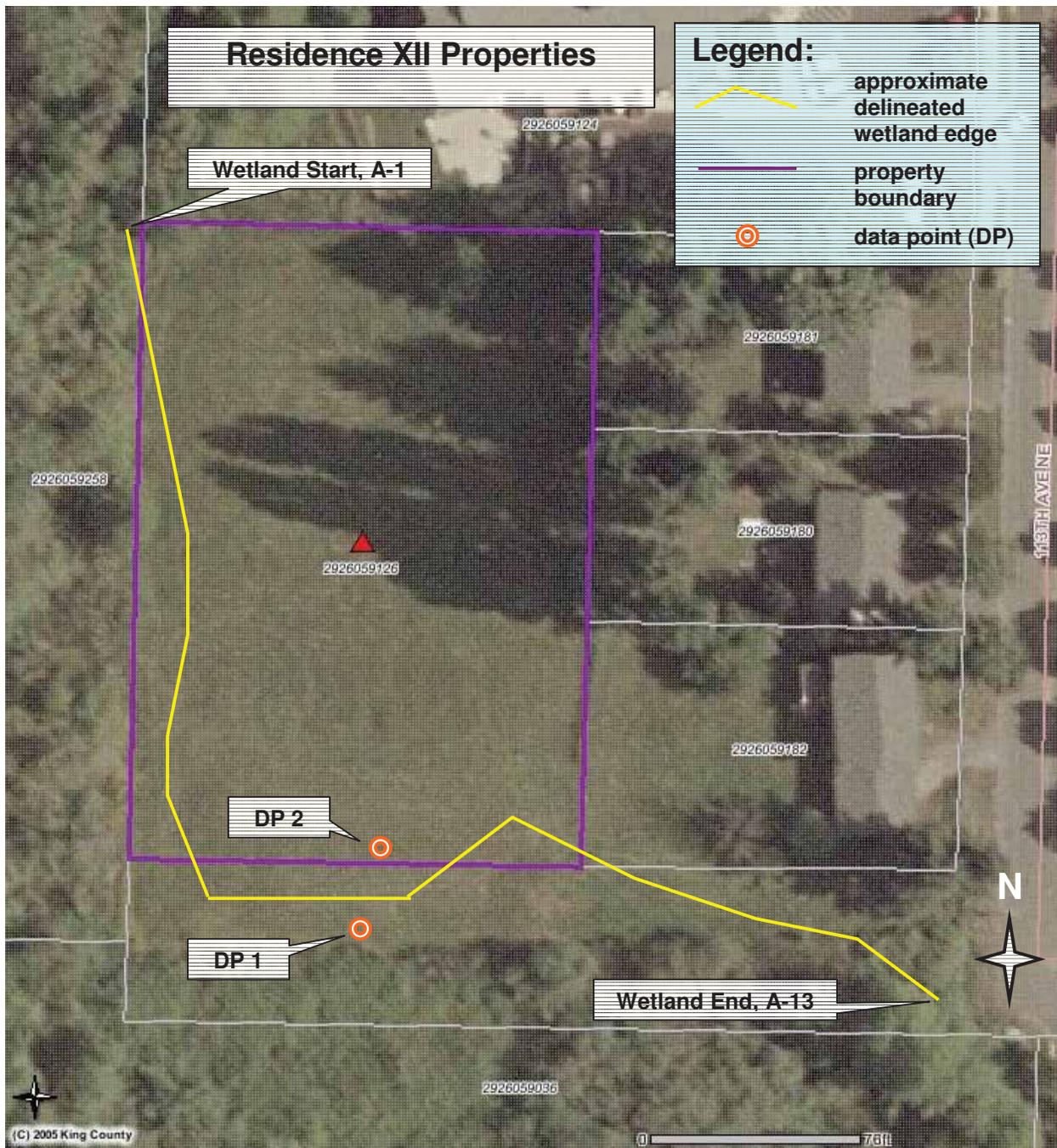


Mike Foster
Ecologist



Hugh Mortensen, PWS
Senior Ecologist

Enclosures



Wetland Delineation Sketch

(parcel numbers 292605-9126, -9180, -9181, -9182)

Kirkland, Washington

Prepared for Desiree Goble at the City of Kirkland

October 2, 2006

Note: Wetland areas not surveyed. Areas depicted are approximate and not to scale.



750 Sixth Street South | Kirkland | WA 98033
p 425.822.5242 f 425.827.8136

WETLAND DETERMINATION DATA FORM



750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242 Fax (425) 827-8136

WETLAND? YES NO

Date: Sept. 15, 2006 Data point: 1 Wetland #: A
Project Name: Kirkland, Res. XII Data point location: S. edge of field
Biologist(s): Hugh Mortensen, Mike Foster

Do normal environmental conditions exist? YES NO
Has vegetation, soils &/or hydrology been significantly disturbed within the past 5 yrs? YES NO

| Stratum: T=tree, S=shrub, H=herb, V=vine | | VEGETATION | | | |
|--|---------|-------------------|------------------------------|---------|------|
| Dominant Species | Stratum | WIS | Other Species | Stratum | WIS |
| <i>Phalaris arundinacea</i> | H | FACW | <i>Hedera helix</i> | S | NL |
| <i>Trifolium pratense</i> | H | FACU | <i>Typha latifolia</i> | H | OBL |
| <i>Salix</i> spp. | T | FAC | <i>Alnus rubra</i> | T | FAC |
| | | | <i>Lotus corniculatus</i> | H | FAC |
| | | | <i>Ranunculus</i> spp. | H | FACW |
| | | | <i>Athyrium filix-femina</i> | H | FAC |

Percent of dominant species that are FAC, FACW or OBL 67%

Vegetation criteria met? YES NO

Notes: Edge of mowed field

SOILS

| Depth | Horizon | Matrix Color | Mottles (Distinct/Prominent) | Texture | Hydric Indicators: |
|-------|---------|--------------|---------------------------------|---------------------|---|
| 10" | B | 10Y 6/1 | Yes | Sandy gravelly clay | <input checked="" type="checkbox"/> Gleyed/Low Chroma |
| | | | | | <input type="checkbox"/> Sulfidic odor |
| | | | | | <input type="checkbox"/> Histosol |
| | | | | | <input type="checkbox"/> Other (list in notes) |

Soil Criteria Met? YES NO

Notes: _____

HYDROLOGY

| | | |
|---|---|--|
| Surface saturation? YES <input checked="" type="radio"/> NO <input type="radio"/> | Primary Indicators: (1 required) | Secondary Indicators: (≥2 required) |
| Depth to saturation <u>N/A</u> | <input type="checkbox"/> Observation of inundation | <input checked="" type="checkbox"/> Oxidized root channels |
| Depth of inundation <u>N/A</u> | <input type="checkbox"/> Observation of soil saturation | <input type="checkbox"/> Water-stained leaves |
| Depth to free water in pit <u>N/A</u> | <input type="checkbox"/> Water marks | <input checked="" type="checkbox"/> Local soil survey data |
| Flow? YES <input type="radio"/> NO <input type="radio"/> | <input type="checkbox"/> Drift lines or drainage patterns | <input type="checkbox"/> FAC-neutral test |
| Channel? <input type="checkbox"/> Sheet? <input type="checkbox"/> | <input type="checkbox"/> Sediment deposits | |

Hydrologic Criteria Met? YES NO Recent rainfall: Very high High Normal Low Very low

Notes: Soil nearly saturated

KC Soil survey: Sk (Seattle muck) and Bh (Bellingham Silt Loam). The developed area contains fill.

WILDLIFE OBSERVATIONS AND GENERAL NOTES

WETLAND DETERMINATION DATA FORM



750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242 Fax (425) 827-8136

WETLAND? YES **NO**

Date: Sept. 15, 2006 Data point: 2 Wetland #: _____
Project Name: Kirkland Res. XII Data point location: Mowed field, south end
Biologist(s): Hugh Mortensen, Mike Foster

Do normal environmental conditions exist? YES NO
Has vegetation, soils &/or hydrology been significantly disturbed within the past 5 yrs? YES NO

Stratum: T=tree, S=shrub, H=herb, V=vine

| | | VEGETATION | | | |
|-----------------------------|---------|------------|---------------|---------|-----|
| Dominant Species | Stratum | WIS | Other Species | Stratum | WIS |
| <i>Phalaris arundinacea</i> | H | FACW | | | |
| Other mowed grasses | H | ? | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Percent of dominant species that are FAC, FACW or OBL 50%

Vegetation criteria met? YES **NO**
Notes: Other mowed grasses present were not identified

SOILS

| Depth | Horizon | Matrix Color | Mottles (Distinct/Prominent) | Texture | Hydric Indicators: |
|-------|---------|--------------|---------------------------------|------------|--|
| 10" | B | 2.5Y 5/2 | None | Sandy clay | <input type="checkbox"/> Gleyed/Low Chroma |
| | | | | | <input type="checkbox"/> Sulfidic odor |
| | | | | | <input type="checkbox"/> Histosol |
| | | | | | <input type="checkbox"/> Other (list in notes) |

Soil Criteria Met? YES **NO**
Notes: _____

HYDROLOGY

| Surface saturation? | Primary Indicators: (1 required) | Secondary Indicators: (≥2 required) |
|--|---|---|
| YES <input checked="" type="radio"/> NO <input type="radio"/> | <input type="checkbox"/> Observation of inundation | <input type="checkbox"/> Oxidized root channels |
| Depth to saturation <u>N/A</u> | <input type="checkbox"/> Observation of soil saturation | <input type="checkbox"/> Water-stained leaves |
| Depth of inundation _____ | <input type="checkbox"/> Water marks | <input type="checkbox"/> Local soil survey data |
| Depth to free water in pit _____ | <input type="checkbox"/> Drift lines or drainage patterns | <input type="checkbox"/> FAC-neutral test |
| Flow? YES <input type="radio"/> NO <input type="radio"/> | <input type="checkbox"/> Sediment deposits | |
| Channel? <input type="checkbox"/> Sheet? <input type="checkbox"/> | | |

Hydrologic Criteria Met? YES **NO** Recent rainfall: Very high High Normal Low **Very low**
Notes: Soil dry

WILDLIFE OBSERVATIONS AND GENERAL NOTES

WETLAND FIELD DATA FORM – Residence XII property located at 12021, 12011 and 12007 113th Ave NE Kirkland, WA 98033.

Rating done on Sept. 15, 2006 by The Watershed Company.



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington;
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;**
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or
- e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, **BUT DO NOT ASSIGN POINTS.**

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

| Estimate wetland area and score from choices | Acres | Point Value | <u>Points</u> |
|--|----------|-------------|---------------|
| Approx. 22 acres | >20.00 | = 6 | 6 |
| | 10-19.99 | = 5 | |
| | 5-9.99 | = 4 | |
| | 1-4.99 | = 3 | |
| | 0.1-0.99 | = 2 | |
| | <0.1 | = 1 | |

(points)

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

| | # of Classes | Points |
|--|--------------|--------|
| Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area | 1 | = 1 |
| Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre | 2 | = 3 |
| Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area | 3 | = 5 |
| Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area | 4 | = 7 |
| Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area | 5 | = 10 |

(points) 3

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

| Class | # of Species | Point Value | Class | # of Species | Point Value |
|-------------|--------------|-------------|-------------|--------------|-------------|
| Aquatic Bed | 1-2 | = 1 | Scrub-Shrub | 1-2 | = 1 |
| | 3 | = 2 | | 3-4 | = 2 |
| | >3 | = 3 | | >4 | = 3 |
| Emergent | 1-2 | = 1 | Forested | 1-2 | = 1 |
| | 3-4 | = 2 | | 3-4 | = 2 |
| | >4 | = 3 | | >4 | = 3 |

(points) 6

4. Structural diversity.

If the wetland has a forested class, add 1 point for each of the following attributes present:

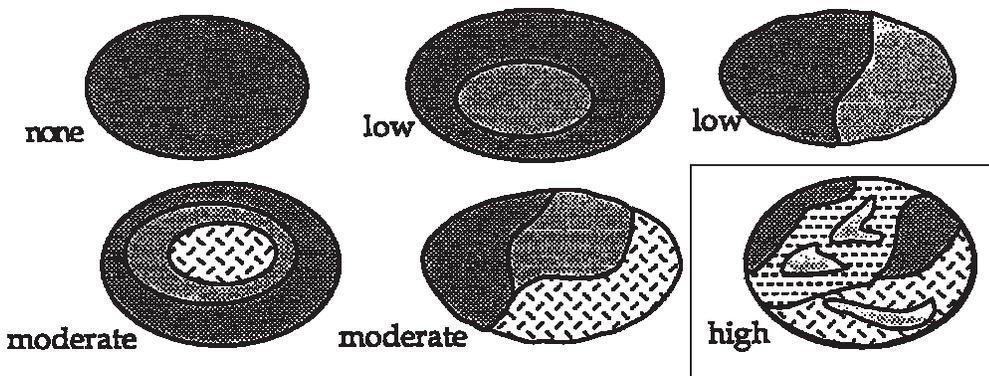
- Trees >50' tall = 1
- Trees 20' to 49' tall = 1
- shrubs = 1
- Herbaceous ground cover = 1

(points) 4

5. Interspersion between wetland classes.

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1 = Low
- 0 = None



(points) 3

6. Habitat features

Add points associated with each habitat feature listed:

- Is there evidence of current use by beavers? = 3
- Is a heron rookery located within 300' ? = 2
- Are raptor nest(s) located within 300' ? = 1
- Are there at least 2 standing dead trees (snags) per acre? = 1
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = 1

(points) 2

7. Connection to streams

Is the wetland connected at any time of the year via surface water? (score one answer only)

- Is the wetland connected at any time of the year via surface water?
 - To a perennial stream or a seasonal stream *with* fish = 5
 - To a seasonal stream *without* fish = 3
 - Is not connected to any stream = 0

(points) 0

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

| | % of Buffer | Step 1 | Width Factor | Step 2 |
|---|-------------------|-----------------------|-------------------|-----------------|
| Roads, buildings or parking lots | <u>55 %</u> | X 0 = <u>0</u> | <u> </u> = | <u>0</u> |
| Lawn, grazed pasture, vineyards or annual crops | <u>5 %</u> | X 1 = <u>5</u> | <u>2</u> = | <u>10</u> |
| Ungrazed grassland or orchards | <u> </u> % | X 2 = <u> </u> | <u> </u> = | <u> </u> |
| Open water or native grasslands | <u> </u> % | X 3 = <u> </u> | <u> </u> = | <u> </u> |
| Forest or shrub | <u>40 %</u> | X 4 = <u>160</u> | <u>3</u> = | <u>480</u> |
| | | | Add buffer total | <u>490</u> |

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3

300-599 = 2

100-299 = 1

(points) 2

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

(points) 1

10. Scoring

Add the scores to get a total: N/A (Type I wetland)

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

No = Type 3

APPENDIX F

USFWS SPECIES LIST

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**LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CRITICAL
HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN
IN KING COUNTY
AS PREPARED BY
THE U.S. FISH AND WILDLIFE SERVICE
WASHINGTON FISH AND WILDLIFE OFFICE**

(Revised August 1, 2011)

LISTED

Bull trout (*Salvelinus confluentus*) – Coastal-Puget Sound DPS

Canada lynx (*Lynx canadensis*)

Gray wolf (*Canis lupus*)

Grizzly bear (*Ursus arctos* = *U. a. horribilis*)

Marbled murrelet (*Brachyramphus marmoratus*)

Northern spotted owl (*Strix occidentalis caurina*)

Major concerns that should be addressed in your Biological Assessment of project impacts to listed animal species include:

1. Level of use of the project area by listed species.
2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.
3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

Castilleja levisecta (golden paintbrush) [historic]

Major concerns that should be addressed in your Biological Assessment of project impacts to listed plant species include:

1. Distribution of taxon in project vicinity.
2. Disturbance (trampling, uprooting, collecting, etc.) of individual plants and loss of habitat.
1. Changes in hydrology where taxon is found.

DESIGNATED

Critical habitat for bull trout

Critical habitat for the marbled murrelet

Critical habitat for the northern spotted owl

PROPOSED

None

CANDIDATE

Fisher (*Martes pennanti*) – West Coast DPS
North American wolverine (*Gulo gulo luteus*) – contiguous U.S. DPS
Oregon spotted frog (*Rana pretiosa*) [historic]
Yellow-billed cuckoo (*Coccyzus americanus*)
Whitebark pine (*Pinus albicaulis*)

SPECIES OF CONCERN

Bald eagle (*Haliaeetus leucocephalus*)
Beller's ground beetle (*Agonum belleri*)
Cascades frog (*Rana cascadae*)
Hatch's click beetle (*Eanus hatchi*)
Larch Mountain salamander (*Plethodon larselli*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Northern goshawk (*Accipiter gentilis*)
Northern sea otter (*Enhydra lutris kenyoni*)
Northwestern pond turtle (*Emys* (= *Clemmys*) *marmorata marmorata*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)
Tailed frog (*Ascaphus truei*)
Valley silverspot (*Speyeria zerene bremeri*)
Western toad (*Bufo boreas*)
Aster curtus (white-top aster)
Botrychium pedunculatum (stalked moonwort)
Cimicifuga elata (tall bugbane)

APPENDIX G

NMFS SPECIES LIST

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Endangered Species Act Status of West Coast Salmon & Steelhead

(Updated Aug. 11, 2011)

| | | Species ¹ | Current Endangered Species Act Listing Status ² | ESA Listing Actions Under Review |
|---|-------------------|---|--|----------------------------------|
| Sockeye Salmon (<i>Oncorhynchus nerka</i>) | 1 | Snake River | Endangered | |
| | 2 | Ozette Lake | Threatened | |
| | 3 | Baker River | Not Warranted | |
| | 4 | Okanogan River | Not Warranted | |
| | 5 | Lake Wenatchee | Not Warranted | |
| | 6 | Quinalt Lake | Not Warranted | |
| | 7 | Lake Pleasant | Not Warranted | |
| Chinook Salmon (<i>O. tshawytscha</i>) | 8 | Sacramento River Winter-run | Endangered | |
| | 9 | Upper Columbia River Spring-run | Endangered | |
| | 10 | Snake River Spring/Summer-run | Threatened | |
| | 11 | Snake River Fall-run | Threatened | |
| | 12 | Puget Sound | Threatened | |
| | 13 | Lower Columbia River | Threatened | |
| | 14 | Upper Willamette River | Threatened | |
| | 15 | Central Valley Spring-run | Threatened | |
| | 16 | California Coastal | Threatened | |
| | 17 | Central Valley Fall and Late Fall-run | Species of Concern | |
| | 18 | Upper Klamath-Trinity Rivers | Not Warranted | |
| | 19 | Oregon Coast | Not Warranted | |
| | 20 | Washington Coast | Not Warranted | |
| | 21 | Middle Columbia River spring-run | Not Warranted | |
| | 22 | Upper Columbia River summer/fall-run | Not Warranted | |
| | 23 | Southern Oregon and Northern California Coast | Not Warranted | |
| | 24 | Deschutes River summer/fall-run | Not Warranted | |
| Coho Salmon (<i>O. kisutch</i>) | 25 | Central California Coast | Endangered | |
| | 26 | Southern Oregon/Northern California | Threatened | |
| | 27 | Lower Columbia River | Threatened | • Critical habitat |
| | 28 | Oregon Coast | Threatened | |
| | 29 | Southwest Washington | Undetermined | |
| | 30 | Puget Sound/Strait of Georgia | Species of Concern | |
| 31 | Olympic Peninsula | Not Warranted | | |
| Chum Salmon (<i>O. keta</i>) | 32 | Hood Canal Summer-run | Threatened | |
| | 33 | Columbia River | Threatened | |
| | 34 | Puget Sound/Strait of Georgia | Not Warranted | |
| | 35 | Pacific Coast | Not Warranted | |
| Steelhead (<i>O. mykiss</i>) | 36 | Southern California | Endangered | |
| | 37 | Upper Columbia River | Threatened | |
| | 38 | Central California Coast | Threatened | |
| | 39 | South Central California Coast | Threatened | |
| | 40 | Snake River Basin | Threatened | |
| | 41 | Lower Columbia River | Threatened | |
| | 42 | California Central Valley | Threatened | |
| | 43 | Upper Willamette River | Threatened | |
| | 44 | Middle Columbia River | Threatened | |
| | 45 | Northern California | Threatened | |
| | 46 | Oregon Coast | Species of Concern | |
| | 47 | Southwest Washington | Not Warranted | |
| | 48 | Olympic Peninsula | Not Warranted | |
| | 49 | Puget Sound | Threatened | • Critical habitat |
| | 50 | Klamath Mountains Province | Not Warranted | |
| Pink Salmon (<i>O. gorbuscha</i>) | 51 | Even-year | Not Warranted | |
| | 52 | Odd-year | Not Warranted | |

¹ The ESA defines a "species" to include any distinct population segment of any species of vertebrate fish or wildlife. For Pacific salmon, NOAA Fisheries Service considers an evolutionarily significant unit, or "ESU," a "species" under the ESA. For Pacific steelhead, NOAA Fisheries Service has delineated distinct population segments (DPSs) for consideration as "species" under the ESA.

APPENDIX H

COOKE SAM WETLAND FUNCTIONS FORM

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2000 Wetland and Buffer Functions and Semi-quantitative Performance Assessment updated 8/04

Wetland # Heronfield/Juanita 6 Staff Scott Swartz Date October 7, 2009

Location S 29 T 26 N R 5 E

N/A = Not Applicable, N/I = No information available

Table 1: Determining Wetland Size in Landscape Context

| Attribute | Low (1 pt.) | Medium (2 pts.) | High (3 pts.) | Total |
|--|---|-------------------------------|------------------------|--------------|
| Absolute Size | <5 acres | 5-10 acres | > 10 acres | 3 |
| Wetland Loss in Basin | < 20 % | 20 – 60 % | >60 % | 2 |
| Size Relative to Other Wetlands in Basin (on NWI maps) | < 100% of average size | 100 – 200 % of t average size | > 200% of average size | 2 |
| Buffer Size | < 75 feet | 75 to 200 feet | > 200 feet | 1 |
| Buffer Condition | > 60% disturbed | 20-60% disturbed | < 20% disturbed | 1 |
| Relative Size | If score is = 1.4 then give the question a 1 If score is 1.5 to 2.4 then give the question a 2 If score is 2.5 to =3 then give the question a 3 | | | score/5 2 |

| Function | Criteria | | |
|--|--|--|--|
| | Group 1 1 pt | Group 2 2 pts | Group 3 3 pts |
| Flood/ Storm Water Control points <u>13</u> (max 15) | <input type="checkbox"/> size cumulative score (see Table 1) <input type="checkbox"/> riverine, or shallow depression <input type="checkbox"/> < 10 % forested cover <input type="checkbox"/> unconstrained outlet <input type="checkbox"/> located in lower 1/3 of the drainage | <input checked="" type="checkbox"/> size cumulative score (see Table 1) <input type="checkbox"/> mid-sloped wetland <input checked="" type="checkbox"/> 10 - 30 % forested cover <input type="checkbox"/> semi-constrained outlet <input type="checkbox"/> located in middle 1/3 of the drainage 4 | <input type="checkbox"/> size cumulative score (see Table 1) <input checked="" type="checkbox"/> lake, depressions, headwaters, bogs <input type="checkbox"/> > 30 % forested cover <input checked="" type="checkbox"/> culvert/bermed outlet <input checked="" type="checkbox"/> located in upper 1/3 of the drainage 9 |
| Base Flow/ Ground Water Support points <u>11</u> (max 15) | <input type="checkbox"/> Size cumulative score (see Table 1) <input type="checkbox"/> riverine, or shallow depression <input type="checkbox"/> located in lower 1/3 of the drainage <input type="checkbox"/> temporarily flooded or saturated <input checked="" type="checkbox"/> vegetation < 20 % OBL species 1 | <input checked="" type="checkbox"/> Size cumulative score (see Table 1) <input type="checkbox"/> mid-sloped wetland <input type="checkbox"/> located in middle 1/3 of the drainage <input checked="" type="checkbox"/> seasonally or semi-permanently flooded or saturated <input type="checkbox"/> vegetation 20 to 40 % OBL species 4 | <input type="checkbox"/> Size cumulative score (see Table 1) <input checked="" type="checkbox"/> lake, depressions, headwaters, bogs <input checked="" type="checkbox"/> located in upper 1/3 of the drainage <input type="checkbox"/> permanently flooded or saturated, or intermittently exposed <input type="checkbox"/> vegetation > 40 % OBL species 6 |
| Erosion/ Shoreline Protection NA points <u>0</u> (max 9) | <input type="checkbox"/> sparse grass/herbs or no veg along OHWM <input type="checkbox"/> wetland extends < 30 m from OHWM <input type="checkbox"/> <20 % shoreline developed | <input type="checkbox"/> sparse wood or veg along OHWM <input type="checkbox"/> wetland extends 30 - 60 m from OHWM <input type="checkbox"/> 20 to 60% shoreline developed | <input type="checkbox"/> dense wood or veg along OHWM <input type="checkbox"/> wetland extends > 200 m from OHWM <input type="checkbox"/> >60 % shoreline developed |

2000 Wetland and Buffer Functions and Semi-quantitative Performance Assessment updated 8/04

| | | | |
|--|---|--|---|
| Water Quality Improvement points <u>15</u> (max 15) | <input type="checkbox"/> rapid flow through site | <input type="checkbox"/> moderate flow through site | <input checked="" type="checkbox"/> slow flow through site |
| | <input type="checkbox"/> < 50 % veg cover | <input type="checkbox"/> 50 - 80 % cover | <input checked="" type="checkbox"/> > 80 % veg cover |
| | <input type="checkbox"/> <20% of basin upstream from wetland is developed | <input type="checkbox"/> 20 to 50% of basin upstream from wetland is developed | <input checked="" type="checkbox"/> > 50% of basin upstream from wetland is developed |
| | <input type="checkbox"/> result from Table 2 | <input type="checkbox"/> result from Table 2 | <input checked="" type="checkbox"/> result from Table 2 |
| | <input type="checkbox"/> Soil coarse -gravel, Sand, sandyloam | <input type="checkbox"/> Soil organic mineral mix | <input checked="" type="checkbox"/> Soil heavy organic muck and peat |

Wetland # Heronfield/Juanita 6 Staff Scott Swartz Date October 7, 2009

Table 2: Overland Flow Contained in Wetland

| Attribute | Low (1 pt.) | Medium (2 pts.) | High (3 pts.) | Total |
|-----------------------|------------------|------------------------------|------------------|----------------|
| Configuration | Plate-shaped | Shallow bowl-shaped | Deep Bowl-shaped | 2 |
| Drainage Basin Size | < 2 acres | 2-5 acres | > 5 acres | 3 |
| Outlet | Unconstrained | Semi-constrained | Constrained | 3 |
| Input | Groundwater only | Surface flow and groundwater | Surface flow | 2 |
| Basin Condition | < 20% impervious | 20-40 % impervious | >40% impervious | 3 |
| Flow Contained | | | | score/5 |

$13/5 = 2.6 = 3$

| | | | |
|---|---|---|--|
| Natural Biological Support points <u>24</u> (max 36) | <input type="checkbox"/> size cumulative score (see Table 1) <input type="checkbox"/> low connectivity to veg'd buffers <input type="checkbox"/> ag land, low veg structure <input checked="" type="checkbox"/> seasonal surface water <input type="checkbox"/> one habitat type PAB POW PEM PSS PFO EST <input type="checkbox"/> low plant diversity (< 6 species) <input type="checkbox"/> > 50 % invasive species <input type="checkbox"/> low organic accumulation <input type="checkbox"/> low organic export <input type="checkbox"/> few habitat features <input checked="" type="checkbox"/> buffers very disturbed <input type="checkbox"/> isolated from upland habitats 2 | <input checked="" type="checkbox"/> size cumulative score (see Table 1) <input checked="" type="checkbox"/> mod connectivity to veg'd buffers <input type="checkbox"/> 2 layers of vegetation <input type="checkbox"/> permanent surface water <input type="checkbox"/> two habitat types PAB POW PEM PSS PFO EST <input type="checkbox"/> moderate plant diversity (7-15 spp) <input type="checkbox"/> 10 to 50 % invasive species <input checked="" type="checkbox"/> moderate organic accumulation <input type="checkbox"/> moderate organic export <input checked="" type="checkbox"/> some habitat features <input type="checkbox"/> buffers slightly disturbed <input checked="" type="checkbox"/> partially connected to upland habitats 10 | <input type="checkbox"/> size cumulative score (see Table 1) <input type="checkbox"/> high connectivity to veg'd buffers <input checked="" type="checkbox"/> high veg structure <input type="checkbox"/> open water pools through summer <input checked="" type="checkbox"/> ≥ 3 habitat types PAB POW PEM PSS PFO EST <input checked="" type="checkbox"/> high plant diversity (> 15 spp) <input checked="" type="checkbox"/> < 10% invasive species <input type="checkbox"/> high organic accumulation <input type="checkbox"/> high organic export <input type="checkbox"/> many habitat features <input type="checkbox"/> buffers not disturbed <input type="checkbox"/> well connected to upland habitats 12 |
| | Overall Habitat Functions points <u>6</u> (max 9) | <input type="checkbox"/> size cumulative score (see Table 1) <input type="checkbox"/> low habitat diversity <input type="checkbox"/> low sanctuary or refuge 0 | <input checked="" type="checkbox"/> size cumulative score (see Table 1) <input checked="" type="checkbox"/> moderate habitat diversity <input checked="" type="checkbox"/> moderate sanctuary or refuge 6 |

2000 Wetland and Buffer Functions and Semi-quantitative Performance Assessment updated 8/04

| | | | |
|---|--|---|---|
| Specific Habitat Functions points <u>10</u> (max 15) | <input type="checkbox"/> low invertebrate habitat | <input checked="" type="checkbox"/> moderate invertebrate habitat | <input type="checkbox"/> high invertebrate habitat |
| | <input type="checkbox"/> low amphibian habitat | <input checked="" type="checkbox"/> moderate amphibian habitat | <input type="checkbox"/> high amphibian habitat |
| | <input checked="" type="checkbox"/> low fish habitat | <input type="checkbox"/> moderate fish habitat | <input type="checkbox"/> high fish habitat |
| | <input type="checkbox"/> low mammal habitat | <input checked="" type="checkbox"/> moderate mammal habitat | <input type="checkbox"/> high mammal habitat |
| | <input type="checkbox"/> low bird habitat | <input type="checkbox"/> moderate bird habitat | <input checked="" type="checkbox"/> high bird habitat |
| | <u>1</u> | <u>6</u> | <u>3</u> |

Wetland# Heronfield/Juanita 6 Staff Scott Swartz Date October 7, 2009.

| | | | |
|---|--|--|--|
| Cultural/Socioeconomic points <u>10</u> (max 18) | <input type="checkbox"/> low educational opportunities | <input checked="" type="checkbox"/> moderate educational opportunities | <input type="checkbox"/> high educational opportunities |
| | <input type="checkbox"/> low aesthetic value | <input checked="" type="checkbox"/> moderate /aesthetic value | <input checked="" type="checkbox"/> high aesthetic value |
| | <input checked="" type="checkbox"/> lacks commercial fisheries, agriculture, renewable resources | <input type="checkbox"/> moderate commercial fisheries, agriculture, renewable resources | <input type="checkbox"/> high commercial fisheries, agriculture, renewable resources |
| | <input checked="" type="checkbox"/> lacks historical or archeological resources | <input type="checkbox"/> historical or archeological site | <input type="checkbox"/> important historical or archeological site |
| | <input type="checkbox"/> lacks passive and active recreational opportunities | <input checked="" type="checkbox"/> some passive and active recreational opportunities | <input type="checkbox"/> many passive and active recreational opportunities |
| | <input type="checkbox"/> privately owned | <input checked="" type="checkbox"/> privately owned, some public access | <input checked="" type="checkbox"/> unrestricted public access |
| | <u>2</u> | <u>8</u> | |

Dominant Vegetation:

Wildlife:

Notes:

APPENDIX I

WETLAND BUFFER MITIGATION DESIGN SHEETS

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SE 1/4, SEC. 29, TWP 26N, RNG. 5E, W.M.



PLANT SCHEDULE

| SYMBOL | BOTANICAL NAME | COMMON NAME | SIZE | SPACING | REMARKS | QNTY |
|--------------------|--------------------------|----------------------|-------------------|----------|--|------|
| TREES | | | | | | |
| (1) | PRINCEPIA NERDENSE | SOULAR FIR | 2'-4" H, 2 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP, NO DOUBLE TRUNK | 75 |
| (2) | TRUX WOODRIVILLA | WESTERN HEMLOCK | 2'-4" H, 2 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP, NO DOUBLE TRUNK | 24 |
| (3) | PIXA STROBILIS | DIWA SPRUCE | 2'-4" H, 2 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP, NO DOUBLE TRUNK | 3 |
| (4) | PIXA FLUIDA | WESTERN RED CEDAR | 2'-4" H, 2 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP, NO DOUBLE TRUNK | 21 |
| (5) | PIXA WOODRIVILLA | NO LEAF MAPLE | 2' MIN. H, 1 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP | 14 |
| (6) | POPULUS TRICHOCARPUS | SAVING ASPEN | 2' MIN. H, 1 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP | 28 |
| (7) | POPULUS TRICHOCARPUS | PAPER BIRCH | 2' MIN. H, 1 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP | 41 |
| (8) | QUERCUS BICOLOR | BLACK HAWTHORN | 2' MIN. H, 2 GAL. | PER PLAN | WELL BRANCHED FROM ROOT DOWN TO TOP | 88 |
| LIVE STAKES | | | | | | |
| (9) | SALIX BACULIFERA | SCULLOFTS WILLOW | 30" H, 1/2" DIA. | 3' DIA. | USE STAKES | 20 |
| SHRUBS | | | | | | |
| (10) | ACEL GROWING | WEE MAPLE | 2'-4" H, 2 GAL. | PER PLAN | MULTI-STEMMED | 10 |
| (11) | CEPHALIS CORNUTA | WILLOW | 2'-4" H, 2 GAL. | PER PLAN | MULTI-STEMMED | 7 |
| (12) | HOLDRIDGE SINGULIFLORUS | SCISSOR GRASS | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 45 |
| (13) | THAMNOCORIS RACEMOSA | RED CLOVER | 2'-4" H, 2 GAL. | PER PLAN | FALL, WELL BRANCHED | 3 |
| (14) | LEONIDA AULICOSTACHYA | BLACK THIMBLE | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 8 |
| (15) | ROSA ALBA | WEDDING ROSE | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 108 |
| (16) | DIAPYCNON AUREUM | SNOWDRIFT | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 118 |
| (17) | RUPESTRIS SPERMATOPHYTES | WILLOW | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 30 |
| (18) | RUPESTRIS SPERMATOPHYTES | WILLOW | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 15 |
| (19) | MORICIA ACUTIFLORA | TALL GREEN GRASS | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 148 |
| (20) | RUPESTRIS SPERMATOPHYTES | RED FLOWERING LUPINE | 2'-4" H, 2 GAL. | 7' DIA. | FALL, WELL BRANCHED | 25 |
| (21) | RUPESTRIS SPERMATOPHYTES | SNOW FERN | 1'-2" H, 1 GAL. | 2' DIA. | FALL, WELL BRANCHED | 275 |
| GROUNDCOVER | | | | | | |
| (22) | WOOD STONE WASH | | | | SEE SHEET 88-5, 88-4 | |

LEGEND



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MITIGATION PLANTING PLAN
 FOR
 RESIDENCE XI
 12029 113TH AVE NE
 CITY OF KIRKLAND, KING COUNTY, WA



APPROVAL STAMP

DAVID EVANS
AND ASSOCIATES, INC.
415-11520 Avenue SE
Bellevue, Washington 98006-3018
Phone 425.718.6800



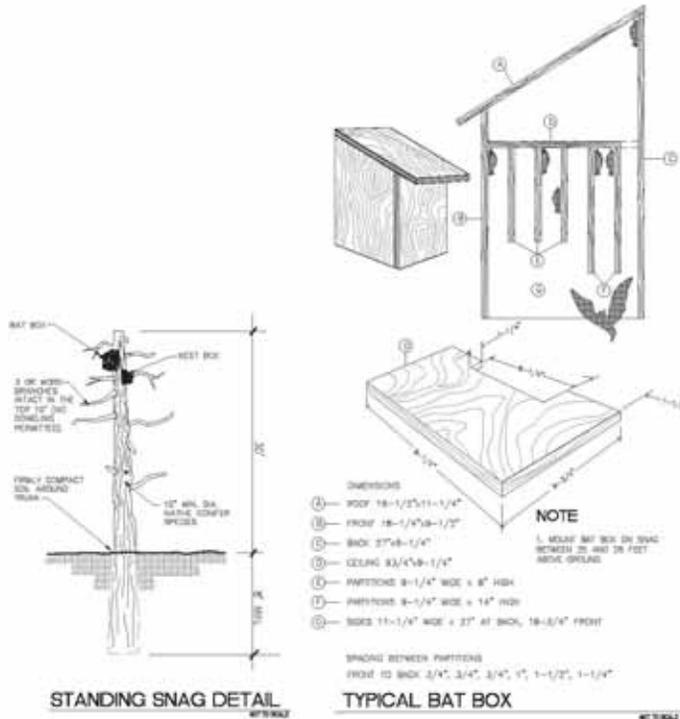
REVISIONS: APPR.
7-18-10 ADD COMMENTS
8-8-11 ADD COMMENTS

DATE: JANUARY 28, 2010
DESIGN: DM
DRAWING: DM
CHECKED: JCA
REVISION NUMBER:

SCALE: 1" = 20'
PROJECT NUMBER:
RESX0000-0001
DRAWING FILE:

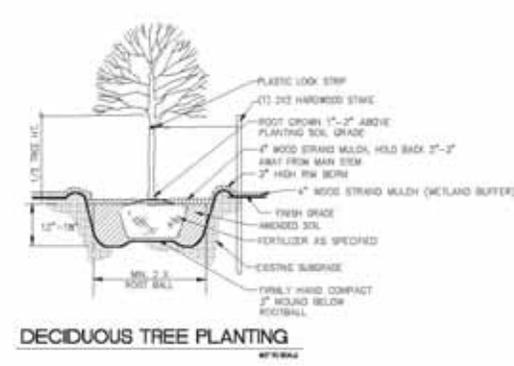
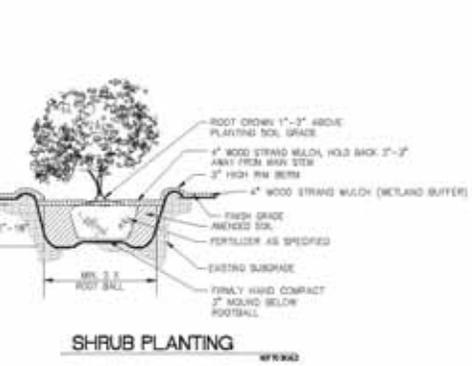
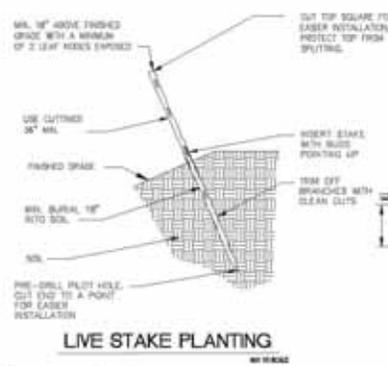
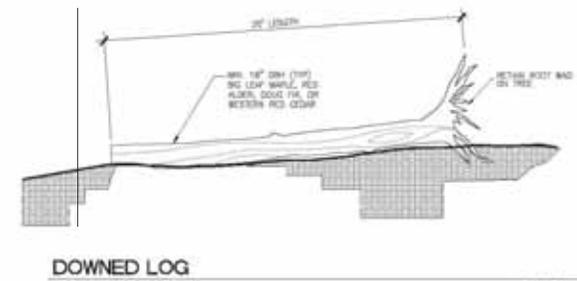
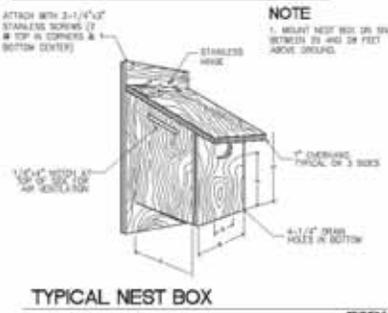
SHEET NO.
WM-3
OF 8
173

SE 1/4, SEC. 29, TWP 26N, RNG. 5E, W.M.



NEST BOX SPECIFICATIONS

| NET WEIGHT | Tree at Center Edge of Cavity (Lined) | Tree at Outer Edge of Cavity (Lined) | Tree at Outer Edge of Cavity (Unlined) |
|------------|---------------------------------------|--------------------------------------|--|
| MIN | 2 | 2 | 2 |
| MAXIMUM | 4 x 4 | 6 x 6 | 8 x 8 |
| | | | 1.25 MAX |



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MITIGATION DETAILS
FOR
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CITY OF KIRKLAND, KING COUNTY, WA



DAVID EVANS
AND ASSOCIATES, INC.
415 - 1520 Avenue SE
Bellevue, Washington 98005-0018
Phone 425-718-8800



REVISIONS: APPR.
8-8-11 CITY COMMENTS

DATE: JANUARY 28, 2010
DESIGN: JCA
DRAWING: DM
CHECKED: JCA
DESIGNED: MEMBER

SCALE: AS SHOWN ON PLAN
PROJECT NUMBER:
RESX0000-0001
DRAWING FILE:

SHEET NO.
WM-4
OF 8
174

SE 1/4, SEC. 29, TWP 26N, R1NG 5E, WM.

PART 1 - SITE PREPARATION

GENERAL SITE CONDITIONS

CONTRACTOR SHALL OVE THE MITIGATION CONSTRUCTION MONITOR A MINIMUM OF 5 WORKING DAYS NOTICE PRIOR TO CONSTRUCTION.

NO CONSTRUCTION WORK SHALL COMMENCE UNTL THERE IS A PRE-CONSTRUCTION MEETING BETWEEN THE CLIENT, THE MITIGATION CONSTRUCTION MONITOR, PARTICIPATING CONTRACTOR AND THE CITY OF SNOHOMISH TO REVIEW THE MITIGATION PLANS AND SPECIFICATIONS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION AREA WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THIS PLAN. SUCH AREAS ARE TO BE CLEARLY MARKED IN THE FIELD.

CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CODES, PERMIT CONDITIONS, AND OTHER APPLICABLE ORDINANCES AND POLICES.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS/APPROVALS PRIOR TO THE START OF CONSTRUCTION. A COPY OF THE APPROVED PLANS, SPECIFICATIONS, PERMITS, AND AGENCY APPROVALS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS AND SHALL REMAIN ON SITE UNTL PROJECT COMPLETION.

THE MITIGATION CONSTRUCTION MONITOR SHALL BE ON SITE, AS NECESSARY, TO MONITOR CONSTRUCTION.

ANY CHANGES OR MODIFICATIONS TO THIS PLAN MUST RECEIVE PRIOR APPROVAL FROM THE MITIGATION CONSTRUCTION MONITOR.

SURVEY/STAKE/FLAG LIMITS OF WORK/PROTECTION TO EXISTING VEGETATION

PRIOR TO ANY CONSTRUCTION, A LICENSED SURVEYOR SHALL SURVEY, STAKE, AND FLAG LIMITS OF WORK AND WETLAND BOUNDARIES AS SHOWN IN THE PLANS. ELECTRIC DIAGRAMS SHOWING LIMITS OF WORK ARE AVAILABLE UPON REQUEST. THE MITIGATION CONSTRUCTION MONITOR SHALL APPROVE FLAGGING OF WORK LIMITS AND ANY VEGETATION TO REMAIN PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ACTUAL LOCATIONS OF EXISTING VEGETATION TO BE SAVED, AND ESTABLISHING PROTECTIVE BARRIERS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL ALSO RESTORE ANY DISTURBANCE TO EXISTING VEGETATION LOCATED OUTSIDE THE LIMITS OF WORK.

EROSION CONTROL

ALL EROSION CONTROL MEASURES (E.G., STRAW MATS AND OTHER BMPs) SHALL BE INSTALLED AND IMPLEMENTED AS SHOWN IN THE PLANS, PRIOR TO BEGINNING OF WORK. NO TRENCHING SHALL OCCUR IN THE WETLAND AREA.

SOIL STABILIZATION

IF THERE IS A DELAY IN CONSTRUCTION FOR ANY REASON, THE CONTRACTOR, UNLESS OTHERWISE STATED IN WRITING, SHALL BE RESPONSIBLE FOR MAINTENANCE OF EROSION CONTROL MEASURES (AS NOTED ON THE PLANS), DRAINAGE, AND TEMPORARY IRRIGATION DURING CONSTRUCTION DELAY PERIOD.

DISTURBED LAND AREAS IN WHICH CONSTRUCTION ACTIVITIES MAY BE SUSPENDED FOR 30 DAYS OR MORE SHALL BE IMMEDIATELY HYDROSEEDED WITH THE SPECIFIED MIX. SEEDED AREAS SHALL BE MANUALLY IRRIGATED IF IRRIGATION SYSTEM HAS NOT BEEN INSTALLED AND MAINTAINED UNTL ACCEPTABLE SEED GERMINATION HAS BEEN DETERMINED BY THE MITIGATION CONSTRUCTION MONITOR.

CLEARING AND GRUBBING

THE MITIGATION CONSTRUCTION MONITOR SHALL APPROVE CLEARING AND GRUBBING LIMITS PRIOR TO WORK.

CONTRACTOR SHALL CLEAR AND GRUB AREAS WITHIN THE APPROVED CLEARING LIMITS OF THE MITIGATION AREA AS DIRECTED BY THE MITIGATION CONSTRUCTION MONITOR TO A 4-INCH DEPTH MINIMUM FOR SOIL AMENDMENT AS DESCRIBED IN PART 4, SOIL AMENDMENT/AMENDMENTS.

CONTRACTOR SHALL NOT REMOVE ANY NATIVE WOODY VEGETATION, BUT SHALL REMOVE INVASIVE PLANT SPECIES WITH MINIMAL DISTURBANCE TO THE EXISTING VEGETATION TO REMAIN. CLEARED AND GRUBBED INVASIVE VEGETATION SHALL BE EXPORTED FROM THE SITE. PARTICULAR CARE MUST BE GIVEN TO ENSURE COMPLETE REMOVAL OF TOPS AND ROOTS OF REED CANNYONGRASS PLANTS, AND ANY OTHER INVASIVE PLANT SPECIES. INVASIVE PLANT SPECIES TO BE REMOVED FROM THE MITIGATION AREAS INCLUDE BUT ARE NOT LIMITED TO: SCOTT'S BROOK, ENGLISH IVY, HAWKLAND AND EVERGREEN BLACKBERRY, REED CANNYONGRASS, PURPLE LOOSESTRIFE, HEDGE BINDWEED (MORNING GLORE), JAPANESE KNOTWEED, THISTLE, AND DREEPING NIGHTSHADE.

THE MITIGATION CONSTRUCTION MONITOR SHALL APPROVE CLEARED AND GRUBBED AREAS BY CONTRACTOR PRIOR TO SOIL AMENDMENT.

PART 2 - IRRIGATION

IRRIGATION

WETLAND BUFFER MITIGATION AREAS SHALL BE IRRIGATED WITH A TEMPORARY ABOVE-GROUND IRRIGATION SYSTEM AS SHOWN IN THE PLANS. IRRIGATION IS REQUIRED FOR TWO GROWING SEASONS FOLLOWING PLANTING TO ENSURE ADEQUATE ESTABLISHMENT OF PLANT MATERIAL (BY CONTRACTOR FIRST YEAR AND BY OWNER THE 2ND YEAR).

THE CONTRACTOR SHALL PROVIDE MINIMUM 1.0 INCH OF WATER PER WEEK (WHENEVER NATURAL RAINFALL IS INSUFFICIENT) BETWEEN MAY 15TH AND OCTOBER 31ST. IF PLANTING OCCURS BETWEEN MAY AND OCTOBER, THEN IRRIGATION WILL BE EXTENDED TO THREE GROWING SEASONS.

PART 3 - PLANT MATERIAL

PLANT MATERIALS

PLANT MATERIAL SHALL CONFORM TO AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z601-2004) FOR PLANT SIZE (UNLESS SPECIFIED IN PLANS) AND CONDITION FOR SPECIALIZED MATERIAL.

PLANT MATERIALS SHALL BE LOCALLY GROWN (LOWER PUGET SOUND REGION) OR ALTERNATIVE APPROVED SOURCE BY MITIGATION CONSTRUCTION MONITOR. PLANT MATERIALS SHALL BE HEALTHY, IN VIGOROUS GROWING CONDITION.

THE CONTRACTOR SHALL SUBMIT DOCUMENTATION THAT SPECIFIED PLANT MATERIALS HAVE BEEN ORDERED AND SECURED. A LIST OF SUPPLIER NAMES, ADDRESSES, PHONE NUMBERS AND THE STORAGE/GROWING LOCATION OF THE MATERIALS SHALL BE SUBMITTED TO THE MITIGATION CONSTRUCTION MONITOR WITHIN 30 DAYS OF CONTRACTOR AWARD.

PLANT CONDITION

THE MITIGATION CONSTRUCTION MONITOR SHALL APPROVE PLANT MATERIAL AT THE JOB SITE, INCLUDING PREVIOUSLY TAGGED TREES, FOR COMPLIANCE WITH REQUIRED STANDARDS FOR PLANT SIZE AND QUALITY PRIOR TO PLANTING. THIS INCLUDES, BUT IS NOT LIMITED TO, SIZE AND CONDITION OF ROOTBALLS AND ROOT SYSTEMS, PRESENCE OF INSECTS, LATENT INJURIES AND DEFECTS. TREES MUST BE LIFTED AND SEPARATED FOR INSPECTION. THE MITIGATION CONSTRUCTION MONITOR RESERVES THE RIGHT TO REFUSE ANY/ALL PLANT MATERIAL IF IT IS DETERMINED THAT SUCH MATERIAL DOES NOT MEET THE SPECIFICATIONS AS DESCRIBED HEREIN. REJECTED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM PROJECT SITE.

STORAGE, SITE AND METHOD

STORE PLANTS IN THE MANNER NECESSARY TO ACCOMMODATE THEIR HORTICULTURAL REQUIREMENTS. PROTECT PLANT MATERIAL STORED ON-SITE FROM WEATHER DAMAGE, CONSTRUCTION ACTIVITY AND THE PUBLIC. BALLED AND BURLAPPED MATERIAL WHICH CANNOT BE INSTALLED IMMEDIATELY SHALL BE "HEELED-IN" TO KEEP FROM DRYING OUT PRIOR TO PLANTING. PROTECT ROOTBALLS BY COVERING WITH MOIST SOIL, MULCH OR SANDWICH, WATER AS NECESSARY TO KEEP ROOTBALLS MOIST.

KEEP PLANT SPECIMENS MOIST (WETLAND SPECIES SATURATED) AND SHADED UNTL THE ACTUAL TIME OF INSTALLATION. IF BARE-ROOT PLANTS ARE SPECIFIED, SOAK ROOTS IN WATER ONE-HOUR MINIMUM PRIOR TO PLANTING. BEFORE AND AFTER PLANTING, IMMEDIATELY SATURATE THE SOILS IN THE PLANTING AREA TO PREVENT CAPILLARY STRESS.

SUBSTITUTIONS

SUBSTITUTIONS OF PLANT SPECIES OR SIZES MAY BE PERMITTED BASED ON PLANT AVAILABILITY, BUT ONLY WITH PRIOR WRITTEN APPROVAL BY THE MITIGATION CONSTRUCTION MONITOR.

PART 4 - PLANT INSTALLATION

PLANTING SCHEDULE

PLANTING SHOULD OCCUR ANYTIME BETWEEN OCTOBER AND MARCH TO TAKE ADVANTAGE OF SEASONAL RAINS.

SITE CONDITIONS

THE CONTRACTOR SHALL VERIFY THAT PLANT INSTALLATION CONDITIONS ARE SUITABLE WITHIN THE MITIGATION AREAS. ANY UNSATISFACTORY CONDITIONS SHALL BE CORRECTED PRIOR TO START OF WORK. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS HUMBLE, FULL ADVERSE DRAINAGE CONDITIONS, SIGNIFICANT VEGETATION, OR OBSTRUCTIONS, THE CONTRACTOR SHALL NOTIFY THE MITIGATION CONSTRUCTION MONITOR PRIOR TO PLANTING. NO PLANTING SHALL OCCUR IN STANDING WATER, AND FANEGATED PLANTING AREAS SHALL BE PLANTED WHEN CONDITIONS PERMIT. BEGINNING OF WORK CONSTITUTES ACCEPTANCE OF CONDITIONS AS SATISFACTORY.

LOCATE/VERIFY PLANTING AREAS

CONTRACTOR SHALL FIELD LOCATE, PLANTING AREAS AND CONFIGURATIONS PRIOR TO PLANTING. THE MITIGATION CONSTRUCTION MONITOR SHALL REVIEW AND APPROVE LOCATIONS PRIOR TO PLANTING.

SOIL PREPARATION/AMENDMENTS

ALL WETLAND BUFFER PLANTING AREAS SHALL RECEIVE 4-INCHES OF SOIL AMENDMENT TILLED TO 4-INCHES OF EXISTING SOIL. AMENDMENT SHALL BE A THREE-WAY SOIL MIX CONSISTING OF 30% TOPSOIL, 20% SAND, AND 40% COMPOST BY VOLUME, PASSING A 3/8-INCH SCREEN. TLL SOIL AMENDMENT INTO 8-INCHES OF NATIVE SOIL, REMOVE EXCESS EXISTING SOIL AND ALL ROCKS OR ANY MATERIAL GREATER THAN 2-INCHES (IN ANY DIMENSION) AND DISPOSE OFF-SITE. MITIGATION CONSTRUCTION MONITOR SHALL APPROVE PRIOR TO PLANT INSTALLATION.

PART 4 - PLANT INSTALLATION cont.

MULCH

ALL WETLAND BUFFER PLANTING AREAS SHALL RECEIVE A UNIFORM COVER OF WOOD STRAND (HOG FUEL) MULCH TO A 4-INCH DEPTH. WOOD STRAND MULCH SHALL COMPLY WITH WOODOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, 2010, SECTION 9-14.4(K). SIZE RANGE OF MULCH SHALL BE FROM 2 TO 10 INCHES WITH A WIDTH AND THICKNESS BETWEEN 1/8" AND 3/8" INCHES.

ALL MULCH SHALL BE FREE FROM WEEDS, SEEDS, SANDWICH, WOOD SHAVINGS, SALTS, RESIN, TARMIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO PLANT LIFE.

STAKING

DECIDUOUS TREES SHALL BE STAKED WITH AT LEAST ONE STAKE, 1/2 THE HEIGHT OF THE TREE. CONTRACTOR SHALL REMOVE STAKES AND TIES AT THE END OF THE ONE-YEAR WARRANTY PERIOD.

PART 5 - WOOD FENCE AND INFORMATIVE SIGNS

SOIL INSTALLATION

THE CONTRACTOR SHALL SUPPLY AND INSTALL THE CRITICAL AREA PROTECTION AREA (CAPA) SIGNS AS SHOWN IN THE PLANS. THE CONTRACTOR SHALL ATTACH CAPA SIGNS TO SPLIT RAIL FENCE ALONG THE CAPA BOUNDARY AT 100-FOOT INTERVALS.

SPLIT RAIL FENCE

SEE DETAIL SHEET WM-2

PART 6 - WARRANTY

THE CONTRACTOR SHALL WARRANT CRAFTSMANSHIP AND MATERIALS FOR THIS PROJECT FOR A PERIOD OF 1 YEAR BEGINNING AT FINAL ACCEPTANCE. THIS WARRANTY SHALL INCLUDE REPLACEMENT OF PLANTS (SAME SIZE AND SPECIES SHOWN ON THE DRAWINGS). INSTALLED PLANT MATERIALS ARE REQUIRED TO BE GUARANTEED FOR 1 YEAR AGAINST DEFECTS AND UNSATISFACTORY GROWTH EXCEPT FOR CASES OF NEGLECT BY OWNER, ABUSE/DAMAGE BY OTHERS, AND LOSS DUE TO EXCESSIVELY SEVERE CLIMATOLOGICAL CONDITIONS (SUBSTANTIATED BY 10-YEAR RECORDED WEATHER CHARTS).

PART 7 - FINAL ACCEPTANCE

UPON COMPLETION, THE CONTRACTOR SHALL PROVIDE THE MITIGATION CONSTRUCTION MONITOR WITH A SET OF CLEARLY MARKED PRINTS DESIGNATING THE ACTUAL LOCATIONS AND QUANTITIES OF PLANTINGS WITHIN THE MITIGATION AREAS. THE CONTRACTOR SHALL KEEP A COMPLETE SET OF PRINTS AT THE JOB SITE DURING CONSTRUCTION FOR THE PURPOSE OF "TIE-BACK" CHANGES OR MODIFICATIONS TO THE APPROVED PLANS AND SHALL UPDATE THIS INFORMATION ON A DAILY BASIS. CONTRACTOR SHALL TAG INDIVIDUAL PLANT SPECIES AT THE TIME OF INSTALLATION. EACH PLANT SPECIES SHALL HAVE A DIFFERENT COLOR TAG FOR VISUAL IDENTIFICATION. A COLOR CODED PLANT TAG LEGEND SHALL BE PROVIDED TO THE MITIGATION CONSTRUCTION MONITOR PRIOR TO SUBSTANTIAL COMPLETION.

SUBSTANTIAL COMPLETION

THE MITIGATION CONSTRUCTION MONITOR SHALL PERFORM SUBSTANTIAL COMPLETION WALK THROUGH WITH THE CONTRACTOR. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST WILL BE PREPARED BY THE MITIGATION CONSTRUCTION MONITOR AND SUBMITTED TO THE OWNER AND CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, THE WETLAND CONSTRUCTION MONITOR WILL REVIEW THE PROJECT FOR GENERAL CONFORMANCE WITH THE APPROVED PLAN AND IF ACCEPTABLE, WILL SUBMIT A LETTER OF COMPLETION TO CITY OF KIRKLAND. THE LETTER CONSTITUTES FINAL ACCEPTANCE OF THE PROJECT.

THE DATE OF FINAL ACCEPTANCE SHALL CONSTITUTE THE BEGINNING OF THE ONE-YEAR WARRANTY/MAINTENANCE PERIOD AND THE 5-YEAR MAINTENANCE/MONITORING PERIOD AS REQUIRED BY CITY OF KIRKLAND.

PART 8 - MAINTENANCE

MAINTENANCE IS REQUIRED DURING THE WARRANTY PERIOD. THE CONTRACTOR SHALL REVIEW LANDSCAPE MAINTENANCE REQUIREMENTS WITH THE MITIGATION CONSTRUCTION MONITOR WHO IS FAMILIAR WITH THE STATED GOALS AND OBJECTIVES OF THE MITIGATION PLAN. MAINTENANCE SHALL BE PROVIDED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND DURING THE WARRANTY PERIOD, AND BY THE OWNER AFTER THE FIRST YEAR.

MAINTENANCE SHALL INCLUDE TEMPORARY IRRIGATION. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE PROPER FUNCTIONING OF THE SYSTEM AS INDICATED IN THE PLANS.

THE CONTRACTOR SHALL CORRECT EROSION AND DRAINAGE PROBLEMS AS SPECIFIED ON THE PLANS THROUGHOUT THE ONE-YEAR WARRANTY PERIOD.

THE CONTRACTOR SHALL REMOVE TREE STAKES, TIES AND STRAW MATS AT THE END OF THE ONE-YEAR WARRANTY PERIOD.

MAINTENANCE WITHIN THE MITIGATION AREAS SHALL BE PERFORMED BY THE CONTRACTOR OR OWNER AND REVIEWED BY THE CONSTRUCTION MITIGATION MONITOR. REQUIRED MAINTENANCE ACTIVITIES ARE INCLUDED IN TABLE 1.

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MITIGATION SPECIFICATIONS
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12029 113TH AVE NE
CITY OF KIRKLAND, KING COUNTY, WA

DAVID EVANS
AND ASSOCIATES, INC.
415 N. 152ND Avenue SE
Bellevue, Washington 98006-3001
Phone: 425.718.6800

REVISIONS: APPROV.
8-8-11, 07, 08, 09, 10, 11

DATE: JANUARY 28, 2020
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RESX0000-0001

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OF 8

