DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Ave NE., P.O. BOX 90012
BELLEVUE, WA 98009-9012

## OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

| | |
|---|---|
| File No. | 10-113137 LO |
| Project Name/Address: | Zheng Wetland Restoration and Retaining Wall<br>2610 Bellevue Way NE |
| Planner: | Kevin LeClair |
| Phone Number: | 425-452-2928 |
| **Minimum Comment Period:** | **July 29, 2010** |

Materials included in this Notice:

- ☒ Blue Bulletin
- ☒ Checklist
- ☒ Vicinity Map
- ☐ Plans
- ☒ Other: Critical Areas Report

**WAC 197-11-960 Environmental checklist.**

ENVIRONMENTAL CHECKLIST

*Purpose of checklist:*

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

*Instructions for applicants:*

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

*Use of checklist for nonproject proposals:*

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:
**NONE**

2. Name of applicant: **HAIZHOU ZHENG**
3. Address and phone number of applicant and contact person:

**2601 Bellevue Way NE, Bellevue, WA 98004**

**425-922 3658**

4. Date checklist prepared: **5/28/10**
5. Agency requesting checklist: **City of Bellevue**
6. Proposed timing or schedule (including phasing, if applicable):

**(estimated only, wish to get the approval ASAP get benefit of the rain)**

- **Removal of fill: August 2010**
- **Plant all areas: September 2010**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

- **Removal of two hazard trees**

Received
JUN 01 2010
Permit Processing

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

**(See Critical Area Report)**

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

**No**

10. List any government approvals or permits that will be needed for your proposal, if known.

**City of Bellevue Land Use Approval and Grading Permit**

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

**Clearing & Grading permit**

**Plan of existing and proposed grading**

**Development plans**

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, **other (X).....**

b. What is the steepest slope on the site (approximate percent slope)?

**15-40%**

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

**Alderwood gravelly sandy loam + norma sandy loam**

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

**No**

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

- **1320 SF fill to be removed from wetland**
- **158 SF of rock wall to remain along wetland edge**
- **38 SF of washed gravel to remain in French drain**

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

**Yes. From the removal of filled material**

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

**N/A**

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

**Replant with native vegetation. Install silt fence between existing wetland and area where fill is to be removed.**

a. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

**N/A**

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

**N/A**

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

**N/A**

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

3. **Water**

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

**Category 3 wetland**

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

**Yes. Planting native vegetation and removal of fill material.**

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

**Fill to be removed : 1320 SF (near driveway)**

**Fill to remain: 20 CY (retaining wall + French drain)**

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

**NO**

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

**NO**

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

**NO**

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

**NO**

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

**N/A**

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

**Storm water flow into wetland**

2) Could waste materials enter ground or surface waters? If so, generally describe.

**No.**

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

**Silt Fence**

4. **Plants**

a. Check or circle types of vegetation found on the site:

x_____ deciduous tree: alder, maple, aspen, other

x_____ evergreen tree: fir, cedar, pine, other

x_____ shrubs

x_____ grass

_____ pasture

_____ crop or grain

x_____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

x_____ water plants: water lily, eelgrass, milfoil, other

x_____ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

**Previously removed Himalayan blackberry and reed canarygrass. Will install native vegetation.**

c. List threatened or endangered species known to be on or near the site.

**None.**

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

**(See Critical Area Report)**

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, **songbirds(X)**, other:
mammals: deer, bear, elk, beaver, **other(X):**
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

**NONE**

c. Is the site part of a migration route? If so, explain.

**NO**

d. Proposed measures to preserve or enhance wildlife, if any:

**Install native trees, shrubs and herbs**

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

**NONE**

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

**NO**

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

**N/A**

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

**NO**

1) Describe special emergency services that might be required.

**NONE**

2) Proposed measures to reduce or control environmental health hazards, if any:

**N/A**

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

**NONE**

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

**NONE**

3) Proposed measures to reduce or control noise impacts, if any:

**None**

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?
**Residential + Greenbelt**

b. Has the site been used for agriculture? If so, describe.
**No**

c. Describe any structures on the site.
**Single family home**

d. Will any structures be demolished? If so, what?
**No**

e. What is the current zoning classification of the site?
**Single Family R-3.5**

f. What is the current comprehensive plan designation of the site?
**N/A**

g. If applicable, what is the current shoreline master program designation of the site?
**N/A**

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.
**Yes. Category 3 wetland**

i. Approximately how many people would reside or work in the completed project?
**N/A**

j. Approximately how many people would the completed project displace?
**N/A**

k. Proposed measures to avoid or reduce displacement impacts, if any:
**N/A**

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

**Obtain required city permits**

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

**N/A**

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

**N/A**

c. Proposed measures to reduce or control housing impacts, if any:

**N/A**

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

**N/A**

b. What views in the immediate vicinity would be altered or obstructed?

**None**

c. Proposed measures to reduce or control aesthetic impacts, if any:

**None**

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

**None**

b. Could light or glare from the finished project be a safety hazard or interfere with views?

**No**

c. What existing off-site sources of light or glare may affect your proposal?

**None**

d. Proposed measures to reduce or control light and glare impacts, if any:

**None**

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

**Walking**

b. Would the proposed project displace any existing recreational uses? If so, describe.

**No**

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

**None**

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

**No**

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

**None**

c. Proposed measures to reduce or control impacts, if any:

**None**

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

**Bellevue Way NE**

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

**Yes**

c. How many parking spaces would the completed project have? How many would the project eliminate?

**N/A**

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

**No**

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

**No**

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

**N/A**

g. Proposed measures to reduce or control transportation impacts, if any:

**None**

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

**No**

b. Proposed measures to reduce or control direct impacts on public services, if any.

**None**

16. **Utilities**

a. Circle utilities currently available at the site: **electricity(X)**, **natural gas(X)**, **water(X)**, refuse service, **telephone(X)**, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

**N/A**

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: .....

Date Submitted: ..... 5/28/10 .....

# HAIZHOU ZHENG
# CRITICAL AREAS REPORT

## King County, Washington

*Prepared For:*
**HAIZHOU ZHENG**
2601 Bellevue Way NE
Bellevue, WA 98004

*Prepared By:*
**SCOTT SWARTS**
390 Mt. McKinely DR SW
Issaquah, WA 98027
Email: birdman212@comcast.net

May 30, 2010

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# 1.0 INTRODUCTION

At the request of Mr. Haizhou Zheng, Mr. Scott Swarts conducted this investigation to document wetland conditions at Mr. Zheng's residence located at 2601 Bellevue Way NE, Bellevue, Washington. This report is being prepared due to the unauthorized placement of fill and removal of vegetation within a wetland situated between his house and Bellevue Way NE. A pre-application meeting was held between Mr. Zheng and the City of Bellevue on December 31, 2009 (No.: 09-129225 DB). The parcel number is 2025059083, located in Section 20, Township 25 North, Range 5 East, W.M. The project site is the primary residence of Mr. Zheng and covers approximately 0.92 acre. The subject parcel is located off a private driveway on the west side of Bellevue Way that serves approximately five houses. Mr. Zheng purchased this house in July 2009, which was originally built in 1993. Project area maps are contained in **Appendix A**, and site photos are contained in **Appendix B**.

This report was prepared by Mr. Scott Swarts. Mr. Swarts graduated from Western Washington University with a B.S. Degree in Environmental Science. He is a senior fish and wildlife biologist with over 16 years of experience specializing in fisheries habitat and utilization studies, wetlands, water quality, amphibians, and terrestrial flora and fauna. His experience includes preparing discipline reports for National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) environmental documents, Biological Assessments (BA) for endangered species, and facilitation of multi-agency interaction. Mr. Swarts is an expert in permitting projects in environmentally sensitive areas throughout the Pacific Northwest. He focuses on bridge (road and railroad), linear (roadway, fiber optic, and power line), and private development projects. He was previously employed as a biologist by the U.S. Army, National Park Service, and the University of Washington. Publications include *Amphibians of the Fort Lewis Reservation, Washington: Sampling Techniques and Community Patterns* in Northwestern Naturalist, Spring 1998. Wetland-specific training includes obtaining a Wetland Science and Management Certificate from the University of Washington and Wetland Delineation Certificate from the U.S. Army Corps of Engineers (Corps). He attended the Bellevue Critical Areas Training Program at Bellevue City Hall on June 4, 2009. Mr. Swarts was the lead biologist for the City of Bellevue – Coal Creek Sediment Pond Project. Mr. Swarts was also the lead biologist on a recent City of Fife project that created 1.83 acre of riparian wetland along 760 linear feet of new salmon bearing stream channel. This project won the Puget Sound Region Counsel VISION 2040 award.

# 2.0 PROJECT DESCRIPTION

## 2.1 PROJECT OVERVIEW

The project is to address and correct the unpermitted placement of fill and clearing of vegetation within a wetland. The initial phases of the project were to delineate the wetland boundary including where the line that would have existed prior to the placement of recent fill material, document overall site conditions, and obtain an understanding of what occurred when, and why. Once the initial phase was accomplished, impacts were quantified and an approach to remediation was developed. A summary of impacts and remediation is outlined in **Table 1**. **Table 1** also includes one proposed action, identified as Item #5, which is to create two snags out of two hazard trees. These are two red alder (*Alnus rubra*) trees that are leaning toward the driveway and power lines over the driveway.

**Table 1: Impact Assessment**

| # | Impact | Location | Length | Width | Depth | Area | Remediation |
|---|---|---|---|---|---|---|---|
| 1 | Fill near driveway | Wetland | 55 ft. | 24 ft. | ~ 2 ft. | 1,320 SF | Restoration |
| 2 | Retaining Wall | Wetland/Buffer | 79 ft. | 2 ft. | ~ 3 ft. | 158 SF | Mitigation |
| 3 | Drainage Channel | Wetland | 19 ft. | 2 ft. | ~ 2 ft. | 38 SF | Mitigation |
| 4 | Clearing Vegetation | Wetland | 75 ft. | 23 ft. | NA | 1,725 SF | Restoration |
| 5 | Remove two Hazard Trees near driveway | Wetland | NA | NA | NA | NA | Mitigation |

### Site Wetland History Summary

The on-site wetland has a history of being impacted. The existing house on Parcel 2025059083 was constructed in 1993. The private driveway crosses the on-site wetland and includes a culvert. The original developer excavated the western edge of the wetland near the house to create a pond and then placed the excavated material to the east of the pond, between the pond and remaining vegetated wetland. Additional fill material was placed in the wetland along the road where it approaches the house. The construction of the residence to the south, built in 1950, likely included wetland fill within what is now its front yard. A relatively new residential complex to the north has also resulted in additional impacts since new fill material appears to be immediately adjacent to the current wetland edge and a channel was excavated within the wetland, which likely facilitates the draining of the adjacent wetland. It appears the excavated channel was meant to mimic a stream channel, but since topography is relatively flat (at least immediately north of Parcel 2025059083), water within the channel has become dominated by iron bacteria (**Appendix B - Photo 7**).

### Impact Specific Summary

1. Recent fill material was placed near the driveway with the goal of providing an area for an outgoing car attempting to merge onto Bellevue Way NE a place to back into when it encounters a car attempting to enter the driveway from Bellevue Way NE. The existing driveway that serves multiple homes is limited to one lane. The existing one-lane driveway is steep with

limited sight vision onto Bellevue Way NE due to slope and existing vegetation. The north side of the driveway drops precipitously into the wetland, which creates a safety hazard, especially when vehicles attempt to back-up on the driveway from Bellevue Way NE. The purpose of the recent fill was to correct this condition by providing somewhere safe for a car to back into. However, the area filled was a wetland and Mr. Zheng did not have a permit. As noted in **Table 1**, fill near the driveway resulted in approximately 1,320 square feet of direct wetland impact. This fill material will be removed and then planted with native species. A map depicting the location of the fill within the wetland is contained in **Appendix C**.

2. A retaining wall was installed along the wetland edge. The purpose of the retaining wall was to better define the transition between yard and forest, and to "improve" the appearance of the pond. As noted in **Table 1**, the construction of the retaining wall resulted in approximately 158 square feet of wetland/wetland buffer impact.

3. A drainage channel was filled or constructed that resulted in what is basically a French drain within the wetland, generally leading east from the pond. This feature extends from the lower (north) portion of the pond and into the wetland. It is linear feature composed of washed gravels, 19 feet long by two feet wide, and covering approximately 38 square feet. It appears non-functional as built. Since it will not drain the wetland or result in any additional hydrologic impacts to the overall wetland, and removing the washed gravel would result in additional wetland impacts, mitigation is proposed.

4. Approximately 1,725 square feet of vegetation within Wetland A was cleared, with the primary goal to remove Himalayan blackberry due to the thorns. However, as was the case with items 1 through 3 above, no permit was obtained prior to removing vegetation. It does appear that the primary plant removed was Himalayan blackberry, but other non-native and native species were likely removed. It appears shrubs and vines were the primary type of vegetation removed. Although a few tree trunks are stacked up in the middle of the cleared area, they appear to have been pieces that had accumulated in the wetland as no stumps were observed.

5. The project includes one new action, which would be to top two hazard trees, which are leaning toward the driveway and power lines. They are clearly leaning as can be observed in **Appendix B – Photo 2**. These trees would not be fully removed, but instead turned into snags, thereby removing the primary hazard but also providing potential wildlife habitat. The tops would be left within the wetland and one bird house would be installed on each snag.

## 2.2 METHODS

### 2.2.1 Preliminary Data Gathering and Review

Existing literature and scientific data were reviewed to determine presence of sensitive areas (wetlands and stream), rare plants, and species of local importance that have been previously documented in the project vicinity. 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 public domain resource data, and multiple site visits.

The Washington State Department of Natural Resources (WDNR) Washington Natural Heritage Program (WDNR 2010) was 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 wetlands, riparian areas, snag-rich areas, caves, cliffs, oak woodlands, rocky shorelines, and old-growth forests. The information reviewed included:

- Washington Department of Natural Resources (WDNR) – Natural Heritage Program (NHP) on-line data: http://www.dnr.wa.gov/ResearchScience/Topics/NaturalHeritage/Pages/amp_nh_products.aspx
- National Wetlands Inventory (NWI) Online Mapper, U.S. Fish and Wildlife Service (USFWS): http://wetlandsfws.er.usgs.gov/wtlnds/launch.html
- United States Geological Survey mapping via National Geographic TOPO mapping software
- City of Bellevue Sensitive Areas Notebook (April 1987)
- Sensitive Areas Map Folio, King County, Washington (1990)
- A Catalog of Washington Streams and Salmon Utilization – Volume 1 – Puget Sound Region. Washington Department of Fisheries (Williams et al. 1975)
- United States Department of Agriculture – Soil Conservation Service: *Soil Survey of the King County Area*, Washington (1973)

Streams, wetlands, and their buffers are known to perform significant functions in the ecosystem, some of which are of immediate value to human society. The function scores for water quality, hydrology, and habitat generated when rating a wetland with the Ecology rating system (Hruby 2004) can also be used to qualitatively analyze wetland functions by converting the scores into high, moderate, or low based on the ranges outline in **Table 2**.

**Table 2: Ecology Functional Value Assessment**

| Qualitative Rating of Function | Improving Water Quality Potential | Hydrologic Functions Potential | Habitat Functions Potential (H1) | Habitat Functions Opportunity (H2) |
|---|---|---|---|---|
| Low | 0 - 5 | 0 - 5 | 0 - 6 | 0 - 5 |
| Moderate | 6 - 11 | 6 – 11 | 7 – 14 | 6 – 13 |
| High | 12 - 16 | 12 - 16 | 15 - 18 | 14 - 18 |

### 2.2.2 Field Investigation

Mr. Swarts performed a site visit on May 15 and 29, 2010, to verify preliminary data findings and conduct a detailed site analysis. Wetlands were identified on the basis of hydrophytic vegetation, hydric soils, and evidence of wetland hydrology as described in the *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997) and the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and subsequent U.S. Army Corps of Engineers (Corps) guidance. Hydrophytic vegetation (i.e., plants adapted to saturated soil conditions) was determined to be present when dominant cover of plants observed (greater than 50 percent) had an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL) (Reed 1988). Plant species in the project area were identified according to Cooke (1997), Pojar and MacKinnon (1994), and Hitchcock and Cronquist (1973), but updated nomenclature was used where known. Hydric soils were determined on the basis of organic matter content, chroma color, and presence of redoximorphic features or other hydric characteristics as stated in the methodology. Evidence of wetland hydrology was determined through the observation of soil saturation, surface ponding, or other indicators such as water-stained leaves, surface scouring, oxidized root channels, sediment deposits, and drainage patterns.

Data were collected on vegetation, soils, and hydrology at each data plot and recorded on data forms (**Appendix D**). If the three criteria were present, a wetland determination was made. If one or more of the criteria were absent, the area was designated non-wetland unless determined to be a problem area or atypical situation according to the methodologies (Environmental Laboratory 1987; Ecology 1997). Dominant plant species were determined using the "50/20" rule. This rule states that for each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species that individually comprise 20 percent or more of the total dominance measure for the stratum. The list of dominant species is then combined across strata." (Environmental Laboratory 1987).

Wetland boundaries and data plot locations were marked with flagging, and then surveyed with Trimble GeoXT Global Positioning System (GPS). Data was then corrected with GPS Pathfinder 3.10 software, and then mapped with Visio 2007 software. All wetland boundaries, classifications, and assigned buffer widths are subject to verification by the City of Bellevue.

# 3.0 RESULTS

## 3.1 WDNR NHP DATA

The WDNR – NHP reports that 26 rare plants occur in King County as of February 2009 (**Table 3**).

**Table 3: Rare Plants of King County**

| Common Name | Scientific Name | State Status [1] | Federal Status [1] | Historic Record |
|---|---|---|---|---|
| Swamp Sandwort | *Arenaria paludicola* | X | LE | Yes |
| Stalked Moonwort | *Botrychium pedunculosum* | S | SC | No |
| Alaska Harebell | *Campanula lasiocarpa* | S | None | No |
| Bristly Sedge | *Carex comosa* | S | None | No |
| Large-awn Sedge | *Carex macrochaeta* | T | None | Yes |
| Few-flowered Sedge | *Carex pauciflora* | S | None | No |
| Long-styled Sedge | *Carex stylosa* | S | None | No |
| Clubmoss Cassiope | *Cassiope lycopodioides* | T | None | No |
| Golden Paintbrush | *Castilleja levisecta* | E | LT | Yes |
| Golden Chinquapin | *Chrysolepis chrysophylla* | S | None | No |
| Tall Bugbane | *Cimicifuga elata* | S | SC | Yes |
| Spleenwort-leaved goldthread | *Coptis aspleniifolia* | S | None | No |
| Toothed Wood Fern | *Dryopteris carthusiana* | R1 | None | No |
| Black Lily | *Fritillaria camschatcensis* | S | None | No |
| Canadian St. John's-wort | *Hypericum majus* | S | None | No |
| Water Lobelia | *Lobelia dortmanna* | T | None | No |
| Bog Clubmoss | *Lycopodiella inundata* | S | None | Yes |
| Treelike Clubmoss | *Lycopodium dendroideum* | S | None | No |
| White Meconella | *Meconella oregana* | T | SC | Yes |
| Branching Montia | *Montia diffusa* | S | None | Yes |
| Texas toadflax | *Nuttallanthus texanus* | S | None | Yes |
| Choris' Bog-orchid | *Platanthera chorisiana* | T | None | No |
| White-top Aster | *Sericocarpus rigidus* | S | SC | No |
| Humped Bladderwort | *Utricularia gibba* | R1 | None | Yes |
| Flat-leaved Bladderwort | *Utricularia intermedia* | S | None | No |
| Lesser Bladderwort | *Utricularia minor* | 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 (data current as of October 15, 2008), no occurrences have been documented in T25N R05E S20.

## 3.2 STREAMS

No streams were identified as occurring on site or in the immediate vicinity of the subject parcel. Based on a review of the USGS TOPO map the project site includes a drainage pattern that slopes to the north, towards Yarrow Bay. Williams et al. (1975) includes a few unnamed tributaries flowing generally north, towards State Route 520, and ultimately to Yarrow Bay

approximately 0.25-mile north of the project site. The project site appears to be near the headwaters of what is known locally as West Branch Yarrow Creek. See **Appendix A** for copies of these maps.

A defined stream channel is not apparent throughout most of the wetland, although linear depressions are present immediately north of the culvert and a channel is present generally north of the on-site wetland. The channel to the north appears to have been excavated and backfilled with gravel. It does not appear to be natural. A few inches of stagnant water are present within the channel, and it was dominated by reddish iron bacteria. The channel in headwater wetlands tends to disappear when topography decreases and then reappear when topography increases, until such point further downslope when the water velocity can maintain a channel regardless of topography. Should the channel within the northern project site be considered a stream, it would be classified as a Type Ns stream. See **Appendix B – Photo 7** for a photo of this feature. A Type N stream on a developed site is afforded a 25-foot wide buffer.

## 3.3 WETLANDS

The National Wetland Inventory map and the King County Sensitive Areas Map Folio (King County 1990) do not depict any wetlands in the project area. However, the City of Bellevue Sensitive Areas Notebook includes a wetland on the subject parcel, which is described as a palustrine scrub-shrub (PSS) wetland.

The site visit confirmed the presence of an on-site wetland, which appears to be a portion of a large wetland complex that generally abuts the west side of Bellevue Way NE (104th Ave NE). The on-site wetland is primarily a palustrine forested (PFO) wetland with a smaller PSS component. It was rated a Category III wetland based on the Washington Department of Ecology (Ecology) rating method. **Appendix E** contains the Ecology rating form. **Table 4** below summarizes the wetland data.

**Table 4: Wetland Summary**

| Wetland ID | Ecology[1] Category | Wetland Size (acres) | Ecology[1] Wetland Class | Total Wetland Functions Score | Water Quality Functions Score | Hydrology Functions Score | Wildlife Functions Score | City of Bellevue Buffer Width |
|---|---|---|---|---|---|---|---|---|
| A | III | >0.50 | Depressional | 40 | 16 | 10 | 14 | 60 |

[1] Washington State Department of Ecology

**Wetland A**. On-site, Wetland A is primarily PFO (~65%) but also contains a PSS (~35%) component. Dominate tree species include red alder (*Alnus rubra*) and Pacific willow (*Salix lucida*). Other tree species include black cottonwood (*Populus balsamifera*), Oregon ash (*Fraxinus latifolia*), and bitter cherry (*Prunus emarginata*) (double check that what I called bitter cherry is not actually western crabapple [*Malus fusca*]). Black cottonwood is the dominate species to the north. The shrub layer is generally absent or sparse. A portion of which was cleared, but the primary species cleared was apparently Himalayan blackberry (*Rubus armeniacus*), although some salmonberry (*Rubus spectabilis*) may have also been removed. A small area within the central portion of the wetland contains shrubs, with the dominant species

being Sitka willow (*Salix sitchensis*). Other isolated or sparse shrubs observed in Wetland A included salmonberry, red elderberry (*Sambucus racemosa*), Douglas spirea (*Spiraea douglasii*), and twinberry (*Lonicera involucrate*). The herb layer was dominated by reed canarygrass (*Phalaris arundinacea*). Other abundant herb species included creeping buttercup (*Ranunculus repens*) and water-parsley (*Oenanthe sarmentosa*). Additional emergent's included giant horsetail (*Equisetum telmateia*), soft rush (*Juncus effuses*), and several unidentifiable species that were just starting to emerge from areas recently cleared. Lady fern (*Athyrium filix-femina*) is also present within and around the wetland. The buffer is primarily cleared of native vegetation, except for the slope area between the wetland and Bellevue Way NE, where species observed included Douglas fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), European mountain ash (*Sorbus acuparia*), vine maple (*Acer circinatum*), red alder, Indian plum (*Oemleria cerasiformis*), beaked hazelnut (*Corylus cornuta*), holly (*Ilex aquifolium*), sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), Himalayan blackberry, evergreen blackberry (*Rubus laciniatus*), and trailing blackberry (*Rubus ursinus*).

Hydrology is dominated by groundwater, which is augmented by stormwater runoff from roads and surrounding developments. Water was ponded in some areas, typically limited to a few inches deep. Stains in the culvert under the driveway were about five inches higher than the existing water level, indicating the predominance of the wetland contains ponded water during the winter months. Soils were saturated to the surface throughout the wetland, while ground water was approximately nine inches below the surface on May 15, 2010. As previously noted, this wetland is in a topographic low area that drains to the north toward Yarrow Bay.

Soils generally matched the type (Norma sandy loam) mapped by the U.S. Department of Agriculture (USDA), but were more silty than sandy. Typical soils in Wetland A consisted of a black (10YR 2/1) colored silty sandy loam. Mottles were not present in the primary data plot but were observed near the pond. Upland soils consisted of fill material with a large concentration of gravels.

**Water Quality Functions Score:** The relatively high score of 16 points for water quality function is due to the opportunity to improve water quality since untreated stormwater discharges into the wetland, and residential and urban areas are within 150 feet.

**Hydrology Function Score:** The moderate score for this function is due to the wetland having greater than 50 percent dense, uncut, rigid vegetation, and presence of small depressions that can retain water, and that it drains to a river or stream that has flooding problems.

**Habitat Function Score:** The habitat score is within the low end of the moderate range. The vegetative structure is relatively simplistic and plant species richness is low. Buffer habitat is degraded, and corridors and connections to other habitats are limited. Additional habitat features that add complexity are generally absent. Furthermore, Wetland A is co-dominated by non-native plant species (reed canarygrass and Himalayan blackberry).

## 3.4 U.S. DEPARTMENT OF AGRICULTURE SOIL DATA

The USDA Soil Conservation Service (SCS) mapped soils on the subject parcel as primarily Norma sandy loam, which tends to be where the wetland is/was located. The Norma sandy loam is mapped as a continuous band going north/south, with Alderwood gravelly sandy loam along the west side (where the house is located) and east side (where Bellevue Way NE is located). Norma sandy loam is described as being poorly drained with frequent ponding. The typical profile extends from 0 to 60 inches. Alderwood gravelly sandy loam is described as being moderately well drained with no ponding. The USDA SCS Hydric Soils of the State of Washington (USDA 1991) list for King County includes Norma sandy loam as a hydric soil.

## 3.5 HABITAT ASSOCIATED WITH SPECIES OF LOCAL IMPORTANCE

The City of Bellevue has designated habitat associated with species of local importance as a critical area. If habitat for a species of local importance is impacted by a proposal, the project proponent must implement a wildlife management plan developed for that species. **Table 5** outlines the species of local importance per CAO 20.25H.150 and provides a general summary of the potential presence of each species and suitable habitat.

**Table 5: Species of Local Importance**

| Common Name | Scientific Name | Note |
|---|---|---|
| Bald Eagle | *Haliaeetus leucocephalus* | Not present within project area. Suitable habitat includes shoreline areas along Lake Washington, which is located approximately 1.0 mile away at its closest point. |
| Peregrine Falcon | *Falco peregrinus* | Not present within project area. No suitable habitat present. |
| Common loon | *Gavia immer* | Not present within project area. No suitable habitat present. |
| Pileated woodpecker | *Dryocopus pileatus* | Likely within general project area, as suitable habitat is present. |
| Vaux's swift | *Chaetura vauxi* | Probably not present in general project area due to absence of mature or old growth forest. |
| Merlin | *Falco columbarius* | Probably not present within project area ; no sightings or core habitat. Uncommon in western Washington. |
| Purple martin | *Progne subis* | Probably not present within project area. |
| Western grebe | *Aechmophorus occidentalis* | Probably not present within project area. |
| Great blue heron | *Ardea herodias* | Probably not present within project area. |
| Osprey | *Pandion haliaetus* | Not present within project area. Suitable habitat includes shoreline areas along Lake Washington, which is located approximately 1.0 mile away. |
| Green heron | *Butorides striatus* | Probably not present within project area. |
| Red-tailed hawk | *Buteo jamaicensis* | Potentially occasionally present in general project area. |
| Townsend's big-eared bat | *Corynorhinus townsendii* | Probably not present within project area due to the absence of caves, lava tubes, or abandoned buildings. |
| Keen's myotis | *Myotis keeni* | Probably not present within project area. Found in low elevation forests but no data for King County. |
| Long-legged myotis | *Myotis volans* | Possibly within general project area, as suitable habitat is present and they have been documented in King County. |
| Long-eared myotis | *Myotis evotis* | Possibly within general project area as suitable habitat is present. They have not been documented in the Puget Sound region. |
| Oregon spotted frog | *Rana pretiosa* | Not present within project area. No suitable habitat present. |
| Western toad | *Bufo boreas* | Probably not present within project area. |

| Common Name | Scientific Name | Note |
|---|---|---|
| Western pond turtle | *Clemmys marmorata* | Not present within project area. No suitable habitat present. |
| Chinook salmon | *Oncorhynchus tshawytscha* | Not present within project area. No suitable habitat present. |
| Bull trout | *Salvelinus confluentus* | Not present within project area. No suitable habitat present. |
| Coho salmon | *Oncorhynchus kisutch* | Not present within project area. No suitable habitat present. |
| River lamprey | *Lampetra ayresi* | Not present within project area. No suitable habitat present. |

No species of local importance, as specified by the City of Bellevue, have been documented on the project site. Species of local importance that could potentially exist in close proximity to the project site include the pileated woodpecker, long-legged myotis, long-eared myotis, Townsend's big-eared bat, and red-tailed hawk. Species-specific surveys have not been conducted. The most common species of bats in the urbanized environment of greater Seattle area are probably the little brown bat (*Myotis lucifugus*) and big brown bat (*Eptesicus fuscus*). Bat surveys are rarely undertaken and identifying them to species can be problematic due to their nocturnal behavior and inability of bat detectors to distinguish their echolocation to species.

Pileated woodpeckers inhabit mature and second growth forests that contain numerous snags and downed logs. They breed from mid March through mid July. They have large home ranges and are most abundant where stands of large conifers with snags and downed logs exist. Red alder snags are also used for foraging and large snags for nesting. Based on the site visits and understanding of this species, it may use the project site for foraging. As such, it is likely occasionally present on-site as it moves through the general project area to forage where suitable habitat is present. The WDFW management recommendations include retaining snags, large stumps, and large downed logs (Rodrick and Milner 1991). Based on the available data, no impact to this species is anticipated.

Long-legged myotis inhabits mountain coniferous forest typically found along forest edges. Maternity colonies have been found in attics, fissures in the ground, and under loose tree bark. This species has been documented in King County near Lake Washington, and most of King County is considered a core zone (Johnson and Cassidy 1997). Mature trees exist on-site (loose bark not observed), but no typical roosting habitat was observed during multiple site visits. WDFW management recommendations for this species were not located. Based on the available data, no impact to this species or its habitat is anticipated.

Long-eared myotis is generally distributed throughout Washington but more common in east-side forests. They have been documented in Pierce County, and most of King County is considered a core zone (Johnson and Cassidy 1997). Little data is available on its habitat needs, but they roost in trees, buildings, and caves. Forests appear to be its primary habitat. Mature trees exist on-site (loose bark not observed), but no typical roosting habitat was observed during multiple site visits. WDFW management recommendations for this species were not located. Based on the available data, no impact to this species or its habitat is anticipated.

Townsend's big-eared bat is extremely rare but does utilize caves and mines for nesting and hibernation. No suitable roosting, nesting, or hibernation habitat occurs on the project site. Based on the available data, no impact to this species or its habitat is anticipated.

Red-tailed hawks typically nest near the top of mature trees and hunt in open areas. Although mature trees are present on-site, no nests were observed during multiple site visits. No typical hunting or foraging habitat exists on or immediately adjacent to the project site. Based on the available data, no impact to this species or its habitat is anticipated.

Bald eagles nest along Lake Washington and inland where suitable habitat is present. No suitable nesting or foraging habitat occurs on or immediately adjacent to the project site. Suitable foraging habitat includes shoreline areas along Lake Washington, which is located approximately 1.0 mile from the project area. Based on the available data, no impact to this species or its habitat is anticipated.

Green heron is small compared to the great blue heron. It is an uncommon species that nests in trees, usually near water. This species typically occurs near wetlands and ponds. They have been documented in King County. Since the project will not degrade typical habitat associated with this species, no impact is anticipated.

## 3.6 GEOLOGIC HAZARD AREAS

Geologic hazard areas include landslide areas, steep slopes, and coal mine hazards. Landslide hazard areas are defined as areas of slope of 15 percent or more with more than 10 feet rise. Steep slopes are slopes of 40 percent or more that has a rise of at least 10 feet and exceed 1,000 square feet in area. Coal mine hazards are outlined in the City of Bellevue Coal Mine Area Map or in the City's coal mine area regulations.

Based on a review of the City of Bellevue Sensitive Areas Notebook (**Appendix A**) the predominance of the project site is flat, except 15% - 40% slopes are present along the west and east edges of the parcel. The steepest portion is between Wetland A and Bellevue Way NE. This area is dominated by native vegetation. The existing house is present along the western edge. Based on this review, no geologic hazard areas exist where activities are proposed since no action is proposed along the eastern edge of the parcel.

## 3.7 WILDLIFE

The project area is generally developed but patches of habitat are present but they tend to be small and scattered throughout the project vicinity. Larger habitat areas are present within riparian corridors, parks, and along portions of Lake Washington, but these tend to be several miles from the project site. Scattered habitat patches within an overall developed landscape tend to favor birds, small mammals, and sometimes a limited selection of amphibians (tree and bull frogs) and reptiles (alligator lizards and garter snakes).

Wildlife observations were recorded during the site visits and are summarized in **Table 6**. 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 6: Project Area Wildlife Observations**

| # | Common Name | Comment |
|---|---|---|
| 1. | Eastern cottontail | In wetland to the north. |
| 2. | Eastern gray squirrel | In yard to the south. |
| 3. | Northern raccoon | Tracks throughout wetland. |
| 4. | American Robin | In trees within wetland and buffer. |
| 5. | Dark-eyed Junco | In trees within wetland and buffer. |
| 6. | Black-capped Chickadee | In trees within wetland and buffer. |
| 7. | Mallard | Sign of being present where water ponded, especially near outlet of culvert. |
| 8. | American Crow | In trees within wetland and buffer. |
| 9. | Northern flicker | In trees within wetland and buffer. |
| 10. | Song Sparrow | In trees within wetland and buffer. |
| 11. | Steller's Jay | In trees within wetland and buffer. |

# 4.0 HABITAT IMPACTS

Previous unpermitted actions resulted in a total of 3,241 square feet of wetland impact (**Table 1**). The construction of the retaining wall and filling or construction of a French drain are considered 196 square feet of permanent impact, while placement of fill material near the road and clearing of understory vegetation are considered 3,045 square feet of temporary impact. The proposed future action of topping two hazard trees in considered a temporary impact. The dominant species within the area of fill near the driveway and the area cleared of vegetation but not filled, the dominant species appears to have been Himalayan blackberry. With restoration and mitigation, the existing impacts will all be temporary and the restoration/mitigation plan will provide a functional life to wildlife habitat by increasing native plant abundance and diversity. This will provide additional habitat for wildlife foraging and nesting, in excess of what occurred prior to the impacts.

## 4.1 WETLAND FUNCTIONS ANALYSIS

Project-related impacts to wetland functions were analyzed by comparing pre-project function scores with anticipated post-project conditions (**Table 7**). Post-project conditions factor in the mitigation outlined in Section 5.0. 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 7: Wetland Function Summary**

| Wetland | Pre-Project | Post-Project | PROJECT EFFECTS TO FUNCTIONS |
|---|---|---|---|
| | Ecology Method | | |
| A | Water Quality Score = 16 | Maintain + | A minor change to this function is anticipated due to potential reduction in water movement through the wetland and additional uptake of nutrients by the installed plants. |
| A | Hydrology Score = 10 | Maintain | No change to this function is anticipated. |
| A | Wildlife Score = 14 | Improve | A moderate improvement is anticipated by implanting the proposed mitigation/restoration plan. Himalayan blackberry was the primary plant removed, which is being replaced by a diverse assemblage of native plants. |

# 5.0 MITIGATION AND RESTORATION

Restoration includes the removal of 1,320 square feet of recent fill material placed in Wetland A and then replanting this area with native vegetation, and replanting 1,725 square feet of previously cleared understory. Restoration is being provided at a 1:1 ratio. Areas to be planted are outlined in **Appendix C** and labeled "filled dirt" and "cleared area". City of Bellevue Plant Legend and Planting Plan Worksheets are provided in **Appendix F**. Planting details are provided in **Appendix G**. The proposed species, sizes, spacing, and overall restoration and mitigation plant quantities are outlined below in **Table 8.**

Mitigation includes compensating for construction of the retaining wall and French drain. This activity resulted in approximately 196 square feet of total impact. The typical wetland mitigation ratio for impacts to a Category III wetland is 2:1. However, since this was an infraction and the overall goal is to provide a functional lift within a previously disturbed wetland, the overall proposed mitigation ratio is approximately 4:1. As mapped in **Appendix C** an area outlined as "old filled area" is located immediately east of the existing pond. This area is approximately 60 feet long by 14 feet wide, and covers approximately 840 square feet of previously disturbed wetland. This area was selected to provide mitigation for the retaining wall and French drain since it was previously disturbed, is in close proximity to both areas of recent disturbance, and would provide additional screening between the existing house and wetland. **Table 8** below summarizes the proposed plant list for both the mitigation and restoration areas. A planting schematic is contained within **Appendix F**. Note that this area drops in elevation and becomes wetter to the north, which is reflected in the species selected. This area is slightly elevated from the primary wetland area, so no herbs were proposed.

**Table 8: Plant Summary**

| Layer | Common Name | Botanical Name | Status | Condition | Size | Spacing | Quantity |
|---|---|---|---|---|---|---|---|
| Tree | Sitka Spruce | *Picea sitchensis* | FAC | 2 GAL | 3 ft Min | 8 ft O.C. | 5 |
| Tree | Oregon Ash | *Fraxinus latifolia* | FACW | 2 GAL | 3 ft Min | 8 ft O.C. | 14 |
| Tree | Western Red-Cedar | *Thuja plicata* | FAC | 2 GAL | 3 ft Min | 8 ft O.C. | 5 |
| Tree | Black Cottonwood | *Populus balsamifera* | FAC | 2 GAL | 3 ft Min | 8 ft O.C. | 7 |
| Tree/Shrub | Pacific Willow | *Salix lucida* | FACW+ | Live Stake | 36 inch | 2 ft O.C. | 170 |
| Shrub | Sitka Willow | *Salix sitchensis* | FACW | Live Stake | 36 inch | 2 ft O.C. | 227 |
| Shrub | Red-osier dogwood | *Cornus sericea* | FACW | Live Stake | 36 inch | 2 ft O.C. | 110 |
| Shrub | Red-osier dogwood | *Cornus sericea* | FACW | 2 GAL | 3 ft Min | 4 ft O.C. | 41 |
| Shrub | Western Crabapple | *Malus fusca* | FACW | 2 GAL | 3 ft Min | 4 ft O.C. | 15 |
| Shrub | Black Twinberry | *Lonicera involucrata* | FAC+ | 2 GAL | 3 ft Min | 4 ft O.C. | 28 |
| Shrub | Pacific Ninebark | *Physocarpus capitatus* | FACW- | 2 GAL | 3 ft Min | 4 ft O.C. | 27 |
| Shrub | Red Huckleberry | *Vaccinium parvifolium* | FACU | 2 GAL | 3 ft Min | 4 ft O.C. | 9 |
| Herb | Small-fruited bulrush | *Scirpus microcarpus* | OBL | Root Stock | NA | 12 in O.C. | 200 |
| Herb | Slough Sedge | *Carex obnupta* | OBL | Root Stock | NA | 12 in O.C. | 200 |

## 5.1 SITE PREPARATION

1. A pre-construction meeting between the wetland biologist, landowner, and construction person will be conducted prior to removal of fill. The purpose of this meeting to ensure fill material is properly removed and the site is properly prepped for installation of plants. All fill material is to be removed within the area specified in **Appendix C** that is labeled "Filled dirt". The wetland biologist will oversee fill excavation and plant installation.

2. Install a temporary silt fence between the edge of fill and unfilled wetland.

3. Over-excavation will be required to remove fill material that has intermixed with the upper horizon of native soil. Add approximately 6 inches of topsoil Type A to match grade within existing wetland. Intermix the topsoil Type A with 6 inches of existing soil.

4. The two hazard trees will be topped at no less than 15 feet above ground level.

5. The portion of tree cut off will be left within the wetland.

6. One bird box will be installed near the top of each snag. Each bird box will be as specified in **Appendix G**.

## 5.2 PLANT INSTALLATION

1. Wetland biologist will approve the method and layout of planting in all planting areas prior to plant installation. Planting location may be field adjusted around existing native vegetation.

2. All trees and shrubs in planting areas shall be installed per the plans and as shown in the planting details (**Appendix G**).

3. Place 18" inch diameter x 3 inch deep bark mulch rings around each 2 gallon tree and shrub.

4. Note in **Appendix F** specific species in specific areas will be placed on mounds.

5. Note in **Appendix F** both 2 gallon and live stake red-osier dogwoods are utilized.

## 5.3 PLANT WARRANTY

1. The owner or contractor shall be responsible to replant all plants that do not survive the one-year plant establishment period.

## 5.4 MAINTENANCE

1. The owner shall be responsible for maintenance during installation and the plant establishment period.

2. All plant materials shall be manually watered during the plant establishment period. Plants shall receive at least one inch of water per week during the first growing season (May 15 to October 15).

3. The site contains a significant component of both Himalayan blackberry and reed canarygrass. Maintenance will require suppressing these species should they once again become established within restoration or mitigation areas.

## 5.5 OBJECTIVE 1: ESTABLISH WETLAND VEGETATION

Wetland vegetation will provide a shrub understory where none currently exists and provide a second tier of trees. Overall native plant diversity and abundance will increase within all planting areas. Monitoring of plant establishment will extend through the monitoring period to assure the standards of success are met. The success of the planting area will require weed control, watering, and plant replacement. Plants to be installed are as specifically outlined in this report (**Appendix F**), which will be generally planted as outlined in **Appendix F** except that slight changes may be made to avoid existing native plants. Any substitution must be approved by the wetland biologist. The landowner will be responsible for watering plants for two years during dry periods of the active growing season (June 15 through October 15) to maintain a sufficient soil moisture level for continued healthy growth of plants while they become established. Water will be applied at a rate of approximately two gallons per plant, or 1 inch per week over the entire planting area, as needed, to provide and maintain desirable soil moisture levels. Performance measures have been developed to establish criteria from which success can be measured.

***Wetland Vegetation Performance Measures***

**Year 1 (to commence one year from the date of plant installation)**

- Wetland restoration/mitigation areas will achieve 100 percent survival of planted shrubs and trees at the end of the first-year plant establishment period. If all species planted that die are replaced, the performance measure will be met.
- A minimum of two native emergent species will be established within the wetland area. The size and location of each emergent area in **Appendix F** will be measured and mapped.

**Year 2**

- Wetland restoration/mitigation areas will achieve 80 percent survival of planted shrubs and 80 percent survival of planted trees at the end of the second year.
- A minimum of two native emergent species will be established within the wetland area. No decrease in area mapped during Year 1 will occur.
- Installed emergent will be well established within planting areas.

**Year 3**

- Wetland creation areas will achieve 75 percent survival of planted shrubs and 75 percent survival of planted trees at the end of the third year.
- A minimum of two native emergent species will be established within the wetland area.

- Installed emergent will be well established within planting areas. No decrease in area mapped during Year 1 will occur.

***Contingencies***

Failure to meet the proposed vegetation standard of success will result in some or all of the following contingency actions:

- Additional vegetation planting may be required to meet plant survival or coverage standards. Plant species will be evaluated in relation to site conditions to determine if species substitutions are warranted.
- Control of competitive weed species may be required if plant survival standards are not met. Methods of weed control could include hand or mechanical weeding, or mulching.
- Appropriate damage control methods may be required if vegetation survival standards are not met due to herbivory. The wildlife species responsible for plant damage will be identified and possible control methods include fencing, use of repellents, and temporary barriers will be employed.
- Consult with a wetland biologist and the City of Bellevue to determine additional corrective actions and potential alteration of performance measures.

## 5.6 MONITORING PLAN

All wetland planting areas will be monitored annually for a minimum of three years after initial acceptance of the mitigation/restoration construction. Formal monitoring will occur during Years 1, 2, and 3. A monitoring report will be prepared by the landowner or their designee. The reports will address progress toward meeting the performance measures and success standards as specified, and any recommended contingency actions taken to correct deficiencies that occurred in meeting these standards. Reporting will occur following each monitoring period. The landowner or their designee will conduct the monitoring at the mitigation site. Successful mitigation will be measured by attainment of the performance measures and success standards described in this mitigation plan document.

Mitigation site monitoring will utilize a variety of ecological monitoring techniques. Many standard techniques such as transect lines, and sample plots may be used. Monitoring will also include use of photo points, as well as additional methods deemed necessary to adequately document development of the mitigation site over the monitoring period. Monitoring methodology will be included in annual monitoring reports. The report will include a map outlining the location of photo points, and transects or sample plots.

The successful attainment of all performance measures at the end of the third monitoring period may result in the landowner no longer being required to monitor the mitigation/restoration site. This determination will be made by the City of Bellevue after the review and approval of all required reports, and site inspections. Failure to fully implement the plans and measures outlined within this report may result in an extension of the monitoring period and additional actions by the City of Bellevue.

# 6.0 REFERENCES


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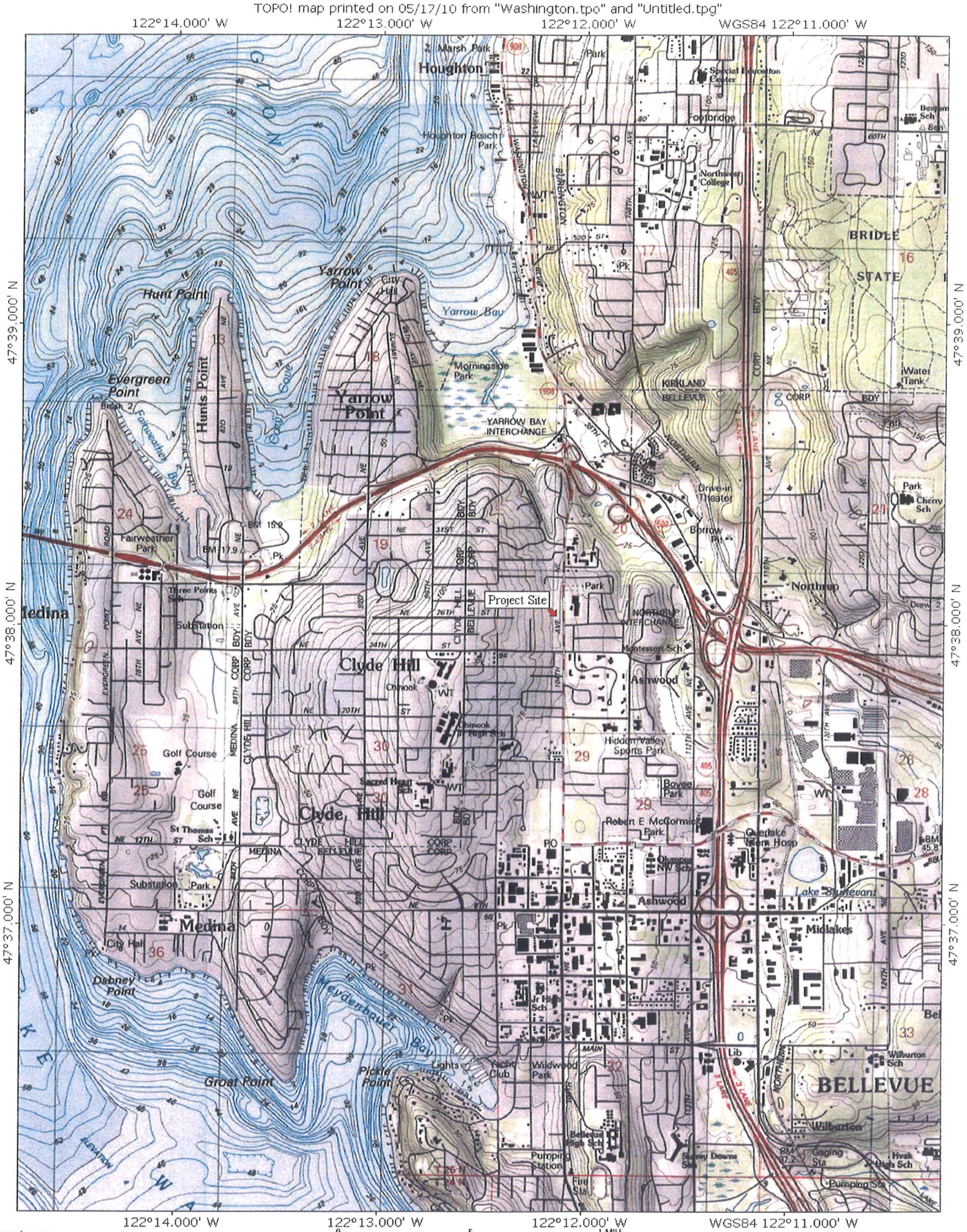
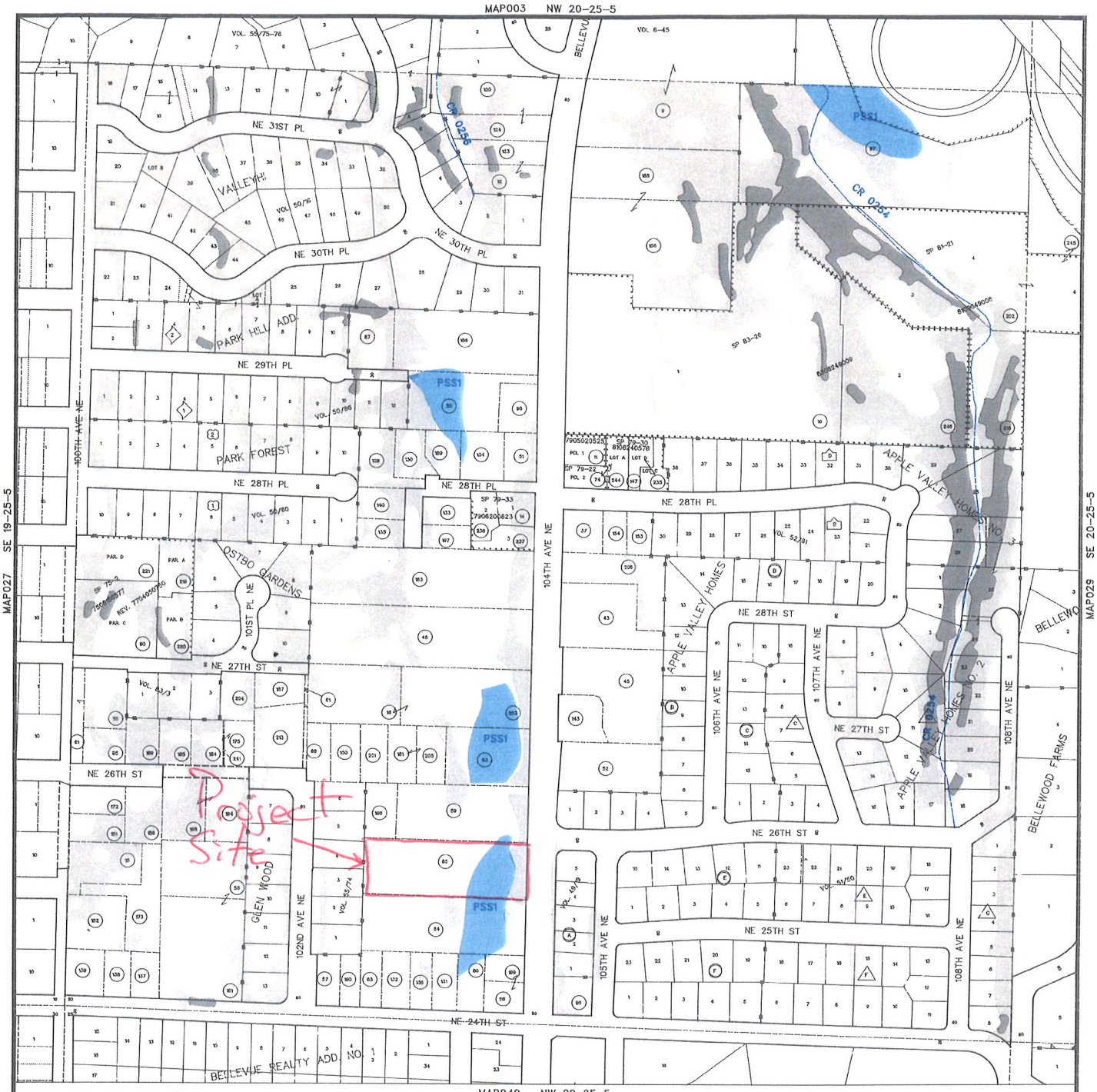
# APPENDIX A

# SITE AREA MAPS

TOPO! map printed on 05/17/10 from "Washington.tpo" and "Untitled.tpg"




Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)




## SLOPES

- 0%—15%
- 15%—40%
- 40% +

SEE SOILS/GEOLOGY REFERENCES SECTION 6

## RIPARIAN CORRIDORS

- Type A
- Type B
- * STREAMSIDE WETLANDS

SEE REACH BOUNDARY DESCRIPTIONS IN SECTION 8A
SEE FEMA MAPS FOR FLOODPLAIN BOUNDARIES, SEC 8C

## WETLANDS

PSS 1
7B
PEM

WETLAND NUMBER

WETLAND AREA

PEM
PSS 1 — VEGETATION CLASSIFICATION ZONES

SEE WETLAND SUMMARIES SECTION 8B

## SENSITIVE AREAS

Information shown on this map is of a generalized nature. In all cases, actual field conditions determine location and extent of sensitive areas.

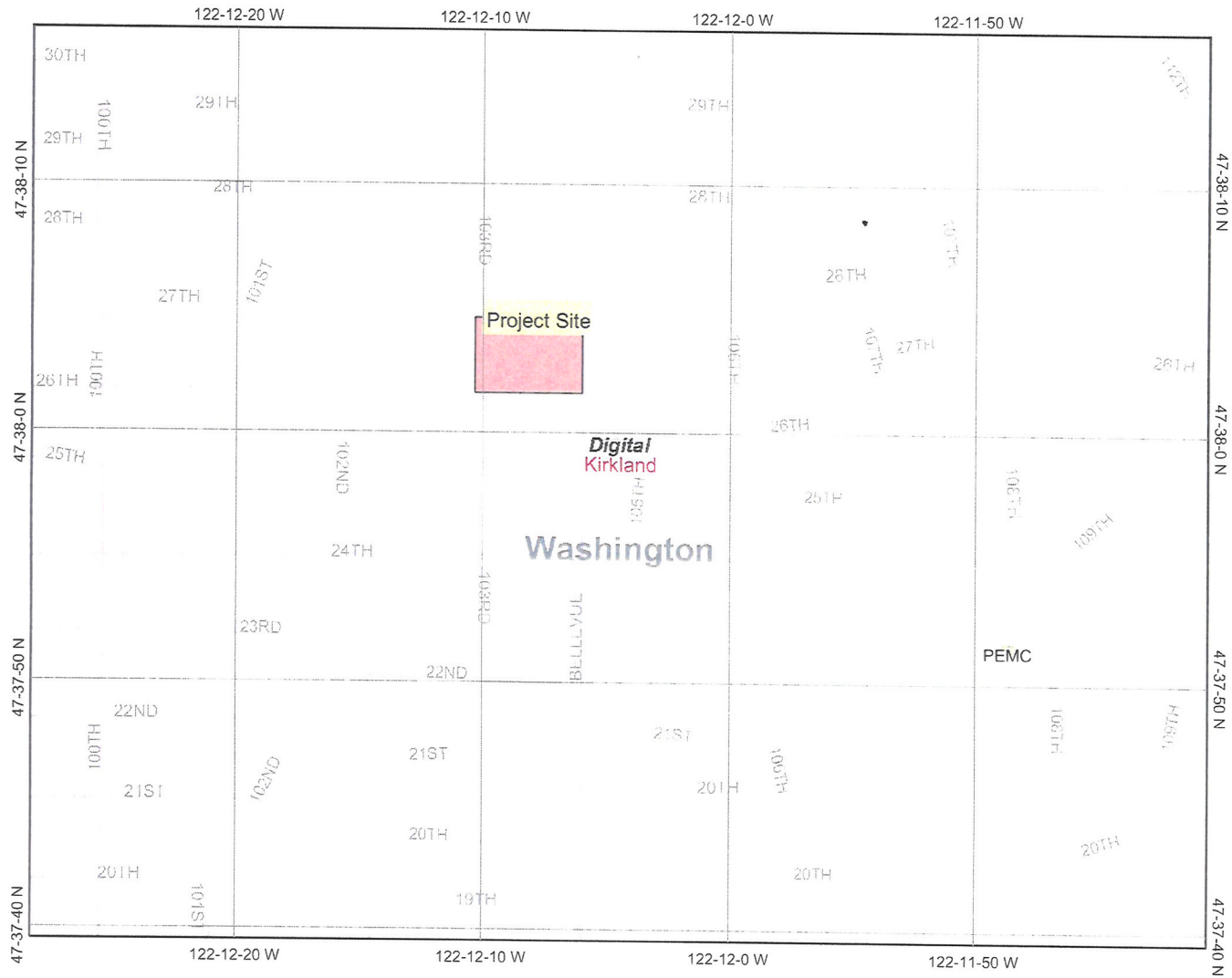
N

0 200

APRIL, 1987

CITY OF BELLEVUE WASHINGTON

# Internet Mapping Framework




Map center: 47° 37' 57.9" N, 122° 12' 4.4" W

## Legend

Ohio_wet_scan
- 0
- 1
- Out of range

Interstate
Major Roads

Other Road
- Interstate
- State highway
- US highway

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

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

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

Scale: 1:7,923

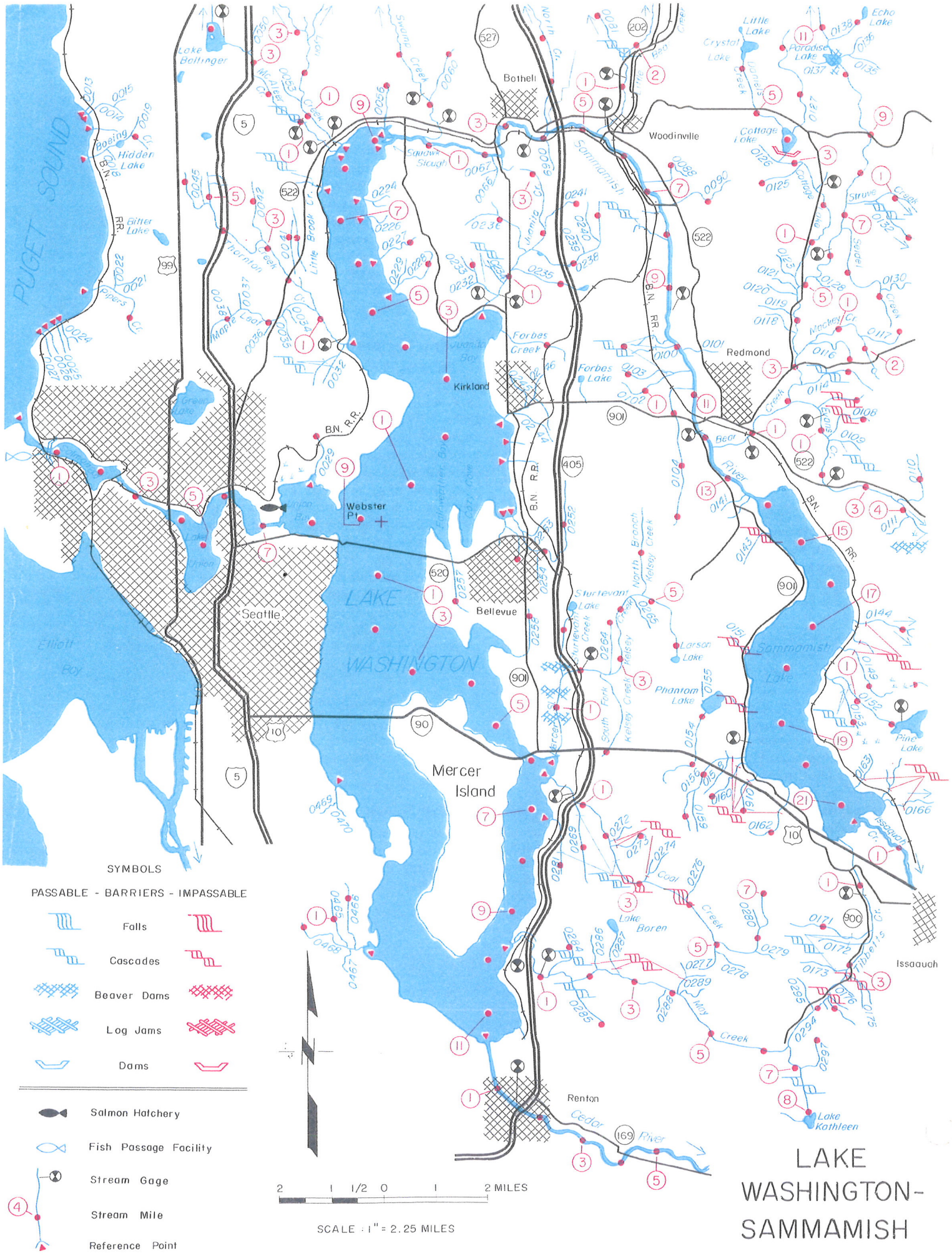
This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

# iMAP

The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

Date: 5/17/2010 Source: King County iMAP - Property Information (http://www.metrokc.gov/GIS/iMAP)

King County




# LAKE WASHINGTON-SAMMAMISH

# APPENDIX B

# SITE AREA PHOTOS

**Photo 1**. View looking toward Bellevue Way NE.

**Photo 2**. View looking toward Wetland A. Disturbed area near alder trees is the recent fill material.

**Photo 3**. Area of recent wetland fill.

**Photo 4**. Interior of wetland where cleared.

**Photo 5**. Wetland interior with edge of new fill along left side of photo.

**Photo 6**. View of culvert under driveway, edge of new fill is along right side of photo.

**Photo 7**. Rusty channel that appears to have been excavated through wetland.

**Photo 8**. View of central wetland looking south toward driveway.

**Photo 9**. Wetland overview from atop rock wall near pond.

**Photo 10**. View of stormwater outfall that discharges into pond.

**Photo 11**. View of central pond area.

**Photo 12**. View of recent wetland fill with laths indicating wetland edge based on inspecting multiple data plots.

# APPENDIX C

# WETLAND MAP

t by the neighbor
Wetland A
Cleared area
Filled dirt
rd trees
removed
NE 26th St
NE 26th St
Bellevue Way NE
Bellevue Way NE
N

# APPENDIX D

# DATA PLOT FORMS

# DATA FORM 1 (*REVISED*)
# ROUTINE WETLAND DETERMINATION
## (WA State Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

| | | | |
|---|---|---|---|
| Project/Site: | 2601 Bellevue Way NE | Date: | May 15, 2010 |
| Applicant/Owner: | Haizhou Zheng | County: | King |
| | | State: | WA |
| Investigator(s): | Scott Swarts | S/T/R: | 20/25N/5E |

| | | | | | |
|---|---|---|---|---|---|
| Do Normal Circumstances exist on the site? | Yes ☒ | No ☐ | Community ID: | Wetland A PFO |
| Is the site significantly disturbed (atypical situation)? | Yes ☐ | No ☒ | Transect ID: | |
| Is the area a potential Problem Area? | Yes ☐ | No ☒ | Plot ID: | DP 1 |

Explanation of atypical or problem area: No fill at DP 1 but cleared of most understory vegetation.

**VEGETATION** (for strata, indicate T = tree; S = shrub; H = herb; V = vine)

| Dominant Plant Species | Stratum | % Cover | Indicator | Dominant Plant Species | Stratum | % Cover | Indicator |
|---|---|---|---|---|---|---|---|
| Red alder (*Alnus rubra*) | T | 80 | FAC | | | | |
| Giant horsetail (*Equisetum telmateia*) | H | 5 | FACW | | | | |
| Himalayan blackberry (*Rubus armeniacus*) | V | 5 | | | | | |
| UID sedge or grass sprouting | H | 5 | | | | | |
| | | | | | | | |
| | | | | | | | |

**HYDROPHYTIC VEGETATION INDICATORS:**

% of dominants OBL, FACW, and FAC 100

Check all indicators that apply and explain below:

| | | | |
|---|---|---|---|
| Visual observation of plant species growing in areas of prolonged inundation/saturation: | ☒ | Physiological/reproductive adaptations | ☐ |
| Morphological adaptations | ☐ | Wetland plant database | ☒ |
| Technical Literature | ☒ | Personal knowledge of regional plant communities | ☒ |
| | | Other (explain) | ☐ |

**Hydrophytic vegetation present?** Yes ☒ No ☐

Rationale for decision/remarks:

**HYDROLOGY**

| | | |
|---|---|---|
| Is it the growing season? Yes ☒ No ☐ | Water Marks: Yes ☐ No ☒ on | Sediment Deposits: Yes ☐ No ☒ |
| Based on: soil temp (record temp _____) Time of year. other (explain) | Drift Lines: Yes ☐ No ☒ | Drainage Patterns: Yes ☒ No ☐ |
| Depth of inundation: none inches | Oxidized Root (live roots) Channels <12 in. Yes ☒ No ☐ | Local Soil Survey: Yes ☒ No ☐ |
| Depth to free water in pit: nine | FAC Neutral: Yes ☐ No ☒ | Water-stained Leaves: Yes ☒ No ☐ |
| Depth to saturated soil: surface | | |
| Check all that apply and explain below: Stream, lake, or gauge data: ☐ Aerial photographs: ☐ Other: ☐ | Other (explain): | |

**Wetland hydrology present?** Yes ☒ No ☐

Rationale for decision/remarks:

## SOILS

Map Unit Name (Series & Phase): Norma Sandy loam

Drainage Class: Poorly drained

Taxonomy (subgroup)

Field observations confirm mapped type? Yes ☒ No ☐

**Profile Description**

| Depth (inches) | Horizon | Matrix color (Munsell moist) | Mottle colors (Munsell moist) | Mottle abundance and contrast | Texture, concretions, structure, etc. | Drawing of soil profile (match description) |
|---|---|---|---|---|---|---|
| 0 to 17+ | A | 10YR 2/1 | none | none | Silty sandy loam | Minor sand, mucky. |
| | | | | | | |

**Hydric Soil Indicators:** (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☒ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☒ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

**Hydric soils present?** Yes ☒ No ☐

Rationale for decision/remarks: Indicators present

## WETLAND DETERMINATION

Hydrophytic vegetation present? Yes ☒ No ☐

Hydric soils present? Yes ☒ No ☐

Wetland hydrology present? Yes ☒ No ☐

Is the sampling point within a wetland? Yes ☒ No ☐

**Rationale/Remarks:**

# DATA FORM 1 (*REVISED*)
# ROUTINE WETLAND DETERMINATION
## (WA State Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

| | | | |
|---|---|---|---|
| Project/Site: | 2601 Bellevue Way NE | Date: | May 15, 2010 |
| Applicant/Owner: | Haizhou Zheng | County: | King |
| | | State: | WA |
| Investigator(s): | Scott Swarts | S/T/R: | 20/25N/5E |

| | | | | | |
|---|---|---|---|---|---|
| Do Normal Circumstances exist on the site? | Yes ☒ | No ☐ | Community ID: | Wetland A PFO |
| Is the site significantly disturbed (atypical situation)? | Yes ☒ | No ☐ | Transect ID: | |
| Is the area a potential Problem Area? | Yes ☐ | No ☒ | Plot ID: | DP 2 within fill area. |

Explanation of atypical or problem area: Within fill area

**VEGETATION** (for strata, indicate T = tree; S = shrub; H = herb; V = vine)

| Dominant Plant Species | Stratum | % Cover | Indicator | Dominant Plant Species | Stratum | % Cover | Indicator |
|---|---|---|---|---|---|---|---|
| Red alder (*Alnus rubra*) | T | 85 | FAC | | | | |
| Trace weeds/grasses | H | 5 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**HYDROPHYTIC VEGETATION INDICATORS:**

% of dominants OBL, FACW, and FAC 100

Check all indicators that apply and explain below:

| | | | |
|---|---|---|---|
| Visual observation of plant species growing in areas of prolonged inundation/saturation: | ☐ | Physiological/reproductive adaptations | ☐ |
| | | Wetland plant database | ☒ |
| Morphological adaptations | ☐ | Personal knowledge of regional plant communities | ☒ |
| Technical Literature | ☒ | Other (explain) | ☐ |

**Hydrophytic vegetation present?** Yes ☒ No ☐

Rationale for decision/remarks: Ground surface recently

**HYDROLOGY**

| | | |
|---|---|---|
| Is it the growing season? Yes ☒ No ☐ | Water Marks: Yes ☐ No ☒ on | Sediment Deposits: Yes ☐ No ☒ |
| Based on: soil temp (record temp _____) Time of year. other (explain) | Drift Lines: Yes ☐ No ☒ | Drainage Patterns: Yes ☐ No ☐ |
| Depth of inundation: none inches | Oxidized Root (live roots) Channels <12 in. Yes ☐ No ☒ | Local Soil Survey: Yes ☒ No ☐ |
| Depth to free water in pit: none | FAC Neutral: Yes ☐ No ☒ | Water-stained Leaves: Yes ☐ No ☐ |
| Depth to saturated soil: none | | |
| Check all that apply and explain below: Stream, lake, or gauge data: ☐ Aerial photographs: ☐ Other: ☐ | Other (explain): | |

**Wetland hydrology present?** Yes ☐ No ☒

Area filled. Assume if kept digging below 21 inches would eventually encounter water.

Rationale for decision/remarks:

## SOILS

Map Unit Name (Series & Phase): Norma Sandy loam

Drainage Class: Poorly drained

Taxonomy (subgroup)

Field observations confirm mapped type? Yes ☒ No ☒

**Profile Description**

| Depth (inches) | Horizon | Matrix color (Munsell moist) | Mottle colors (Munsell moist) | Mottle abundance and contrast | Texture, concretions, structure, etc. | Drawing of soil profile (match description) |
|---|---|---|---|---|---|---|
| 0 to 11 | B | 10YR 4/3 | 10YR 6/8 | Sparse/dull | Silty gravelly loam | New Fill Material |
| 11 to 18 | B + A | Mixture ↕ | Mixture ↕ | Mixture ↕ | Mixture ↕ | Mixture of new fill and native. |
| 18 to 21+ | A | 10YR 2/1 | none | none | Silt loam | Native soil which is the same as in DP 1. |

**Hydric Soil Indicators:** (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☒ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

**Hydric soils present?** Yes ☐ No ☒

Rationale for decision/remarks: Area filled since hydric soils encountered at a depth of 18 inches below the surface. Depth of fill at this location is between 11 and 18 inches, which represents the zone where fill material intermixed with native wetland soil. Depth of this horizon (7 inches) indicates soils were wet or moist when fill added.

## WETLAND DETERMINATION

Hydrophytic vegetation present? Yes ☒ No ☐

Hydric soils present? Yes ☐ No ☒

Wetland hydrology present? Yes ☐ No ☒

Is the sampling point within a wetland? Yes ☒ No ☐

**Rationale/Remarks:** Clearly within an area recently filled. Although hydric soils and wetland hydrology not present, the reason they are not present is due to recent fill material.

# DATA FORM 1 (*REVISED*)
# ROUTINE WETLAND DETERMINATION
## (WA State Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

| | | | |
|---|---|---|---|
| Project/Site: | 2601 Bellevue Way NE | Date: | May 15, 2010 |
| Applicant/Owner: | Haizhou Zheng | County: | King |
| | | State: | WA |
| Investigator(s): | Scott Swarts | S/T/R: | 20/25N/5E |

| | | | | | |
|---|---|---|---|---|---|
| Do Normal Circumstances exist on the site? | Yes ☒ | No ☐ | Community ID: | Upland |
| Is the site significantly disturbed (atypical situation)? | Yes ☒ | No ☐ | Transect ID: | |
| Is the area a potential Problem Area? | Yes ☐ | No ☒ | Plot ID: | DP 3 new fill atop old fill |

Explanation of atypical or problem area: Vegetation sparse atop new fill material, outside alder over story, between wetland and driveway. Encountered old fill at a depth of 11 inches.

**VEGETATION** (for strata, indicate T = tree; S = shrub; H = herb; V = vine)

| Dominant Plant Species | Stratum | % Cover | Indicator | Dominant Plant Species | Stratum | % Cover | Indicator |
|---|---|---|---|---|---|---|---|
| Sparse grasses/weeds | H | 10 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**HYDROPHYTIC VEGETATION INDICATORS:**

% of dominants OBL, FACW, and FAC 000

Check all indicators that apply and explain below:

| | | | |
|---|---|---|---|
| Visual observation of plant species growing in areas of prolonged inundation/saturation: | ☐ | Physiological/reproductive adaptations | ☐ |
| | | Wetland plant database | ☒ |
| Morphological adaptations | ☐ | Personal knowledge of regional plant communities | ☒ |
| Technical Literature | ☒ | Other (explain) | ☐ |

**Hydrophytic vegetation present?** Yes ☐ No ☒

Rationale for decision/remarks: Disturbed area with trace vegetation and outside canopy of alders.

**HYDROLOGY**

| | | |
|---|---|---|
| Is it the growing season? Yes ☒ No ☐ | Water Marks: Yes ☐ No ☒ on | Sediment Deposits: Yes ☐ No ☒ |
| Based on: soil temp (record temp _____) Time of year. other (explain) | Drift Lines: Yes ☐ No ☒ | Drainage Patterns: Yes ☐ No ☐ |
| Depth of inundation: none inches | Oxidized Root (live roots) Channels <12 in. Yes ☐ No ☒ | Local Soil Survey: Yes ☒ No ☐ |
| Depth to free water in pit: none | FAC Neutral: Yes ☐ No ☒ | Water-stained Leaves: Yes ☐ No ☒ |
| Depth to saturated soil: none | | |
| Check all that apply and explain below: Stream, lake, or gauge data: ☐ Aerial photographs: ☐ Other: ☐ | Other (explain): | |

**Wetland hydrology present?** Yes ☐ No ☒ Area filled, see soils.

Rationale for decision/remarks:

## SOILS

Map Unit Name (Series & Phase): Norma Sandy loam

Drainage Class: Poorly drained

Taxonomy (subgroup)

Field observations confirm mapped type? Yes ☐ No ☒

**Profile Description**

| Depth (inches) | Horizon | Matrix color (Munsell moist) | Mottle colors (Munsell moist) | Mottle abundance and contrast | Texture, concretions, structure, etc. | Drawing of soil profile (match description) |
|---|---|---|---|---|---|---|
| 0 to 11 | B | 10YR 4/3 | 10YR 6/8 | Sparse/dull | Silty gravelly loam | New Fill Material |
| 11 to 20 + | B | 10YR 2/2 | None | None | Silty gravelly loam | Old Fill Material |
| | | | | | | |

**Hydric Soil Indicators:** (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☒ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

**Hydric soils present?** Yes ☐ No ☒

Rationale for decision/remarks: New fill atop old fill. Soil color and rock composition changed significantly. Old fill darker and more gravel.

## WETLAND DETERMINATION

Hydrophytic vegetation present? Yes ☐ No ☒

Hydric soils present? Yes ☐ No ☒

Wetland hydrology present? Yes ☐ No ☒

Is the sampling point within a wetland? Yes ☐ No ☒

**Rationale/Remarks:** Indicators not present. Old fill from when house originally constructed encountered at a depth of 11 inches.

# DATA FORM 1 (*REVISED*)
# ROUTINE WETLAND DETERMINATION
## (WA State Wetland Delineation Manual or 1987 Corps Wetland Delineation Manual)

| | | | |
|---|---|---|---|
| Project/Site: | 2601 Bellevue Way NE | Date: | May 15, 2010 |
| Applicant/Owner: | Haizhou Zheng | County: | King |
| | | State: | WA |
| Investigator(s): | Scott Swarts | S/T/R: | 20/25N/5E |

| | | | | | |
|---|---|---|---|---|---|
| Do Normal Circumstances exist on the site? | Yes ☒ | No ☐ | Community ID: | Wetland/Upland |
| Is the site significantly disturbed (atypical situation)? | Yes ☒ | No ☐ | Transect ID: | |
| Is the area a potential Problem Area? | Yes ☐ | No ☒ | Plot ID: | DP 4 |

Explanation of atypical or problem area: Vegetation sparse atop new fill material, outer edge of alders. At wetland edge prior to new fill.

**VEGETATION** (for strata, indicate T = tree; S = shrub; H = herb; V = vine)

| Dominant Plant Species | Stratum | % Cover | Indicator | Dominant Plant Species | Stratum | % Cover | Indicator |
|---|---|---|---|---|---|---|---|
| Red alder | T | 30 | FAC | | | | |
| Sparse grasses/weeds | H | trace | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**HYDROPHYTIC VEGETATION INDICATORS:**

% of dominants OBL, FACW, and FAC 000

Check all indicators that apply and explain below:

| | | | |
|---|---|---|---|
| Visual observation of plant species growing in areas of prolonged inundation/saturation: | ☐ | Physiological/reproductive adaptations | ☐ |
| | | Wetland plant database | ☒ |
| Morphological adaptations | ☐ | Personal knowledge of regional plant communities | ☒ |
| Technical Literature | ☒ | Other (explain) | ☐ |

**Hydrophytic vegetation present?** Yes ☒ No ☐

Rationale for decision/remarks: Disturbed area near driveway. Alder dominant.

**HYDROLOGY**

| | | |
|---|---|---|
| Is it the growing season? Yes ☒ No ☐ | Water Marks: Yes ☐ No ☒ on | Sediment Deposits: Yes ☐ No ☒ |
| Based on: soil temp (record temp _____) Time of year. other (explain) | Drift Lines: Yes ☐ No ☒ | Drainage Patterns: Yes ☐ No ☒ |
| Depth of inundation: none inches | Oxidized Root (live roots) Channels <12 in. Yes ☐ No ☒ | Local Soil Survey: Yes ☒ No ☐ |
| Depth to free water in pit: none | FAC Neutral: Yes ☐ No ☒ | Water-stained Leaves: Yes ☐ No ☒ |
| Depth to saturated soil: none | | |
| Check all that apply and explain below: Stream, lake, or gauge data: ☐ Aerial photographs: ☐ Other: ☐ | Other (explain): | |
| **Wetland hydrology present?** Yes ☐ No ☒ | Area filled, see soils. | |

Rationale for decision/remarks:

## SOILS

Map Unit Name (Series & Phase): Norma Sandy loam

Drainage Class: Poorly drained

Taxonomy (subgroup)

Field observations confirm mapped type? Yes ☒ No ☐

**Profile Description**

| Depth (inches) | Horizon | Matrix color (Munsell moist) | Mottle colors (Munsell moist) | Mottle abundance and contrast | Texture, concretions, structure, etc. | Drawing of soil profile (match description) |
|---|---|---|---|---|---|---|
| 0 to 26 | B | 10YR 4/3 | Some gleyed chunks | | Silty gravelly loam | New Fill Material |
| 26 to 30 + | A | 10YR 2/1 | None | None | Silty loam minor sand | Original wetland soil |
| | | | | | | |

**Hydric Soil Indicators:** (check all that apply)

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma (=1) matrix
- ☐ Matrix chroma ≤2 with mottles
- ☐ Mg or Fe Concretions
- ☐ High Organic Content in Surface Layer of Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☒ Listed on National/Local Hydric Soils List
- ☐ Other (explain in remarks)

**Hydric soils present?** Yes ☐ No ☒

Rationale for decision/remarks: New fill atop original wetland soil. At wetland edge.

## WETLAND DETERMINATION

Hydrophytic vegetation present? Yes ☒ No ☐

Hydric soils present? Yes ☐ No ☒

Wetland hydrology present? Yes ☐ No ☒

Is the sampling point within a wetland? Yes ☒ No ☐

**Rationale/Remarks:** New fill atop wetland fill. Near edge of grasses/lawn where no fill placed. Based on this and slope near culvert, this is very close to wetland edge prior to recent fill. Approximately 26 inches of new fill at this location.

# APPENDIX E

# ECOLOGY WETLAND RATING FORM

Wetland name or number _____

# WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Wetland A Date of site visit: May 15, 2010

Rated by: Scott Swarts Trained by Ecology? Yes X No_____ Date of training: 11/06

SEC: 20 TWNSHP: 25 N RNGE: 5 E Is S/T/R in Appendix D? Yes_____ No X

**Map of wetland unit: Figure_____ Estimated size_____**

## SUMMARY OF RATING

**Category based on FUNCTIONS provided by wetland: I_____ II_____ III X IV_____**

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

| | |
|---|---|
| Score for Water Quality Functions | 16 |
| Score for Hydrologic Functions | 10 |
| Score for Habitat Functions | 14 |
| TOTAL Score for Functions | 40 |

**Category based on SPECIAL CHARACTERISTCS of Wetland I_____ II_____ Does not apply X**

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

**Summary of basic information about the wetland unit.**

| Wetland Unit has Special Characteristics | |
|---|---|
| **Estuarine** | |
| **Natural Heritage Wetland** | |
| **Bog** | |
| **Mature Forest** | |
| **Old Growth Forest** | |
| **Coastal Lagoon** | |
| **Interdunal** | |
| None of the above | |

| Wetland HGM Class used for Rating | |
|---|---|
| **Depressional** | X |
| **Riverine** | |
| **Lake-fringe** | |
| **Slope** | - |
| **Flats** | |
| **Freshwater Tidal** | |
| | |
| Check if unit has multiple HGM classes present | X |

**Does the wetland 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 Need Additional Protection** (in addition to the protection recommended for its category) | YES | NO |
|---|---|---|
| SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database. | | X |
| SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form). | | X |
| SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?* | | X |
| SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance. | | X |

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

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

Wetland name or number _____

## Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
   _____At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 YES – The wetland class is **Slope**

5. Does the entire wetland 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 of 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 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.

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

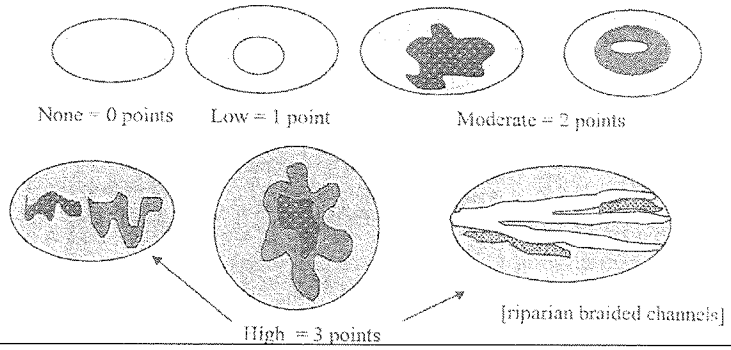
Wetland name or number _____

| D | Depressional and Flat Wetlands | Points (only 1 score per box) |
|---|---|---|
| | WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality. | |
| **D 1** | **Does the wetland have the potential to improve water quality?** | *(see p.38)* |
| | D 1.1 Characteristics of surface water flows out of the wetland:<br>• Unit is a depression with no surface water leaving it (no outlet) .....points = 3<br>• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet.....points = 2<br>• Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)..... points = 1<br>• 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<br>*(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing** | **Figure ___**<br>1 |
| | D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*)<br>**YES** points = 4 **NO** points = 0 | |
| | D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):<br>• Wetland has persistent, ungrazed vegetation > = 95% of area .....points = 5<br>• Wetland has persistent, ungrazed vegetation > = 1/2 of area ..... points = 3<br>• Wetland has persistent, ungrazed vegetation > = 1/10 of area .....points = 1<br>• Wetland has persistent, ungrazed vegetation < 1/10 of area .....points = 0<br>**Map of Cowardin vegetation classes** | **Figure ___**<br>3 |
| | D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.*<br>• Area seasonally ponded is > 1/2 total area of wetland..... points = 4<br>• Area seasonally ponded is > 1/4 total area of wetland.....points = 2<br>• Area seasonally ponded is < 1/4 total area of wetland.....points = 0<br>**Map of Hydroperiods** | **Figure ___**<br>4 |
| | **Total for D 1** *Add the points in the boxes above* | 8 |
| **D 2** | **Does the wetland have the opportunity to improve water quality?**<br>Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.*<br>____ Grazing in the wetland or within 150 ft<br>__X__ Untreated stormwater discharges to wetland<br>____ Tilled fields or orchards within 150 ft. of wetland<br>__X__ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging<br>__X__ Residential, urban areas, golf courses are within 150 ft. of wetland<br>____ Wetland is fed by groundwater high in phosphorus or nitrogen<br>____ Other _____<br>**YES** multiplier is 2 **NO** multiplier is 1 | *(see p. 44)*<br>Multiplier<br>2 |
| ◆ | **TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1*** | 16 |
| | HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. | |
| **D 3** | **Does the wetland have the potential to reduce flooding and erosion?** | *(see p.46)* |
| | D 3.1 Characteristics of surface water flows out of the wetland unit<br>• Unit is a depression with no surface water leaving it (no outlet) .....points = 4<br>• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet..... points = 2<br>• 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<br>*(If ditch is not permanently flowing treat unit as "intermittently flowing")*<br>• Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*.....points = 0 | 2 |
| | D 3.2 Depth of storage during wet periods. *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).*<br>• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet.....points = 7<br>• The wetland is a "headwater" wetland .....points = 5<br>• Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet .....points = 5<br>• Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet ..... points = 3<br>• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water .points = 1<br>• Marks of ponding less than 0.5 ft.....points = 0 | 3 |
| | D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*<br>• The area of the basin is less than 10 times the area of unit.....points = 5<br>• The area of the basin is 10 to 100 times the area of the unit.....points = 3<br>• The area of the basin is more than 100 times the area of the unit .....points = 0<br>• Entire unit is in the FLATS class.....points = 5 | 0 |
| | **Total for D 3** *Add the points in the boxes above* | 5 |

Wetland name or number _____

| | | |
|---|---|---|
| **D 4** | **Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?**<br>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. *Note which of the following indicators of opportunity apply.*<br>____ Wetland is in a headwater of a river or stream that has flooding problems.<br>__X__ Wetland drains to a river or stream that has flooding problems<br>____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems<br>____ Other _____<br>**YES** multiplier is 2 **NO** multiplier is 1 | *(see p. 49)*<br><br>Multiplier<br><br>2 |
| ◆ | **<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1*** | 10 |

| | | |
|---|---|---|
| | ***These questions apply to wetlands of all HGM classes.***<br>HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat. | **Points** (only 1 score per box) |
| **H 1** | **Does the wetland have the <u>potential</u> to provide habitat for many species?** | |
| | H 1.1 <u>Vegetation structure</u> *(see P. 72)*:<br>*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.*<br>____ Aquatic Bed<br>__X__ Emergent plants<br>____ Scrub/shrub (areas where shrubs have > 30% cover)<br>__X__ Forested (areas where trees have > 30% cover)<br>*If the unit has a forested class check if:*<br>____ 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.<br>*Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes**<br>4 structures or more .....points = 4 3 structures .....points = 2<br>2 structures .....points = 1 1 structure.....points = 0 | **Figure ___**<br><br>1 |
| | H 1.2 <u>Hydroperiods</u> *(see p.73)*:<br>*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).*<br>____ Permanently flooded or inundated 4 or more types present points = 3<br>__X__ Seasonally flooded or inundated 3 or more types present ..... points = 2<br>__X__ Occasionally flooded or inundated 2 types present ..... points = 1<br>__X__ Saturated only 1 type present..... points = 0<br>____ Permanently flowing stream or river in, or adjacent to, the wetland<br>__X__ Seasonally flowing stream in, or adjacent to, the wetland<br>____ **Lake-fringe wetland .....= 2 points**<br>____ **Freshwater tidal wetland.....= 2 points** **Map of hydroperiods** | **Figure ___**<br><br>3 |
| | H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*:<br>Count the number of plant species in the wetland that cover at least 10 $ft^2$ *(different patches of the same species can be combined to meet the size threshold)*<br>*You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species.....points = 2<br>5 – 19 species .....points = 1<br>List species below if you want to: < 5 species.....points = 0<br>_____<br>_____<br>_____<br>_____ | 1 |
| | H 1.4 Interspersion of Habitats *(see p. 76)*:<br>Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. | |




Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".

**Use map of Cowardin classes.**

**Figure ___**

2

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

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

X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)
X Standing snags (diameter at the bottom > 4 inches) in the wetland
___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m)
___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
___ Invasive plants cover less than 25% of the wetland area in each stratum of plants
*NOTE: The 20% stated in early printings of the manual on page 78 is an error.*

2

**H 1 TOTAL Score** – potential for providing habitat *Add the points in the column above* 9

**H 2 Does the wetland have the opportunity to provide habitat for many species?** (only 1 score per box)

H 2.1 Buffers *(see P. 80)*:

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

**Figure ___**

___ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).. ..... **points = 5**
___ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4**
___ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4**
___ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3**
___ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3**

**If buffer does not meet any of the criteria above:**

___ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2**
___ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2**
___ Heavy grazing in buffer..... **points = 1**
___ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0**
X Buffer does not meet any of the criteria above..... **points = 1**

**Arial photo showing buffers**

1

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

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

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

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

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

1

| | | |
|---|---|---|
| | H. 2.2.3 Is the wetland:<br>• Within 5 mi (8km) of a brackish or salt water estuary OR<br>• Within 3 miles of a large field or pasture (> 40 acres) OR<br>• Within 1 mile of a lake greater than 20 acres? **Lake WA.** | **YES** = 1 point<br>**NO** = 0 points |

| | | |
|---|---|---|
| | H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm )*<br>Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?<br>*NOTE: the connections do not have to be relatively undisturbed.*<br>____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).<br>____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).<br>____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.<br>____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; 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.<br>____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).<br>____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.<br>____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).<br>____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.<br>____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*<br>____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.<br>____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.<br>____ **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.<br>____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.<br>If wetland has **3 or more** priority habitats = **4 points**<br>If wetland has **2** priority habitats = **3 points**<br>If wetland has **1** priority habitat = **1 point** No habitats = 0 points<br>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) | 0 |
| | H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*<br>• There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development ..... points = 5<br>• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5<br>• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed..... points = 3<br>• The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile..... points = 3<br>• There is at least 1 wetland within 1/2 mile..... points = 2<br>• There are no wetlands within 1/2 mile ..... points = 0 | 3 |
| | **H 2** TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* | 5 |
| | *TOTAL for H 1 from page 8* | 9 |
| ◆ | **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** | 14 |

**Comments:**

Wetland name or number _____

## CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

| | | |
|---|---|---|
| | **Wetland Type** – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.* | |
| **SC1** | **Estuarine wetlands?** *(see p.86)*<br>Does the wetland unit meet the following criteria for Estuarine wetlands?<br>____ The dominant water regime is tidal,<br>____ Vegetated, and<br>____ With a salinity greater than 0.5 ppt.<br>**YES** = Go to SC 1.1 **NO** __X__ | |
| | SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? **YES** = Category I **NO** = go to SC 1.2 | **Cat. 1** |
| | SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?<br>**YES** = Category I **NO** = Category II<br>____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.<br>____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland<br>____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. | **Cat. I**<br>**Cat. II**<br>**Dual Rating I/II** |
| **SC2** | **Natural Heritage Wetlands** *(see p. 87)*<br>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.<br>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)*<br>S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site __X__<br>**YES** _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** __X__<br>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?<br>**YES** = Category I **NO** __X__ not a Heritage Wetland | **Cat I** |
| **SC3** | **Bogs** *(see p. 87)*<br>Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.***<br>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 soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2<br>2. Does the wetland 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 question 3 **NO** = is not a bog for purpose of rating<br>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)?<br>**YES** = Is a bog for purpose of rating **NO** = go to question 4<br>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.<br>4. 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)*?<br>**YES** = Category I **NO** = Is not a bog for purpose of rating | **Cat. I** |

Wetland name or number _____

| | | |
|---|---|---|
| **SC4** | **Forested Wetlands** *(see p. 90)*<br>Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.*<br>____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more).<br>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.<br>____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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.<br>**YES** = Category I **NO** = __X__ not a forested wetland with special characteristics | **Cat. I** |
| **SC5** | **Wetlands in Coastal Lagoons** *(see p. 91)*<br>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?<br>____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.<br>____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)*<br>**YES** = Go to SC 5.1 **NO** __X__ not a wetland in a coastal lagoon<br>SC 5.1 Does the wetland meet all of the following three conditions?<br>____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).<br>____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland.<br>____ The wetland is larger than 1/10 acre (4350 square ft.)<br>**YES** = Category I **NO** = Category II | **Cat. I**<br>**Cat. II** |
| **SC6** | **Interdunal Wetlands** *(see p. 93)*<br>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?<br>**YES** = Go to SC 6.1 **NO** __X__ not an interdunal wetland for rating<br>***If you answer yes you will still need to rate the wetland based on its functions.***<br>In practical terms that means the following geographic areas:<br>• Long Beach Peninsula -- lands west of SR 103<br>• Grayland-Westport -- lands west of SR 105<br>• Ocean Shores-Copalis – lands west of SR 115 and SR 109<br>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?<br>**YES** = Category II **NO** = go to SC 6.2<br>SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?<br>**YES** = Category III | **Cat. II**<br>**Cat. III** |
| ◆ | **Category of wetland based on Special Characteristics**<br>*Choose the "highest" rating if wetland falls into several categories, and record on p. 1.*<br>If you answered **NO** for all types enter "Not Applicable" on p. 1 | **NA** |

**Comments:**

# APPENDIX F

# CITY OF BELLEVUE PLANT LEGEND AND PLANTING PLAN WORK SHEETS

Restoration

# PLANT LEGEND & PLANTING PLAN WORKSHEET

New Fill Area + Cleared Area

*How to draw your planting plan and legend:*

Step 1: Sketch your restoration area on the grid paper on the back of this page.

Step 2: Determine which plants you are going to use. Use the template you have picked out as a guide and add your own from the *Master Plant List* in *Appendix C* if you feel comfortable.

Step 3: Draw a simple symbol for each plant, such as a circle with a letter in the middle. Put each symbol in the legend table below. Write down the name of each plant.

Step 4: Return to your new knowledge of mature plant size, spacing, density and cost. Use these criteria to help layout your plants.

Step 5: Lay out the trees first. Make sure to give them enough space.

Step 6: Now lay out the shrubs. Group them together in clusters according to species. Remember the school photo rule - Tall plants in the back, short plants in the front.

Step 7: Now add in the groundcover and perennials. Use these to fill in around the trees and shrubs.

Step 8: Count up the number of plants and put a total in the Qty. (Quantity) column for each plant species.

Note: ⊕ = live stake dogwood
⊕ = 2 gal dogwood

| Symbol | Name | Size | Qty. |
|---|---|---|---|
| SS | Sitka Spruce | 2 gal | 2 |
| RC | Western Red Cedar | 2 gal | 2 |
| OA | Oregon Ash | 2 gal | 8 |
| RH | Red Huckleberry | 2 gal | 0 |
| BT | Black Twinberry | 2 gal | 16 |
| WC | Western Crabapple | 2 gal | 8 |
| ▬ | Sitka Willow | 36" stake | 200 |
| * | Pacific Willow | 36" stake | 150 |
| O | Red Osier dogwood | 36" stake | 88 |
| BC | Black Cottonwood | 2 gal | 7 |

| Symbol | Name | Size | Qty. |
|---|---|---|---|
| PN | Pacific Ninebark | 2 gal | 20 |
| ⊕ | Red osier dogwood | 2 gal. | 41 |
| // | Slough Sedge | plug | 200 |
| // | Small-fruited Bulrush | plug | 200 |
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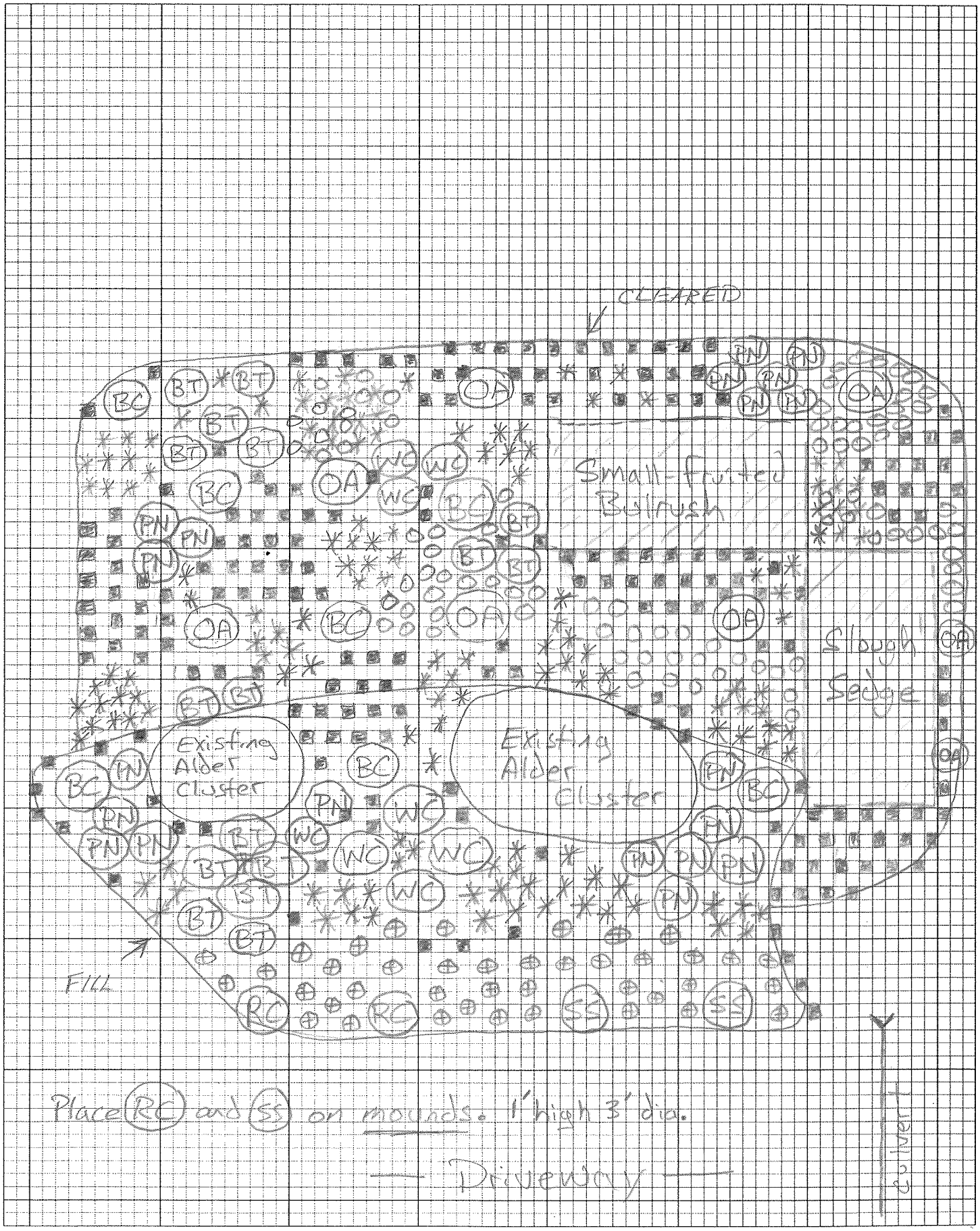
# PLANT LEGEND & PLANTING PLAN WORKSHEET




**Notes:** Gaps present for existing trees. Field adjust.

**Scale:** 1:1

PP-2

# PLANT LEGEND & PLANTING PLAN WORKSHEET

Mitigation

~~Restoration~~

Old Fill Area

*How to draw your planting plan and legend:*

Step 1: Sketch your restoration area on the grid paper on the back of this page.

Step 2: Determine which plants you are going to use. Use the template you have picked out as a guide and add your own from the *Master Plant List* in *Appendix C* if you feel comfortable.

Step 3: Draw a simple symbol for each plant, such as a circle with a letter in the middle. Put each symbol in the legend table below. Write down the name of each plant.

Step 4: Return to your new knowledge of mature plant size, spacing, density and cost. Use these criteria to help layout your plants.

Step 5: Lay out the trees first. Make sure to give them enough space.

Step 6: Now lay out the shrubs. Group them together in clusters according to species. Remember the school photo rule - Tall plants in the back, short plants in the front.

Step 7: Now add in the groundcover and perennials. Use these to fill in around the trees and shrubs.

Step 8: Count up the number of plants and put a total in the Qty. (Quantity) column for each plant species.

| Symbol | Name | Size | Qty. |
|---|---|---|---|
| SS | Sitka Spruce | 2 GAL | 3 |
| RC | Western Red Cedar | 2 GAL | 3 |
| OA | Oregon Ash | 2 GAL | 6 |
| RH | Red Huckleberry | 2GAL | 9 |
| BT | Black Twinberry | 2 GAL | 12 |
| WC | Western crabapple | 2 GAL | 7 |
| BC | Black Cottonwood | 2 GAL | 0 |
| ▬ | Sitka willow | 36" stake | 27 |
| ✳ | Pacific Willow | 36" stake | 20 |
| O | Red-osier dogwood | 36' Stake | 22 |

| Symbol | Name | Size | Qty. |
|---|---|---|---|
| PN | Pacific Ninebark | 2 GAL | 7 |
| | | | |
| | | | |
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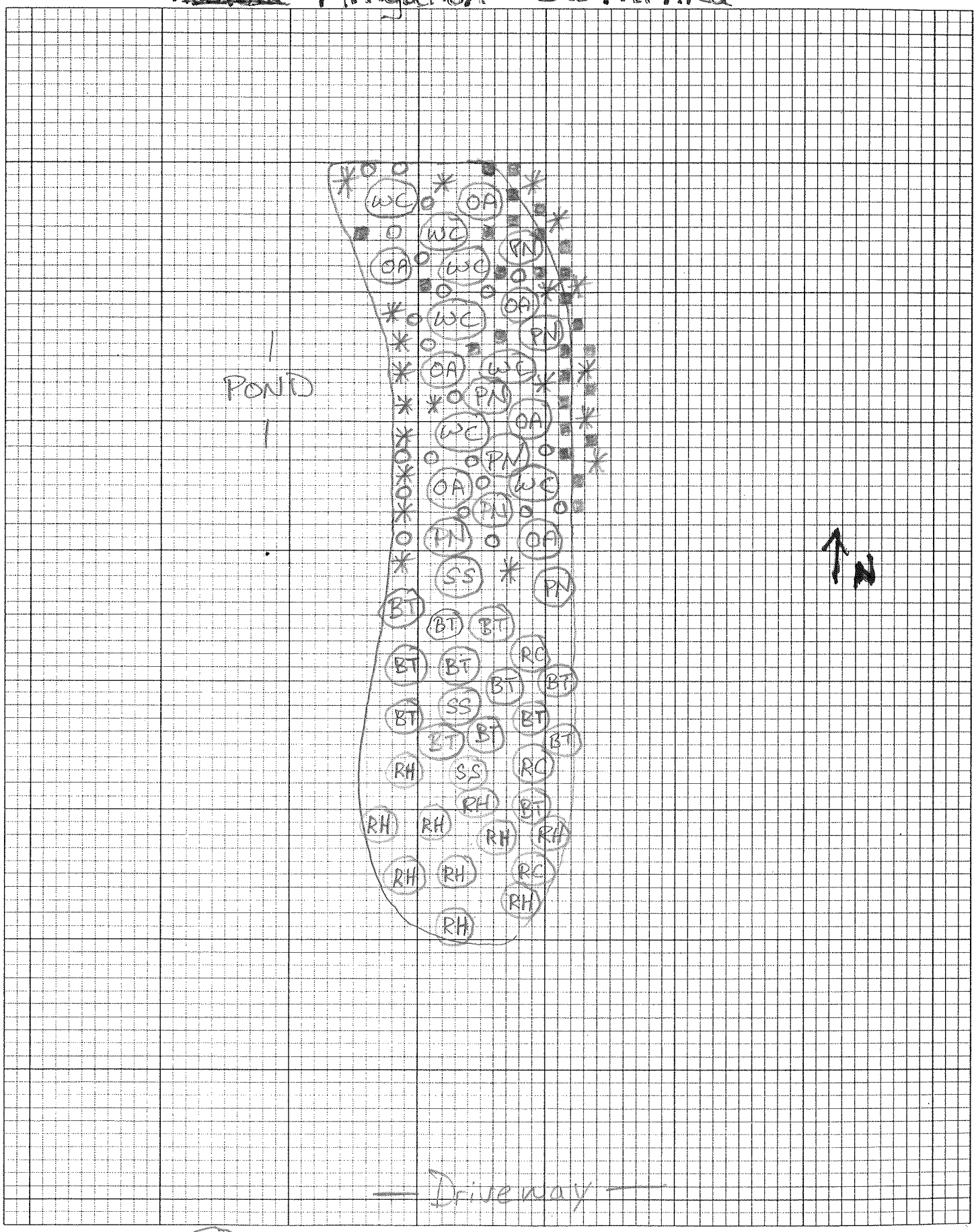
# PLANT LEGEND & PLANTING PLAN WORKSHEET

~~Restora~~ Mitigation - Old Fill Area



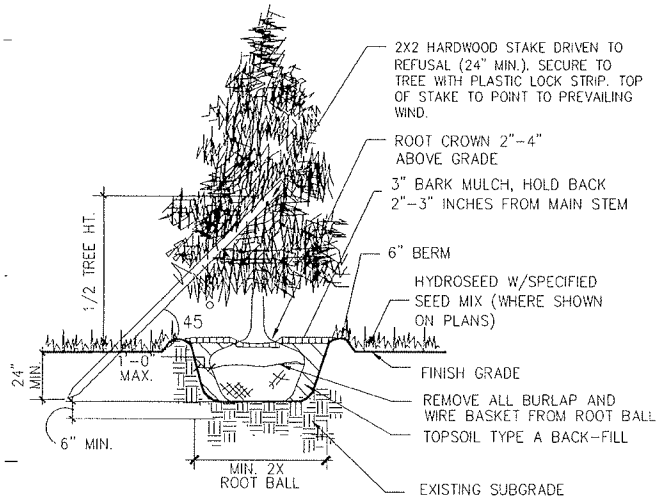

**Notes:** Place (RH) on slight mound. ~6" x 2'

**Scale:** 1:1

PP-2

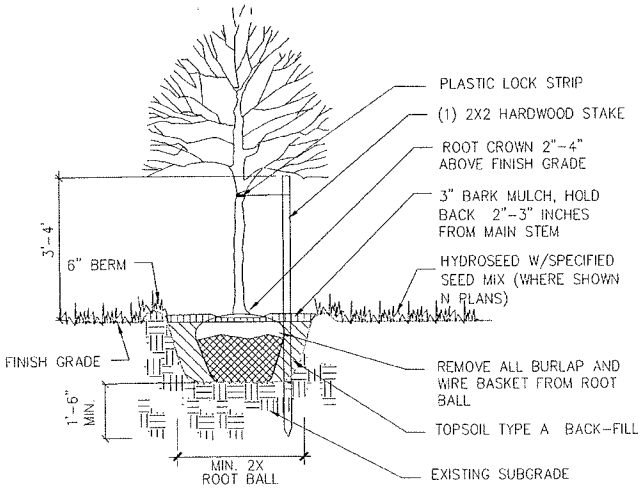
# APPENDIX G

# PLANTING DETAILS



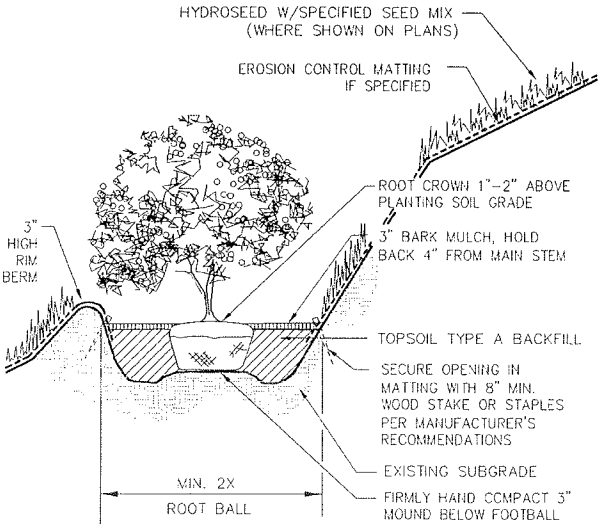

## EVERGREEN TREE PLANTING

NOT TO SCALE



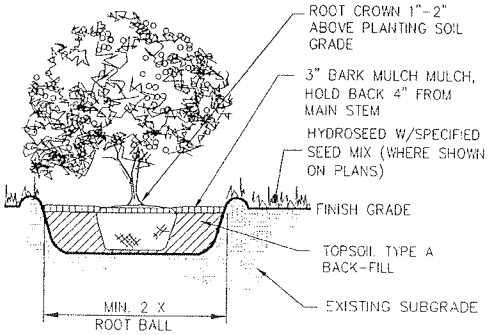

## DECIDUOUS TREE PLANTING

NOT TO SCALE



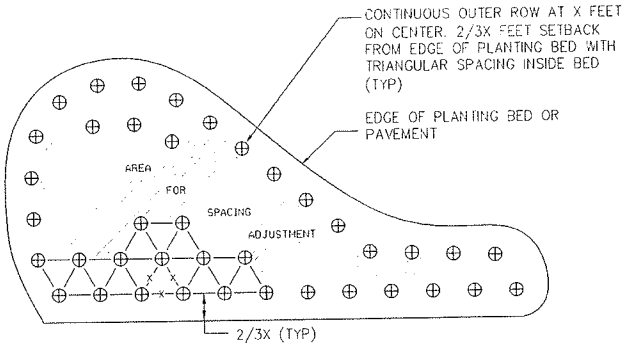

## SHRUB PLANTING (ON SLOPES)

NOT TO SCALE




## SHRUB PLANTING

NOT TO SCALE

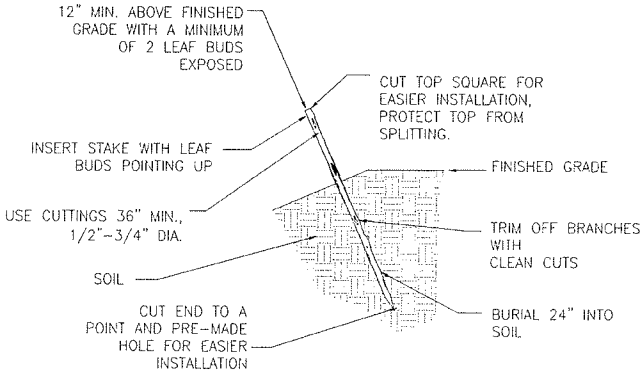



X =SPACING (SEE PLANTING PLAN)

⊕ =ACTUAL PLANT LOCATIONS

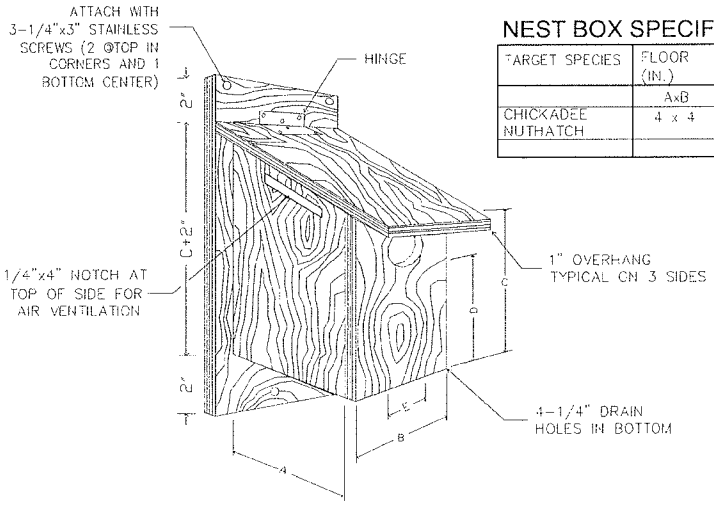
## PLANTING AREA LAYOUT

NOT TO SCALE




## LIVE STAKE PLANTING

NOT TO SCALE




## NEST BOX SPECIFICATIONS

| TARGET SPECIES | FLOOR (IN.) | DEPTH (IN.) | ENTRANCE HT. (IN.) | ENTRANCE DIA. (IN.) |
|---|---|---|---|---|
| | A x B | C | D | E |
| CHICKADEE NUTHATCH | 4 x 4 | 8-10 | 6-8 | 1.25 DIA. |
| | | | | |

## NEST BOX

NOT TO SCALE

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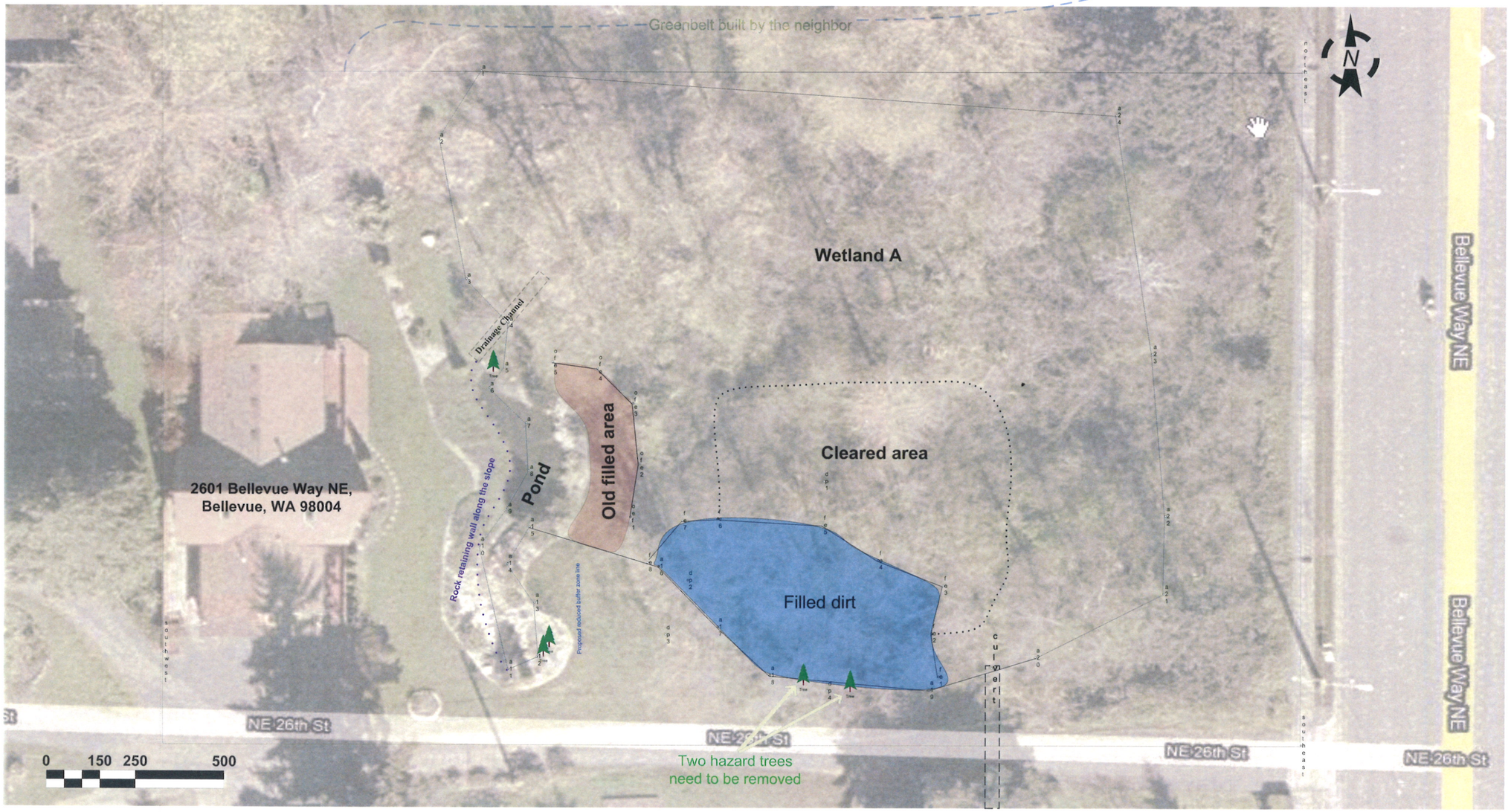

Greenbelt built by the neighbor
Wetland A
Drainage Channel
Old filled area
Pond
Rock retaining wall along the slope
Cleared area
Filled dirt
2601 Bellevue Way NE,
Bellevue, WA 98004
Bellevue Way NE
NE 26th St
Two hazard trees
need to be removed
0 150 250 500