



11415 NE 128<sup>th</sup> St Suite 110 Kirkland WA 98034 • (425)820-3420 • FAX (425)820-3437  
www.americanforestmanagement.com

**ARBORIST REPORT/TREE PLAN**  
for  
**9252 Slater Avenue NE**  
**Kirkland, WA**



**June 27, 2016**

## Table of Contents

1. Introduction.....	1
2. Description.....	1
3. Methodology.....	1
4. Observations .....	2
5. Discussion .....	2
6. Tree Protection Measures.....	3
7. Tree Replacement .....	4

### Appendix

Site/Tree Photos – pages 5 – 7

Tree protection Standards – page 8

Tree Summary Table - attached

Tree Plan Map – attached

City of Kirkland Tree Protection Fencing Detail - attached

## **1. Introduction**

American Forest Management, Inc. was contacted by Isaiah Dummer of ID Construction Group, and was asked to compile an 'Arborist Report' for a parcel located within the City of Kirkland.

The subject property is located at 9252 – Slater AVE NE. The existing residence will be demolished a new residence constructed, along with an accessory dwelling unit. Our assignment is to prepare a written report on present tree conditions, which is to be filed with the preliminary permit application.

This report encompasses all of the criteria set forth under the City of Kirkland's tree regulations (Chapter 95 of the Kirkland Zoning Code). The required minimum tree density for the parcel (19,444 sq. ft.) is 13.4 tree credits.

Date of Field Examination:            June 16, 2016

## **2. Description**

22 significant trees were identified and assessed on the property. These are comprised of a mix of volunteer and native species, primarily Douglas-fir and black locust.

A numbered aluminum tag was attached to the lower trunk of the subject trees. These numbers correspond with the numbers on the Tree Summary Table and copy of the attached site plan.

Another seven right-of-way and neighboring trees were also assessed. Three exist within the right-of-way of Slater Ave and four on the neighboring property to the south. No neighboring tree issues were identified on the north perimeter.

## **3. Methodology**

Each tree in this report was visited. Tree diameters were measured by tape. The tree heights were measured using a Spiegel Relaskop. Each tree was visually examined for defects and vigor. The tree assessment procedure involves the examination of many factors:

- The crown of the tree is examined for current vigor. This is comprised of inspecting the crown (foliage, buds and branches) for color, density, form, and annual shoot growth, limb dieback and disease. The percentage of live crown is estimated for coniferous species only and scored appropriately.
- The bole or main stem of the tree is inspected for decay, which includes cavities, wounds, fruiting bodies of decay (conks or mushrooms), seams, insects, bleeding, callus development, broken or dead tops, structural defects and unnatural leans. Structural defects include crooks, forks with V-shaped crotches, multiple attachments, and excessive sweep.
- The root collar and roots are inspected for the presence of decay, insects and/or damage, as well as if they have been injured, undermined or exposed, or original grade has been altered.

Based on these factors a determination of viability is made. Trees considered 'non-viable' are trees that are in poor condition due to disease, extensive decay and/or cumulative structural defects, which exacerbate failure potential. A 'viable' tree is a tree found to be in good health, in a sound condition with minimal defects and is suitable for its location. Also, it will be wind firm if isolated or left as part of a grouping or grove of trees. A 'borderline' viable tree is a tree where its viability is in question. These are trees that are beginning to display symptoms of decline due to age and or species related problems. Borderline trees are not expected to positively contribute to the landscape for the long-term and are not recommended for retention.

The attached site plan/tree map indicates the viability of the subject trees.

#### **4. Observations**

The subject property has a usually high number of significant trees. Many are within a close proximity of the existing house.

On the south perimeter, there is a large grouping of black locust trees. Some are situated on the subject property and some on the neighboring property. These have developed typical form and structure and are of fairly good vigor. Tree #105 is situated close to the existing home and has a heavy lean over it. All of the subject locust trees are considered to be in fair condition.

Five of the subject trees are Douglas-fir. These are semi-mature, estimated at approximately 40 to 60 years of age. No overly concerning defects were observed. Foliage color and density is normal. Tree conditions are good.

There are two European white birch trees (#106 and #203) situated in the front of the property. One (#203) appears to be situated in the right-of-way of Slater Ave NE. Both have significant top decline, evidenced by dead and broken tops. Both are in a general state of decline due to age. Condition is poor and both are considered non-viable.

Tree #18 is a semi-mature western red cedar located near the southeast corner of the proposed building footprint. This tree has a major structural defect – forked to with co-dominant (equal diameter) stems. The stems are weakly attached to the main trunk, evidenced by significant included bark and a large seam between the forked stems. Overall condition is considered fair to poor due to the structural defect. It is considered 'non-viable'. A major stem failure is likely within the next few years.

There is a large grouping (Trees #114 > #120) of semi-mature to mature Lombardy poplar trees within the wetland buffer. These appear to be of fairly good vigor. No evidence of top decline was observed. A thorough inspection of the lower trunks was inhibited by a dense infestation of Himalayan blackberry within the grouping. Overall condition of the poplar trees is fair.

#### Neighboring Trees

Tree #201 is a young semi-mature Austrian pine within the right-of-way of Slater Ave NE. No concerning defects were observed. Condition is good.

Tree #204 is a semi-mature Lombardy poplar also within the right-of-way of Slater Ave NE. It has developed good form for the species. Overall condition is fair.

Tree #12 is a semi-mature Douglas-fir situated near the south property line. It has a natural lean to the east away from the locust cluster. No concerning defects were observed. Overall condition is considered fair to good.

Tree #19 is a mature big leaf maple. The main trunk forks at roughly 7' above ground into 3 main stems. Stems appear to be fairly well attached. Vigor appears normal for age. Overall condition is considered fair.

Tree #20 is a semi-mature Douglas-fir. It has a natural lean to the east away from Tree #19. No concerning defects were observed. Overall condition is considered fair.

#### **5. Discussion**

The extent of drip-lines (farthest reaching branches) for the subject trees can be found on the tree summary table at the back of this report. These have also been delineated on a copy of the site plan for trees with a high probability for successful retention. The information plotted on the attached site plan may need to be transferred to a final tree retention/protection plan to meet City submittal requirements. The trees that are to be removed shall be shown "X'd" out on the final plan.

The LOD measurements can also be found on the tree summary table. These have been delineated on a copy of the site plan for parcel trees proposed for retention and neighboring trees. The LOD measurements are based on species, age, condition, drip-line, prior improvements, proposed impacts and the anticipated cumulative impacts to the entire root zone.

There are several viable trees that are within a close proximity of the proposed building footprints that will have to be removed to construct the improvements. These include #102, #105, #108, #109, #110, #111, #112 and #113. Based on the size of these trees and their proximity to proposed excavation, retention is doubtful. Depending upon the final development of the site plan, some of these may be able to be retained. It is assumed for now that these will need to be removed for site improvements.

The existing driveway is located between trees #108 and #109. It is assumed improvements will be made to the driveway. The elevation of the driveway shall remain the same or slightly higher to protect roots from adjacent trees. Position tree protection fencing close to the existing driveway edge per the attached plan, bearing in mind that there are roots below the driveway that shall be protected.

The grouping of the Lombardy poplar trees in the wetland setback will not be impacted by this proposal.

Finished landscaping work within the drip-lines of retained trees shall maintain existing grades and not disturb fine root mass at the ground surface. Finish landscape with beauty bark or new lawn on top of existing grade. Add no more than 2" to 4" of mulch/beauty bark or 2" of composted soil to establish new lawn. Raising the grade more than a few inches can have adverse impacts on fine roots, by cutting off the exchange of air and gases.

#### **6. Tree Protection Measures**

The following general guidelines are recommended to ensure that the designated space set aside for the preserved trees are protected and construction impacts are kept to a minimum.

1. Tree protection fencing should be erected around retained trees and positioned just beyond the drip-line edge prior to moving any heavy equipment on site. Doing this will set clearing limits and avoid compaction of soils within root zones of retained trees.
2. Any existing infrastructure to be removed within the drip-line or tree protection zone shall be removed by hand or utilizing a tracked mini-excavator.
3. Excavation limits should be laid out in paint on the ground to avoid over excavating.
4. Excavations within the drip-lines shall be monitored by a qualified tree professional so necessary precautions can be taken to decrease impacts to tree parts. A qualified tree professional shall monitor excavations when work is required and allowed within the "limits of disturbance".
5. To establish sub grade for foundations, curbs and pavement sections near the trees, soil should be removed parallel to the roots and not at 90 degree angles to avoid breaking and tearing roots that lead back to the trunk within the drip-line. Any roots damaged during these excavations should be exposed to sound tissue and cut cleanly with a saw. Cutting tools should be sterilized with alcohol.
6. Areas excavated within the drip-line of retained trees should be thoroughly irrigated weekly during dry periods.
7. Preparations for final landscaping shall be accomplished by hand within the drip-lines of retained trees. Large equipment shall be kept outside of the tree protection zones at all times. Simply finish landscape within 10' of retained trees with a 2" to 4" layer of organic mulch.

### **7. Tree Replacement**

Supplemental trees will not be necessary to meet the required minimum tree density for the parcel. The tree calculation summary table can be found on page 9.

New tree plantings may be preferred to enhance landscaping around the new residence. New tree plantings shall be given the appropriate space for the species and their growing characteristics. Refer to the *Kirkland Plant List* on the City's website for desirable species.

For planting and maintenance specifications, refer to chapters 95.50 and 51 of the Kirkland Zoning Code.

*There is no warranty suggested for any of the trees subject to this report. Weather, latent tree conditions, and future man-caused activities could cause physiologic changes and deteriorating tree condition. Over time, deteriorating tree conditions may appear and there may be conditions, which are not now visible which, could cause tree failure. This report or the verbal comments made at the site in no way warrant the structural stability or long term condition of any tree, but represent my opinion based on the observations made.*

*Nearly all trees in any condition standing within reach of improvements or human use areas represent hazards that could lead to damage or injury.*

Please call if you have any questions or I can be of further assistance.

Sincerely,



Bob Layton  
ISA Certified Arborist #PN-2714A  
Tree Risk Assessment Qualified (TRAQ)

9252 Arborist Report

South perimeter



Tree #105, over existing house



Existing driveway to proposed ADU



Subject trees #108, #109 and #110 between proposed building footprints



9252 Arborist Report

Tree #18, major structural defect, very high probability of failure



Grouping of Lombardy poplar trees in wetland buffer



## City of Kirkland - Tree Protection Standards

1. Tree Protection Fencing shall be erected at prescribed distance per arborist report. Fences shall be constructed of chain link and be at least 4 feet high.
2. Install highly visible signs on protection fencing spaced no further than 15 feet apart. Signs shall state "Tree Protection Area-Entrance Prohibited", and "City of Kirkland" code enforcement phone number.
3. No work shall be performed within protection fencing unless approved by Planning Official. In such cases, activities will be approved and supervised by a "Qualified Professional".
4. The original grade shall not be elevated or reduced within protection fencing without the Planning Official authorization based on recommendations from a qualified professional.
5. No building materials, spoils, chemicals or substances of any kind will be permitted within protection fencing.
6. Protection Fencing shall be maintained until the Planning Official authorizes its removal.
7. Ensure that any approved landscaping within the protected zone subsequent to the approved removal of protection fencing be performed with hand labor.

In addition to the above, the Planning Official may require the following:

- a. If equipment is authorized to operate within the root zone, the area will be mulched to a depth of 6" or covered with plywood or similar material to protect roots from damage caused by heavy equipment.
- b. Minimize root damage by excavating a 2-foot deep trench, at edge of protection fencing to cleanly sever the roots of protected trees.
- c. Corrective pruning to avoid damage from machinery or building activity.
- d. Maintenance of trees throughout construction period by watering and fertilization.

### Trees on Parcel

Tag #	Species	DBH	Condition	Credits	Proposal
101	black locust	9	fair	1	Retain
10	black locust	15	fair	3.5	Retain
102	black locust	8	fair	1	Retain
103	black locust	16	fair	4	Retain
104	black locust	8	fair	1	Retain
105	black locust	23	fair	7.5	Remove
106	European white birch	14	poor	na	Remove
107	western red cedar	9	good	1	Retain
108	Douglas-fir	15	good	3.5	Retain
109	noble fir	13	good	2.5	Retain
110	Douglas-fir	17	good	4.5	Remove
111	Douglas-fir	17,10	good	5.5	Remove
112	Douglas-fir	22	good	7	Remove
113	Douglas-fir	25	good	8.5	Remove
18	western red cedar	22	poor	na	Remove
114	Lombardy poplar	10	fair	1	Retain
115	Lombardy poplar	26	fair	9	Retain
116	Lombardy poplar	14	fair	3	Retain
117	Lombardy poplar	32	fair	12	Retain
118	Lombardy poplar	26	fair	9	Retain
119	Lombardy poplar	24	fair	8	Retain
120	Lombardy poplar	30	fair	11	Retain

### Tree Density Calculation

Lot Size – +/- 19,444 sq.ft.

$17,461/43,560 \times 30 = 13.4$

Required Minimum Tree Density = 13.5 tree credits

Tree Credits Existing = 103.5

Tree Credits proposed for retention = 60.5

**Supplemental Trees Required = 0**

**Tree Summary Table**

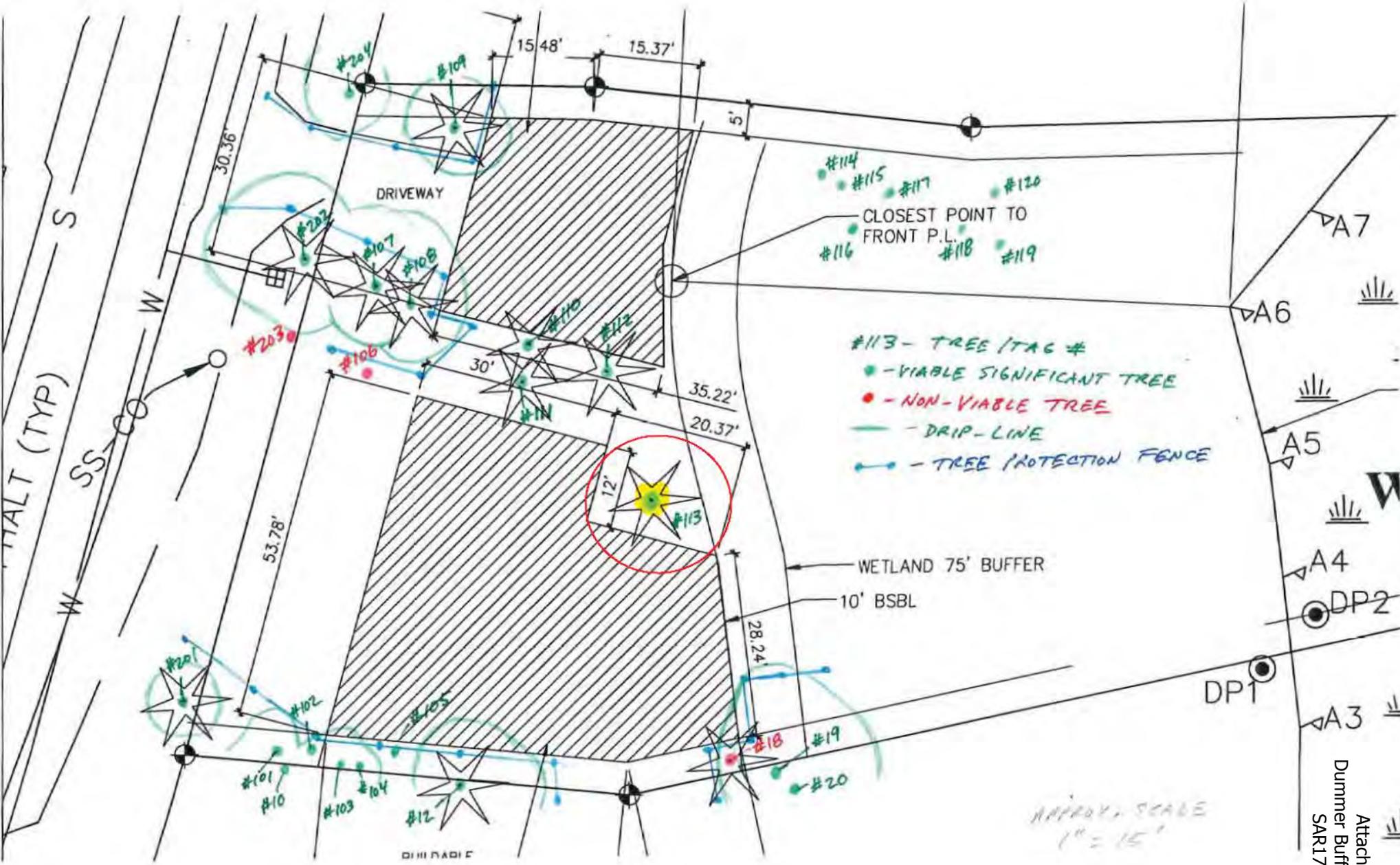
For: 9252 Slater Ave NE  
Kirkland

**American Forest Management, Inc.**

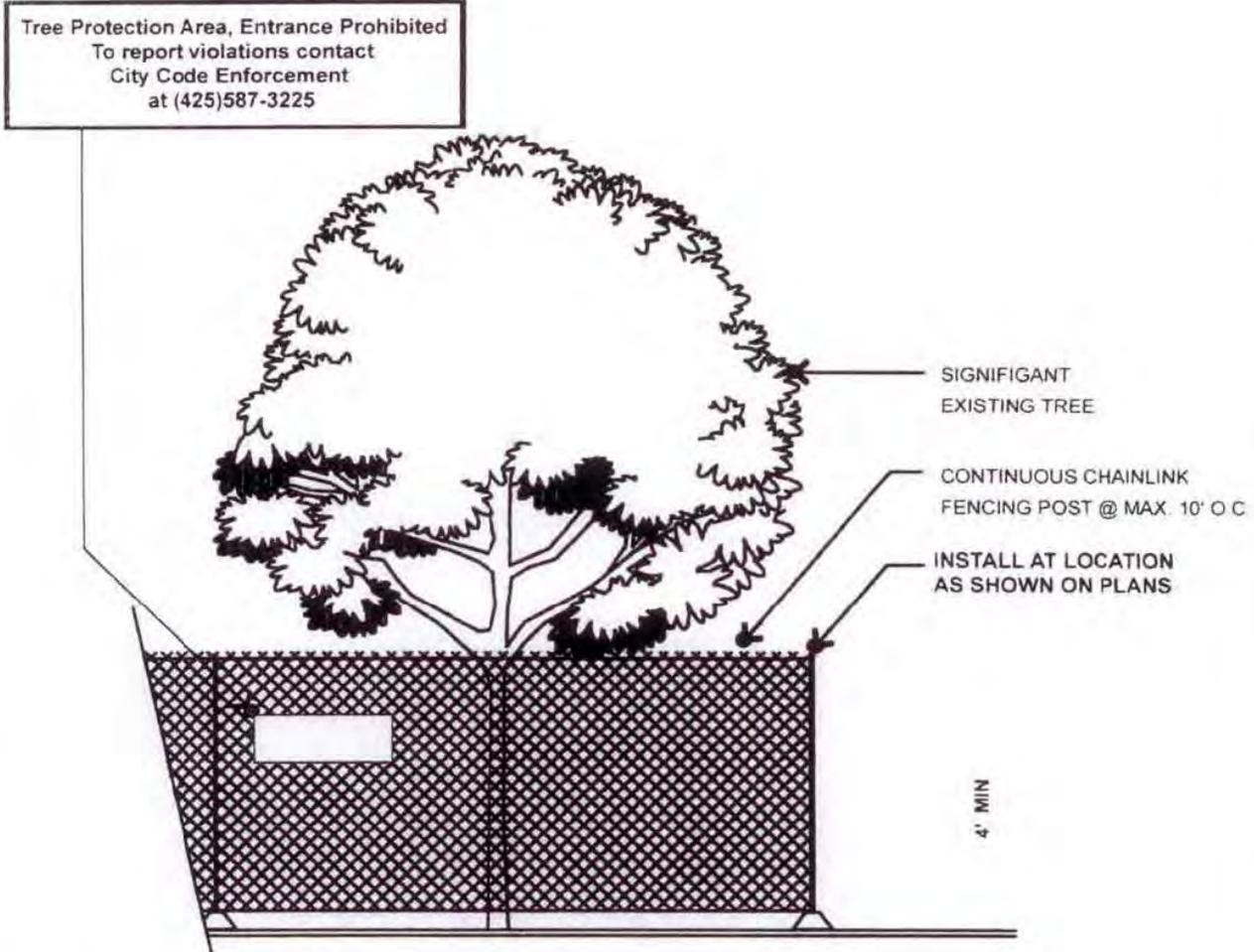
Date: 6/16/2016  
Inspector: Layton

Tree/Tag #	Species	Native/ Planted/ Volunteer	DBH	Tree Height	Tree Credit	Drip-Line/Limits of Disturbance (feet)				Condition	Viability	Comments
						N	S	E	W			
101	black locust	V	9	52	1	8/6	4/6	10/6	10/6	fair	viable	old trunk wound
10	black locust	V	15	74	3.5	0/10	26/na	12/10	14/10	fair	viable	part of cluster, leans south, typical form
102	black locust	V	8	28	1	0/5	16/6	0/6	6/6	fair	viable	heavy lean south
103	black locust	V	16	74	4	0/8	12/10	0/8	20/10	fair	viable	heavy lean west
104	black locust	V	8	48	1	6/6	10/6	10/6	6/6	fair	viable	slight lean southeast
105	black locust	V	23	82	7.5	30/10	12/10	22/12	6/12	fair	viable	heavy lean north over house
106	European white birch	V	14	50	na	x	x	x	x	poor	non	dead/broken top, decline
107	western red cedar	P	9	43	1	11/7	8/8	6/6	10/10	good	viable	no concerns
108	Douglas-fir	P	15	83	3.5	13/8	8/10	8/8	10/10	good	viable	minor fork, trunk covered in ivy
109	noble fir	P	13	65	2.5	7/na	7/6	8/8	7/8	good	viable	ivy up to 15'
110	Douglas-fir	P	17	100	4.5	18/10	8/8	8/8	11/10	good	viable	poor trunk taper
111	Douglas-fir	P	17,10	96	5.5	6/10	18/10	12/10	12/10	good	viable	minor fork
112	Douglas-fir	P	22	100	7	20/12	14/14	16/12	8/12	good	viable	no concerns
113	Douglas-fir	P	25	89	8.5	18/12	18/16	16/na	16/12	good	viable	full crown, good taper
18	western red cedar	P	22	64	na	x	x	x	x	poor	non	major structural defect, fork with co-dom stems
114	Lombardy poplar	V	10	52	1					fair	viable	not impacted by proposal
115	Lombardy poplar	V	26	78	9					fair	viable	not impacted by proposal
116	Lombardy poplar	V	14	75	3					fair	viable	not impacted by proposal
117	Lombardy poplar	V	32	84	12					fair	viable	not impacted by proposal
118	Lombardy poplar	V	26	72	9					fair	viable	not impacted by proposal
119	Lombardy poplar	V	24	72	8					fair	viable	not impacted by proposal
120	Lombardy poplar	V	30	75	11					fair	viable	not impacted by proposal
Neighboring Trees												
201	Austrian pine	P	10	48	na	6/6	6/6	5/5	6/5	good	viable	no concerns
202	Douglas-fir	P	17	85	na	12/8	12/10	10/10	15/10	good	viable	trunk covered in ivy
203	European white birch	P	13	30	na	x	x	x	x	poor	non	dead/broken top, decline
204	Lombardy poplar	P	21	92	na	6/na	6/10	8/10	6/10	fair	viable	good form
12	Douglas-fir	N	18	75	na	10/8	9/na	12/10	6/10	fair-good	viable	lean east
19	big leaf maple	N	22	72	na	15/12	18/12	16/12	10/10	fair	viable	fork at 6', 3 main tops, moderate risk
20	Douglas-fir	N	17	74	na	8/10	10/12	13/10	8/12	fair	viable	natural lean east

Drip-Line and Limits of Disturbance measurements from face of trunk



FENCING SIGN DETAIL



1. MINIMUM FOUR (4 ) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE (S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.
3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.
4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.



**TREE PROTECTION  
FENCING DETAIL**





November 26, 2014

Aoife Blake  
City of Kirkland  
Planning and Community Development  
123 Fifth Avenue  
Kirkland, WA 98033

**Re: Anderson Property on Forbes Lake- Wetland Delineation Report  
TWC project number 140622.16**

Dear Aoife:

On November 20, 2014, ecologist Katy Crandall and I performed a wetland delineation study on the Anderson Property on Forbes Lake, located at 9252 Slater Avenue NE in the City of Kirkland (parcel numbers 123850-0690 and -0695).

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

- Wetland Delineation Sketch
- Wetland Determination Data Forms (USACE)
- Wetland Rating Forms (Ecology & City of Kirkland)

**Methods**

The study area was evaluated for wetlands using methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). The wetland boundary was determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundary to make the determination. We recorded data at two of these locations.

Data points on-site are marked with yellow- and black-striped flags. The wetland boundary on-site is marked with seven pink- and black-striped flags.

The delineated wetland was classified using Kirkland's wetland field data form and the *Western Washington Wetland Rating System* (Ecology 2014 update) (Ecology Rating System). Public-domain information on the subject properties was reviewed to rate the wetland. These sources include USDA Natural Resources Conservation Service Soil

maps, U.S. Fish and Wildlife Service National Wetland Inventory maps, Washington Department of Fish and Wildlife interactive mapping programs (PHS on the Web), and City of Kirkland's Interactive GIS mapping website.

## **Findings**

### *Wetland A*

Wetland A is part of the Forbes Lake wetland complex; this complex contains both slope and depressional wetlands. Across the wetland, vegetation classes include forested, scrub-shrub, emergent, and open-water, as well as small portions of aquatic bed. On-site, a lawn of facultative grasses transition to wetter species, such as cattail and soft rush. Spiraea and willows are also prominent along the perimeter of the lake. Some Himalayan blackberry is present. Soils present in the greater wetland complex include Tukwila organic soil and Alderwood gravelly sandy loam (NRCS). On-site, the wetland soils are a silty loam and correspond with hydric indicator A4- hydrogen sulfide. There is also a F6- Redox Dark Surface hydric soil indicator layer from eight to 12 inches below ground surface, with mixed matrix colorations of 55 percent 10YR 2/1 and 30 percent 10YR 3/2 silty loam with 10 percent 7.5YR 4/6 concentrations throughout both matrixes present. Evident both on-site and elsewhere, the Forbes Lake wetland complex experiences permanent inundation, seasonal ponding, and areas of saturation. There are also four streams, two inlets, and one outlet associated with Forbes Lake. According to the Ecology rating system, the greater wetland complex provides high hydrologic function, high habitat function and moderate water quality function.

## **Local Regulations**

The Forbes Lake wetland complex is subject to the City of Kirkland Zoning Code (KZC), Chapter 90. The wetland classifies as a Type 1 wetland because it contains more than 1/4 acre organic soils and is greater than 10 acres with more than three Cowardin classes present. It is in the Forbes Creek watershed, a primary basin (KZC 90.30). Type 1 wetlands in a primary basin require a 100ft buffer (KZC 90.45). Structures must be setback an additional 10ft from the designated buffer. While buffer modification may be possible through averaging and enhancement, all modification requests must be considered as described in KZC 150 (KZC 90.60). Modification of Type 1 wetlands are not permissible, except as set forth in KZC 90.55.

## **State and Federal Regulations**

Wetlands are also regulated by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. Any filling of Waters of the State, including wetlands (except isolated wetlands), would require notification and permits from the Corps. The Forbes Lake wetland complex would not be considered an isolated wetland. Federally permitted actions that could affect endangered species (i.e. salmon or bull trout) may

also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology.

In general, neither the Corps nor Ecology regulates wetland buffers, unless direct impacts are proposed. When direct impacts are proposed, mitigated wetlands may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

### **Disclaimer**

The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, State and Federal regulatory authorities. No other warranty, expressed or implied, is made.

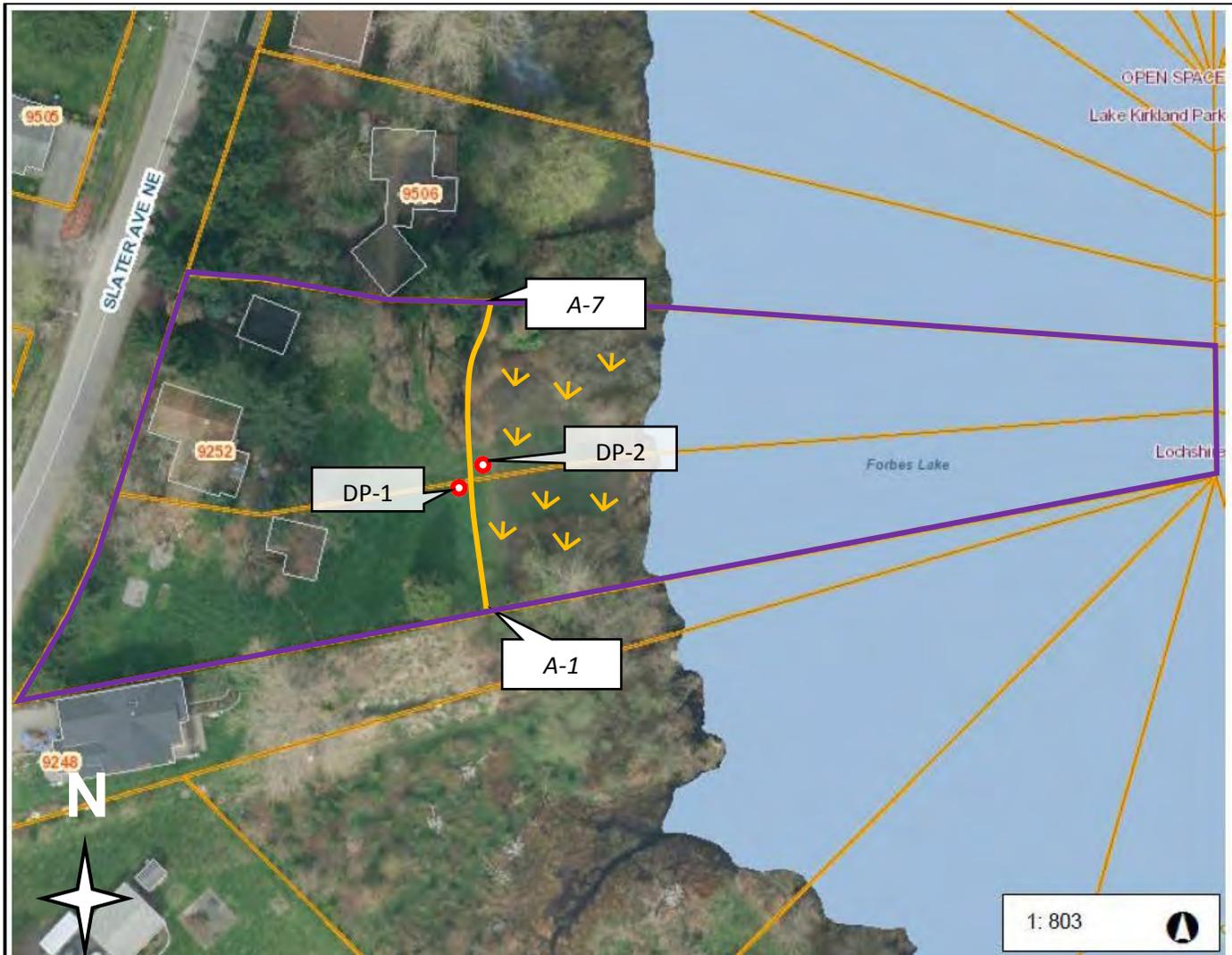
Please call if you have any questions or if we can provide you with any additional information.

Sincerely,



Rose Whitson  
Ecologist

Enclosures



**Note:** This is a field sketch. Wetland areas not surveyed.  
Areas depicted are approximate and not to scale.

Wetland Flags: pink- and black-striped  
DP Flags: yellow- and black-striped

**Wetland and Stream Delineation Sketch**

Prepared for: City of Kirkland  
Parcel Numbers: 123850-0690 and -0695

Site Visit: November 20, 2014  
TWC Ref. No. 140622.16

**LEGEND:**

-  Wetland edge
-  Wetland area
-  Data Point (DP)
-  Subject Properties

**DP- 1**

Project Site: <b>Kirkland Anderson</b>		Sampling Date: <b>November 20, 2014</b>	
Applicant/Owner: <b>City of Kirkland</b>		Sampling Point: <b>DP- 1</b>	
Investigator: <b>R Whitson &amp; K Crandall</b>		City/County: <b>Kirkland, King</b>	
Sect., Township, Range: <b>S 04 T 25N R 05E</b>		State: <b>WA</b>	
Landform (hillslope, terrace, etc): <b>hillslope</b>	Slope (%): <b>&gt;10%</b>	Local relief (concave, convex, none): <b>concave</b>	
Subregion (LRR): <b>A</b>	Lat:	Long:	Datum:
Soil Map Unit Name: <b>Alderwood gravelly sandy loam, six to 15 percent slopes</b>		NWI classification:	<b>None listed (NWI)</b>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)	
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?			
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: <b>Out pit, just above toe of slope</b>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size 3m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover				Prevalence Index = B / A =																					
Herb Stratum (Plot size 1m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators																					
1. <b><i>Taraxacum officinale</i></b>	<b>5</b>	<b>N</b>	<b>FACU</b>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Yes</th> <th>Dominance test is &gt; 50%</th> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table>	Yes	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)											
Yes	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
2. <b><i>Ranunculus repens</i></b>	<b>5</b>	<b>N</b>	<b>FAC</b>																						
3. <b><i>Unknown grass*</i></b>	<b>100</b>	<b>Y</b>	<b>FAC</b>																						
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
<b>110</b> = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
Woody Vine Stratum (Plot size )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1.				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum Remarks: <b>*assumed FAC for dominance test</b>																									

**SOIL**

SAR17-00155

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/1	100					Gravelly sandy loam	
4-8	10YR 2/2	100					Gravelly sandy loam	
8-14	10YR 2/1 10YR 2/2	70 30					Silty loam	Mixed matrix w/ black organic material

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |   |
|---|
| <input type="checkbox"/> 2cm Muck (A10)             |
| <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Other (explain in remarks) |

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):  
Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric soil present?**    Yes     No

Remarks: **3rd layer saturated**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required):

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B) |
| <input type="checkbox"/> Drainage Patterns (B10)                        |
| <input type="checkbox"/> Dry-Season Water Table (C2)                    |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)      |
| <input type="checkbox"/> Geomorphic Position (D2)                       |
| <input type="checkbox"/> Shallow Aquitard (D3)                          |
| <input type="checkbox"/> FAC-Neutral Test (D5)                          |
| <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                 |
| <input type="checkbox"/> Frost-Heave Hummocks                           |

**Field Observations**

Surface Water Present?     Yes     No    Depth (in): \_\_\_\_\_  
 Water Table Present?     Yes     No    Depth (in): \_\_\_\_\_  
 Saturation Present?     Yes     No    Depth (in): **8" BGS**  
 (includes capillary fringe)

**Wetland Hydrology Present?**    Yes     No

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

Remarks: **BGS = below ground surface**



**WETLAND DETERMINATION DATA FORM**  
Western Mountains, Valleys, and Coast Supplement to the  
1987 COE Wetlands Delineation Manual

DP- 2

750 Sixth Street South  
Kirkland, Washington 98033  
(425) 822-5242  
watershedco.com

Project Site: <b>Kirkland Anderson</b>	Sampling Date: <b>November 20, 2014</b>
Applicant/Owner: <b>City of Kirkland</b>	Sampling Point: <b>DP- 2</b>
Investigator: <b>R Whitson &amp; K Crandall</b>	City/County: <b>Kirkland, King</b>
Sect., Township, Range: <b>S 04 T 25N R 05E</b>	State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>depression</b>	Slope (%): <b>---</b>
Local relief (concave, convex, none): <b>Concave</b>	
Subregion (LRR): <b>A</b>	Lat: <b>---</b>
Long: <b>---</b>	Datum: <b>---</b>
Soil Map Unit Name: <b>Alderwood gravelly sandy loam, six to 15 percent slopes</b>	NWI classification: <b>None listed (NWI)</b>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?	(If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks: <b>Wetland in-pit</b>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>2</b> (A)	
2.				Total Number of Dominant Species Across All Strata: <b>2</b> (B)	
3.				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)	
4.					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size 3m diam. )				Prevalence Index Worksheet	
1.				Total % Cover of	
2.				Multiply by	
3.				OBL species	x 1 =
4.				FACW species	x 2 =
5.				FAC species	x 3 =
_____ = Total Cover				FACU species	x 4 =
				UPL species	x 5 =
				Column totals	(A) (B)
Herb Stratum (Plot size 1m diam. )				Prevalence Index = B / A =	
1. <b>Holcus lanatus</b>	<b>70</b>	<b>Y</b>	<b>FAC</b>		
2. <b>Ranunculus repens</b>	<b>30</b>	<b>Y</b>	<b>FAC</b>		
3. <b>Other grass*</b>	<b>10</b>	<b>N</b>	<b>FAC</b>		
4.					
_____ = Total Cover					
Woody Vine Stratum (Plot size )				Hydrophytic Vegetation Indicators	
1.				yes	Dominance test is > 50%
2.					Prevalence test is ≤ 3.0 *
3.					Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
4.					Wetland Non-Vascular Plants *
5.					Problematic Hydrophytic Vegetation * (explain)
6.					
7.					
8.					
9.					
10.					
11.					
_____ = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
% Bare Ground in Herb Stratum				Hydrophytic Vegetation Present?	
				Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <b>Juncus effusus nearby. *presumed FAC for dominance test</b>					

**SOIL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 2/1	70	7.5YR 3/3	30	C	M	Silty loam	
8-12	10YR3/2 10YR 2/1	70 20	7.5YR 4/6	10	C	M	Silty loam	Mixed matrix, redox in both
12-17	10YR 2/1 10YR 3/2	55 10	5YR 4/6	35	C	M	Silty loam	Mixed matrix, redox in dominant matrix layer

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> 2cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/>

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present?    Yes     No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

*Secondary Indicators (2 or more required):*

<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Frost-Heave Hummocks

**Field Observations**

Surface Water Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (in): <b>2" AGS*</b>
Water Table Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (in): <b>2" BGS</b>
Saturation Present? (includes capillary fringe)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (in): <b>0" BGS</b>

Wetland Hydrology Present?    Yes     No

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

Remarks:    **AGS = above ground surface**  
                   **BGS = below ground surface**  
                   **\*surface water pooled to 2" just downslope of pit**

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Forbes Lake Wetland Date of site visit: 11/20/2014

Rated by: K Crandall and R Whitson Trained by Ecology?  Y  N Date of training: 09/2014

HGM Class used for rating: Depressional

Wetland has multiple HGM classes?  Y  N

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map: King County iMAP, Kirkland Interactive Map

## OVERALL WETLAND CATEGORY (based on functions or special characteristics )

### 1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 - 27
- Category II – Total score = 20 - 22
- Category III – Total score = 16 - 19
- Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	<i>Circle the appropriate ratings</i>									
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	<b>TOTAL</b>
<b>Score Based on Ratings</b>	6			8			7			21

**Score for each function based on three ratings (order of ratings is not important)**

- 9 = H,H,H
- 8 = H,H,M
- 7 = H,H,L
- 7 = H,M,M
- 6 = H,M,L
- 6 = M,M,M
- 5 = H,L,L
- 5 = M,M,L
- 4 = M,L,L
- 3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<input checked="" type="checkbox"/>

Wetland name or number: Forbes Lake Wetland

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	7

### Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

### Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

## HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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 except during floods?
  - NO – go to 2
  - YES – the wetland class is **Tidal Fringe** – go to 1.1
  - 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
    - NO – Saltwater Tidal Fringe (Estuarine)**
    - YES – Freshwater Tidal Fringe**
    - If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*
2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
  - NO – go to 3
  - YES – The wetland class is **Flats**
  - If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*
3. Does the entire wetland unit **meet all** of the following criteria?
  - The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
  - At least 30% of the open water area is deeper than 6.6 ft (2 m).
  - NO – go to 4
  - YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)
4. Does the entire wetland unit **meet all** of the following criteria?
  - The wetland is on a slope (*slope can be very gradual*),
  - The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
  - The water leaves the wetland **without being impounded**.
  - NO – go to 5
  - YES – The wetland class is **Slope**

**NOTE:** Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).
5. Does the entire wetland unit **meet all** of the following criteria?
  - The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
  - The overbank flooding occurs at least once every 2 years.

Wetland name or number: Forbes Lake Wetland

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**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 HGM 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 of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number: Forbes Lake Wetland

<b>DEPRESSIONAL AND FLATS WETLANDS</b>	
<b>Water Quality Functions - Indicators that the site functions to improve water quality</b>	
<b>D 1.0. Does the site have the potential to improve water quality?</b>	
D 1.1. <b>Characteristics of surface water outflows from the wetland:</b> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1
D 1.2. <b>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</b> Yes = 4 No = 0	4*
D 1.3. <b>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</b> Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	1
D 1.4. <b>Characteristics of seasonal ponding or inundation:</b> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	0
<b>Total for D 1</b>	Add the points in the boxes above 6

**Rating of Site Potential** If score is:  12-16 = H  6-11 = M  0-5 = L

Record the rating on the first page

<b>D 2.0. Does the landscape have the potential to support the water quality function of the site?</b>	
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0 1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0 1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0 0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source _____	Yes = 1 No = 0 0
<b>Total for D 2</b>	Add the points in the boxes above 2

**Rating of Landscape Potential** If score is:  3 or 4 = H  1 or 2 = M  0 = L

Record the rating on the first page

<b>D 3.0. Is the water quality improvement provided by the site valuable to society?</b>	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0 1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0 0
<b>Total for D 3</b>	Add the points in the boxes above 1

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L

Record the rating on the first page

\*NRCS maps Tukwila muck in a large portion of the wetland.

Wetland name or number: Forbes Lake Wetland

**DEPRESSIONAL AND FLATS WETLANDS****Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation**

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- |   |            |   |
|---|------------|---|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet)                 | points = 4 | 0 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 |   |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch           | points = 1 |   |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing       | points = 0 |   |

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

- |  |            |   |
|--|------------|---|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet  | points = 7 | 3 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 |   |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet     | points = 3 |   |
| The wetland is a "headwater" wetland                                     | points = 3 |   |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 |   |
| Marks of ponding less than 0.5 ft (6 in)                                 | points = 0 |   |

D 4.3. Contribution of the wetland 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.

- |   |            |   |
|---|------------|---|
| The area of the basin is less than 10 times the area of the unit  | points = 5 | 3 |
| The area of the basin is 10 to 100 times the area of the unit     | points = 3 |   |
| The area of the basin is more than 100 times the area of the unit | points = 0 |   |
| Entire wetland is in the Flats class                              | points = 5 |   |

Total for D 4

Add the points in the boxes above

6

Rating of Site Potential If score is:  12-16 = H  6-11 = M  0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges?

Yes = 1 No = 0

1

D 5.2. Is &gt;10% of the area within 150 ft of the wetland in land uses that generate excess runoff?

Yes = 1 No = 0

1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at &gt;1 residence/ac, urban, commercial, agriculture, etc.)?

Yes = 1 No = 0

1

Total for D 5

Add the points in the boxes above

3

Rating of Landscape Potential If score is:  3 = H  1 or 2 = M  0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.

- |   |            |   |
|---|------------|---|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):               |            | 2 |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit.   | points = 2 |   |
| • Surface flooding problems are in a sub-basin farther down-gradient.   | points = 1 |   |
| Flooding from groundwater is an issue in the sub-basin.   | points = 1 |   |
| The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ | points = 0 |   |
| There are no problems with flooding downstream of the wetland.  | points = 0 |   |

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

0

Total for D 6

Add the points in the boxes above

2

Rating of Value If score is:  2-4 = H  1 = M  0 = L

Record the rating on the first page

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
  - Emergent 3 structures: points = 2
  - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
  - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

4

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

3

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

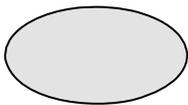
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*

- If you counted: > 19 species points = 2
- 5 - 19 species points = 1
- < 5 species points = 0

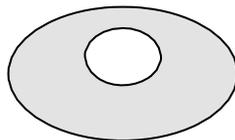
2

H 1.4. Interspersion of habitats

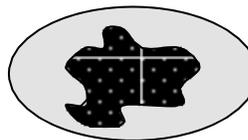
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



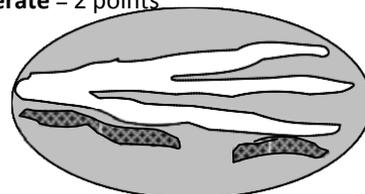
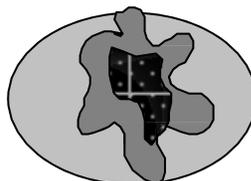
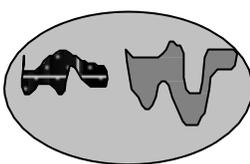
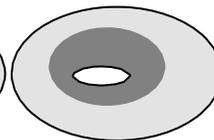
None = 0 points



Low = 1 point



Moderate = 2 points



All three diagrams in this row are **HIGH** = 3points

3

Wetland name or number: Forbes Lake Wetland

<b>H 1.5. Special habitat features:</b> Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input checked="" type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input checked="" type="checkbox"/> 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 ( <i>cut shrubs or trees that have not yet weathered where wood is exposed</i> ) <input checked="" type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated ( <i>structures for egg-laying by amphibians</i> ) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants ( <i>see H 1.1 for list of strata</i> )		5
Total for H 1	Add the points in the boxes above	17

**Rating of Site Potential** If score is:  15-18 = H  7-14 = M  0-6 = L *Record the rating on the first page*

<b>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</b> <i>Calculate:</i> % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = ____% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span> 20-33% of 1 km Polygon <span style="float: right;">points = 2</span> 10-19% of 1 km Polygon <span style="float: right;">points = 1</span> < 10% of 1 km Polygon <span style="float: right;">points = 0</span>		
<b>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</b> <i>Calculate:</i> % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = ____% Undisturbed habitat > 50% of Polygon <span style="float: right;">points = 3</span> Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span> Undisturbed habitat 10-50% and > 3 patches <span style="float: right;">points = 1</span> Undisturbed habitat < 10% of 1 km Polygon <span style="float: right;">points = 0</span>		
<b>H 2.3. Land use intensity in 1 km Polygon: If</b> > 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span> ≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span>		
Total for H 2	Add the points in the boxes above	-2

**Rating of Landscape Potential** If score is:  4-6 = H  1-3 = M  < 1 = L *Record the rating on the first page*

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></b> Site meets ANY of the following criteria: <span style="float: right;">points = 2</span> <input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m <span style="float: right;">points = 1</span> Site does not meet any of the criteria above <span style="float: right;">points = 0</span>		

**Rating of Value** If score is:  2 = H  1 = M  0 = L *Record the rating on the first page*

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- 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*).
- Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland 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 – see web link above*).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number: Forbes Lake Wetland

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Estuarine wetlands</b> Does the wetland meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt</p> <p style="text-align: right;"><input type="checkbox"/> Yes –Go to <b>SC 1.1</b>   <input checked="" type="checkbox"/> No= <b>Not an estuarine wetland</b></p>	
<p>SC 1.1. Is the wetland 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?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No - Go to <b>SC 1.2</b></p>	<b>Cat. I</b>
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25)  <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.  <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No= <b>Category II</b></p>	<b>Cat. I</b>  <b>Cat. II</b>
<p><b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b> SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?   <input type="checkbox"/> Yes – Go to <b>SC 2.2</b>   <input checked="" type="checkbox"/> No – Go to <b>SC 2.3</b>  SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?   <input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Not a WHCV</b>  SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>  <input type="checkbox"/> Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>   <input checked="" type="checkbox"/> No = <b>Not a WHCV</b>  SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?   <input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Not a WHCV</b></p>	<b>Cat. I</b>
<p><b>SC 3.0. Bogs</b> Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?   <input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input checked="" type="checkbox"/> No – Go to <b>SC 3.2</b>  SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?   <input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input checked="" type="checkbox"/> No = <b>Is not a bog</b>  SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?   <input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No – Go to <b>SC 3.4</b>  <b>NOTE:</b> 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 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.  SC 3.4. Is an area with peats or mucks forested (&gt; 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?   <input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No = <b>Is not a bog</b></p>	<b>Cat. I</b>

Wetland name or number: Forbes Lake Wetland

<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife’s forests as priority habitats? <b><i>If you answer YES you will still need to rate the wetland based on its functions.</i></b></p> <p><input type="checkbox"/> <b>Old-growth forests</b> (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p><input type="checkbox"/> Yes = <b>Category I</b>    <input checked="" type="checkbox"/> No = <b>Not a forested wetland for this section</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> Yes – Go to <b>SC 5.1</b>    <input checked="" type="checkbox"/> No = <b>Not a wetland in a coastal lagoon</b></p> <p><b>SC 5.1.</b> Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</p> <p><input type="checkbox"/> Yes = <b>Category I</b>    <input type="checkbox"/> No = <b>Category II</b></p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <b><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p><input type="checkbox"/> Yes – Go to <b>SC 6.1</b>    <input checked="" type="checkbox"/> No = <b>not an interdunal wetland for rating</b></p> <p><b>SC 6.1.</b> Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p><input type="checkbox"/> Yes = <b>Category I</b>    <input type="checkbox"/> No – Go to <b>SC 6.2</b></p> <p><b>SC 6.2.</b> Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p><input type="checkbox"/> Yes = <b>Category II</b>    <input type="checkbox"/> No – Go to <b>SC 6.3</b></p> <p><b>SC 6.3.</b> Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p><input type="checkbox"/> Yes = <b>Category III</b>    <input type="checkbox"/> No = <b>Category IV</b></p>	<p><b>Cat I</b></p> <p><b>Cat. II</b></p> <p><b>Cat. III</b></p> <p><b>Cat. IV</b></p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p><b>NA</b></p>

Figure 1. Cowardin classes



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



**LEGEND**

**Blue:** open water

**Green:** palustrine forested

**Orange:** palustrine scrub-shrub

**Yellow:** palustrine emergent

**Forbes Lake Park  
Cowardin Classification Sketch**  
Prepared for:  
Aaron McDonald,  
City of Kirkland Public Works

Forbes Lake Park and vicinity  
9501 124th Ave NE  
Kirkland, WA 98033

TWC Ref. No. 120622.74

**Note:** The polygons below are visual approximations based on aerial photography and are not to scale.

Figure 2. Hydroperiods and outlet



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



LEGEND
<b>Light blue:</b> Drainage channel
<b>Dark blue:</b> Permanently flooded
<b>Green:</b> Seasonally inundated
<b>Yellow:</b> Saturated only
<b>Red arrow:</b> Seasonally flowing stream into wetland

**Forbes Lake Park  
Hydroperiod and Outlet  
Sketch**  
Prepared for:  
Aaron McDonald,  
City of Kirkland Public Works

Forbes Lake Park and vicinity  
9501 124th Ave NE  
Kirkland, WA 98033

TWC Ref. No. 120622.74

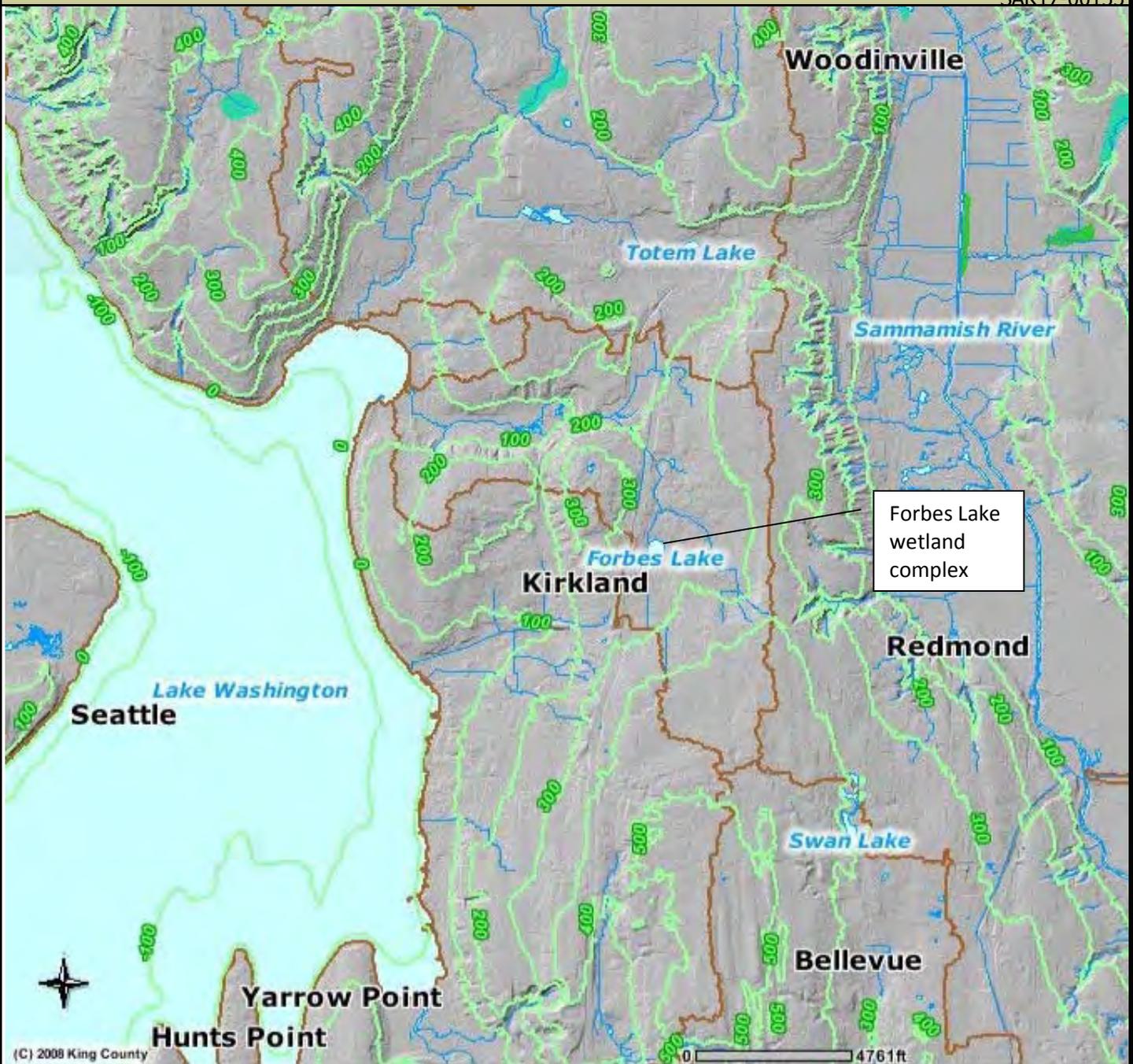
**Note:** The polygons are visual approximations based on aerial photography and are not to scale.



Figure 4. Basin boundary

# Forbes Creek Basin

Attachment 6  
Dummer Buffer Mod  
SAR17-00155



Forbes Lake  
wetland  
complex

(C) 2008 King County

- |                             |                                   |
|-----------------------------|-----------------------------------|
| County Boundary             | <b>Legend</b>                     |
| Mountain Peaks              | <b>Wetlands (1990 Survey)</b>     |
| Contours (100ft light)      | King County Wetland Survey        |
| King County Drainage Basins | National Wetland Inventory Survey |
| Lakes and Large Rivers      | Shaded Relief                     |
| Streams                     |                                   |

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.

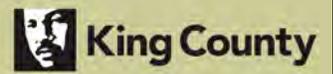




Figure 6. 303d list

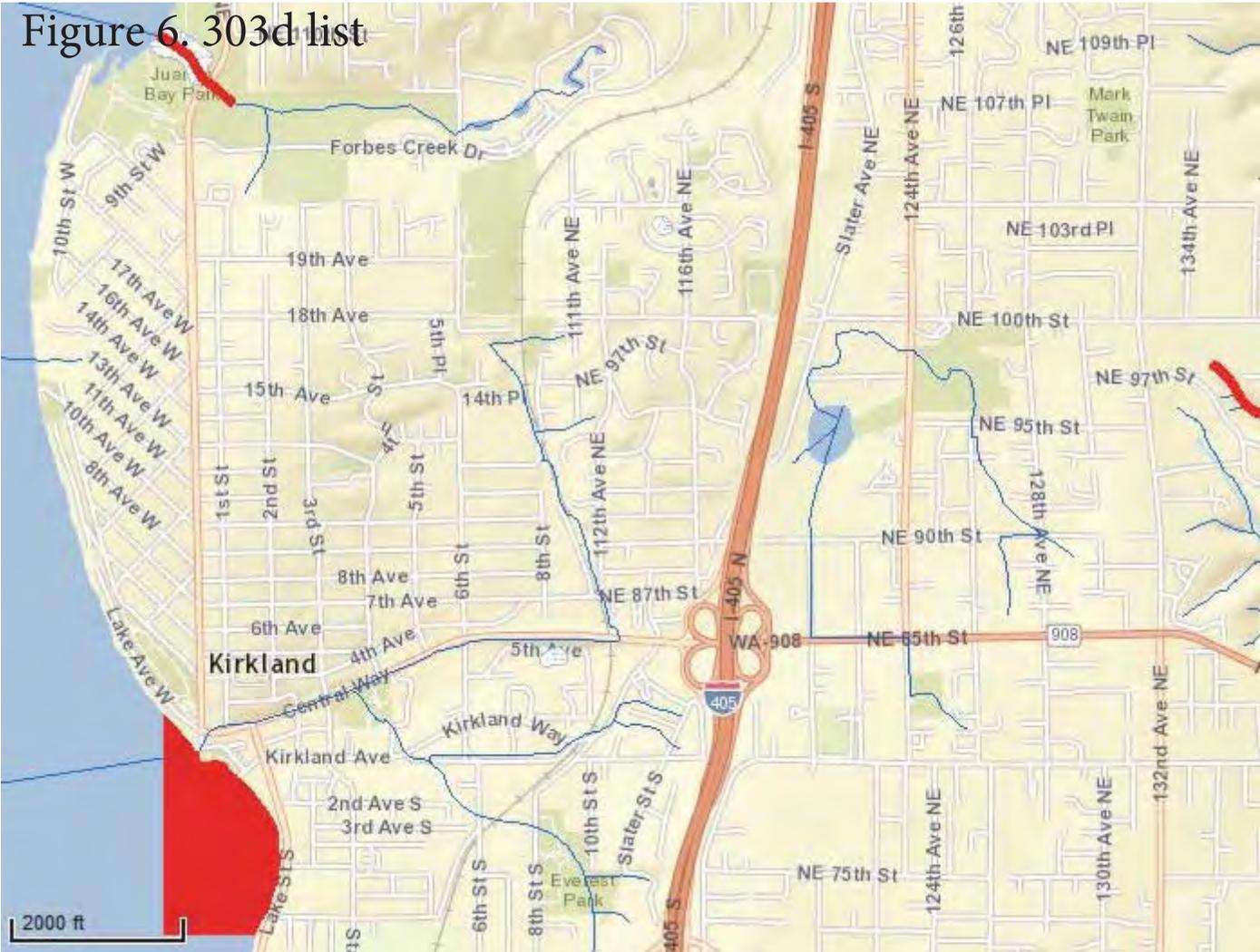
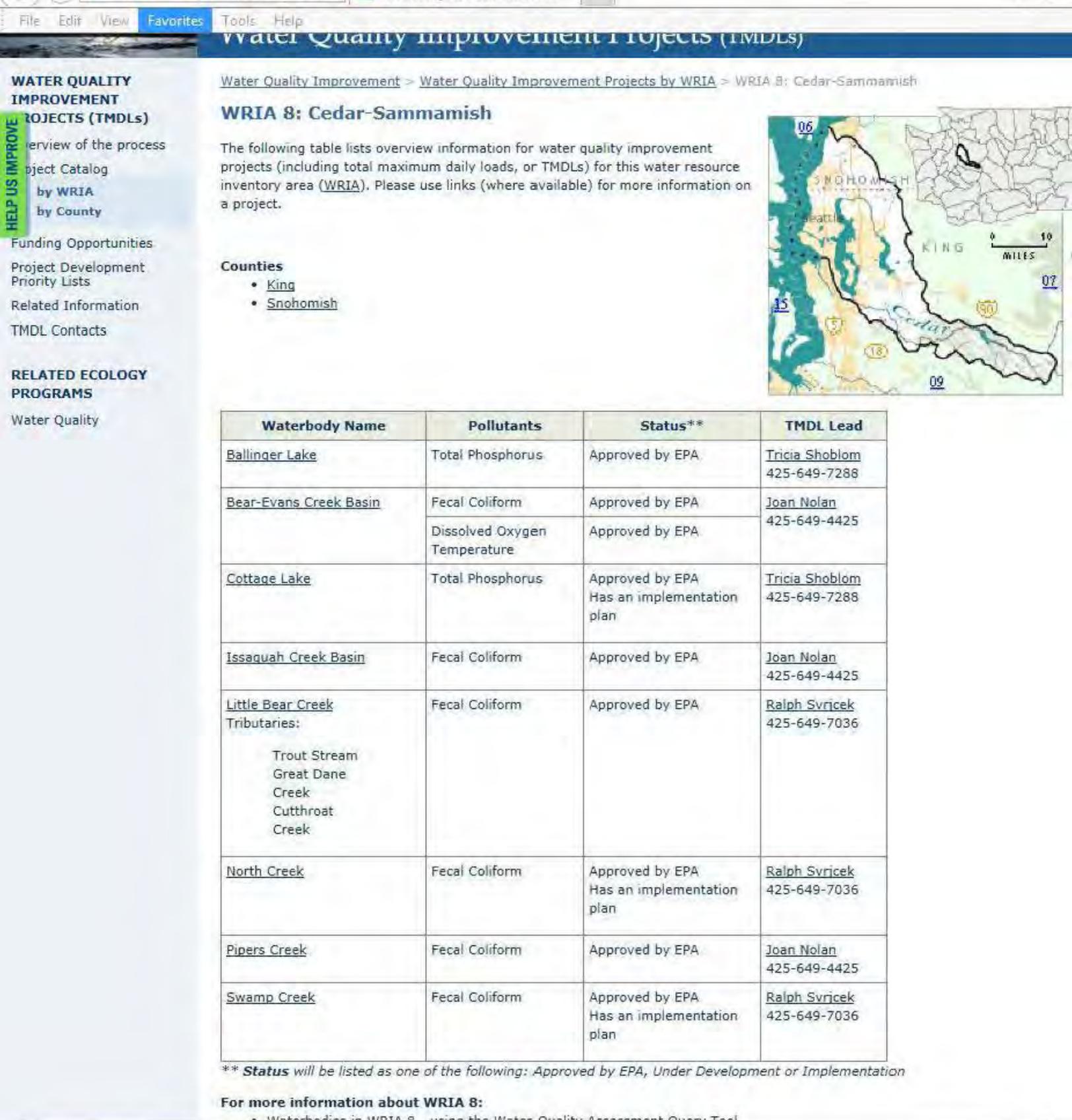


Figure 7. TMDL list for WRIA 8



**WETLAND FIELD DATA FORM – Anderson property located at  
9252 Slater Avenue NE, Kirkland, WA 98033.**

Rating done on November 20, 2014 by The Watershed Company.



**WETLAND FIELD DATA FORM**

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

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

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

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

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

**1. Total wetland area**

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

(points)

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

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

(points)

**3. Plant species diversity.**

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

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

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

( points)

**4. Structural diversity.**

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

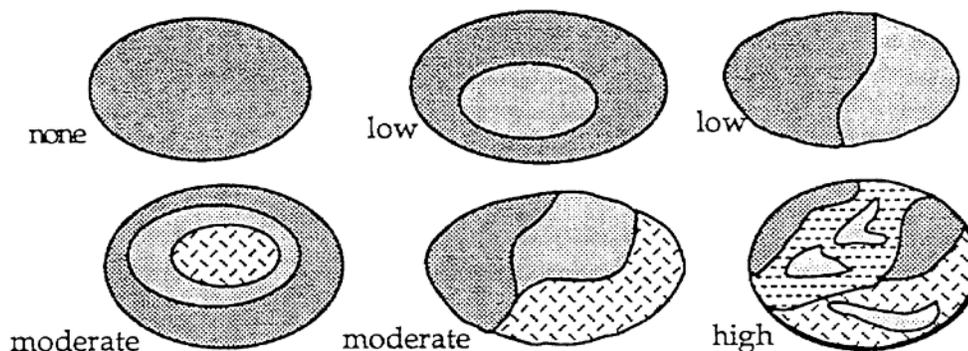
- Trees >50' tall = 1
- Trees 20' to 49' tall = 1
- shrubs = 1
- Herbaceous ground cover = 1

( points)

**5. Interspersion between wetland classes.**

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

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



( points)

**6. Habitat features**

Add points associated with each habitat feature listed:

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

( points)

**7. Connection to streams**

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

Is the wetland connected at any time of the year via surface water?

- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = 3
- Is not connected to any stream = 0

( points)

**8. Buffers**

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

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	<u>40 %</u>	X 0 = <u>0</u>	<u>        </u> =	<u>        </u>
Lawn, grazed pasture, vineyards or annual crops	<u>60 %</u>	X 1 = <u>60</u>	<u>3</u> =	<u>180</u>
Ungrazed grassland or orchards	<u>        </u> %	X 2 = <u>        </u>	<u>        </u> =	<u>        </u>
Open water or native grasslands	<u>        </u> %	X 3 = <u>        </u>	<u>        </u> =	<u>        </u>
Forest or shrub	<u>        </u> %	X 4 = <u>        </u>	<u>        </u> =	<u>        </u>
			Add buffer total	<u>        </u>

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

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3

300-599 = 2

100-299 = 1

**( points)**

**9. Connection to other habitat areas:**

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

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

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

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

**( points).**

**10. Scoring**

Add the scores to get a total: \_\_\_\_\_

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

Answer:

Yes = Type 2

No = Type 3

**From:** Rob Stubblefield <RAStubblefield74@hotmail.com>  
**Sent:** Monday, June 05, 2017 4:01 PM  
**To:** Susan Lauinger  
**Subject:** permit number SAR17-00155

My name is Rob Stubblefield, at 9530 Slater Ave in Kirkland. Email address is [RAStubblefield74@hotmail.com](mailto:RAStubblefield74@hotmail.com).

In reference to permit number SAR17-00155.

I have a problem with this request in that when we built our house here 7 years ago, we were told we could absolutely not have any buffer modification and we were required to have a car port instead of a garage because we were not going to be allowed any modification. We were also told that we "had better hurry up" because all of the wetland restrictions were going to be increased in a few months (from 7 years ago) and that we might not even get the house that we had already been approved for if we didn't get finished quickly.

Now, years later, people are requesting Wetland Buffer Modifications for things we were not allowed to have 7 years ago. Seems wrong to me.

Rob Stubblefield

**From:** Sara Borthwick <saraborthwick@gmail.com>  
**Sent:** Monday, May 29, 2017 8:06 PM  
**To:** Susan Lauinger  
**Subject:** Re: comments on SAR17-00155

One more thing: According to 90.140 "Structure Setback from Critical Area Buffer", buildings and other structures shall be set back at least 10 feet from the edge of the wetland or stream to ensure adequate width for construction staging, maintenance and repair of primary buildings and accessory structures..." The proposed detached garage with second story living quarters is exactly 75 ft from the lake edge. Even with the wetlands buffer modified from 100 ft to 75 ft, as requested in application SAR17-00155, the structure would not have the necessary 10 ft. set back from the wetlands buffer.

On Mon, May 29, 2017 at 8:00 PM, Sara Borthwick <[saraborthwick@gmail.com](mailto:saraborthwick@gmail.com)> wrote:

Hi Susan Lauinger,

I am writing because I do not think that Isaiah Dummer's application to reduce the Type 1 Wetland Buffer by 25% (from 100 ft to 75 ft), thereby moving to a Type IV Wetland Buffer in order to build a 4.5x larger new house should be approved. This is case number SAR17-00155.

There are 3 reasons why I do not think that the application should be approved.

1) Forbes Lake floods in winter. This winter, the lake flooded 65 feet of the wetlands buffer in front of the Lockshire condos and submerged the boardwalk multiple times. The current buffer is set from late summer lake levels. By reducing the buffer from 100 ft to 75 ft, Mr Dummer's proposed house would be very close to the 2016/2017 high water mark.

Should we have more wet winters like the one we just had, and Mr. Dummer's house gets flooded because its wetlands buffer is so small, everyone will pay. First, insurance premiums will rise for all Forbes Lake properties. Second, in order to mitigate insurance premium rises, pressure will be exerted on the City of Kirkland to better manage Forbes Lake water levels, likely resulting in an expensive civil engineering project that transforms Forbes Lake from a rare natural urban lake to a managed lake, diminishing its character and value to wildlife and future generations.

2) Chapter 90 code says that Wetland Buffers can be reduced by up to one-fourth (25%) (going from 100 ft to 75 ft) if the applicant covers the buffer with native vegetation. Native cover would mean that at least 80 percent of the buffer area has a mix of multi-age forest canopy, shrubs and woody ground cover with native plants and no lawn. Nowhere in the public application does it indicate that Mr. Dummer is committing to covering the wetland buffer with native vegetation. Instead, the plans show that Mr. Dummer will be removing 7 mature trees and the existing 1,060 sq ft house to build a 4,600+ sq ft house that comes within inches of the north and south property lines and has the minimum required road set back. In addition, the schematics show a retaining wall between the proposed house and the lake, suggesting a graded outdoor area connected with the house (a lawn perhaps).

The removal of 7 mature trees, the full use of the every inch of buildable space to create a 4.5x larger house, and the addition of retaining walls suggest that Mr. Dummer is not planning to create and maintain native vegetation if he gets the Wetlands Buffer mitigation. If he is proposing a native vegetation mitigation, his proposal should be viewed with deep skepticism.

3) Wetlands are vital to the larger ecosystem, at high risk of loss and need to be protected. When natural wetlands, such as Forbes Lake, are lost, they cannot be replaced. The US has already lost ~50% of its wetlands, and with increased development in the Puget Sound area, our wetlands are at great risk. Created/enhanced/restored wetlands do not function similarly to natural wetlands (Kentula 1996; Street 1998). Forbes Lake is a natural lake with natural wetlands. It is a breeding ground for cutthroat trout, frogs, dragonflies, fish, and more, attracting many migratory songbirds, ducks, and geese. It feeds Forbes Creek which flows into Lake Washington. In 2006/2007 a project was taken to enhance this environmental treasure. In 2016, the City of Kirkland adopted new Wetlands building ordinances to protect our wetlands. Please don't turn back the clock and destroy wetlands that cannot be replaced.

Please keep this precious natural resource natural by maintaining the existing wetland buffers.

My full name is Sara Borthwick. I live at 12307 NE 97th St. Unit D, Kirkland WA 98033. I can be reached at [saraborthwick@gmail.com](mailto:saraborthwick@gmail.com) or [310-625-5131](tel:310-625-5131). I look forward to attending the hearing when a date is set.

-Sara

--

-----  
Sara Borthwick  
[saraborthwick@gmail.com](mailto:saraborthwick@gmail.com)  
(310) 625-5131

**From:** larilene@aol.com  
**Sent:** Saturday, June 03, 2017 7:36 AM  
**To:** Susan Lauinger  
**Subject:** Permit # SAR17-00155

Dear Ms. Lauinger

I would like to share my objections to the reduction of the Wetland Buffer as requested in building permit SAR17-00155. Forbes Lake is a very delicate wetlands area and I fear a reduction of the mandated buffer could result in a cascading series of changes which could result in the marginalization of the natural balance.

While I fully agree with the right of property owners to be able to make use of their asset, I do think that the elements that make this area so unique need to be protected. Property owners need to comply with the existing series of controls and reduce density or violating the protections that this wetland area requires.

Thank you for your consideration.

Lawrence Dessler  
12307 NE 97<sup>th</sup> Street  
Kirkland, WA 98033  
425-867-0399

Sent from [Mail](#) for Windows 10

**From:** Sara Borthwick <saraborthwick@gmail.com>  
**Sent:** Monday, May 29, 2017 8:01 PM  
**To:** Susan Lauinger  
**Subject:** comments on SAR17-00155

Hi Susan Lauinger,

I am writing because I do not think that Isaiah Dummer's application to reduce the Type I Wetland Buffer by 25% (from 100 ft to 75 ft), thereby moving to a Type IV Wetland Buffer in order to build a 4.5x larger new house should be approved. This is case number SAR17-00155.

There are 3 reasons why I do not think that the application should be approved.

1) Forbes Lake floods in winter. This winter, the lake flooded 65 feet of the wetlands buffer in front of the Lockshire condos and submerged the boardwalk multiple times. The current buffer is set from late summer lake levels. By reducing the buffer from 100 ft to 75 ft, Mr Dummer's proposed house would be very close to the 2016/2017 high water mark.

Should we have more wet winters like the one we just had, and Mr. Dummer's house gets flooded because its wetlands buffer is so small, everyone will pay. First, insurance premiums will rise for all Forbes Lake properties. Second, in order to mitigate insurance premium rises, pressure will be exerted on the City of Kirkland to better manage Forbes Lake water levels, likely resulting in an expensive civil engineering project that transforms Forbes Lake from a rare natural urban lake to a managed lake, diminishing its character and value to wildlife and future generations.

2) Chapter 90 code says that Wetland Buffers can be reduced by up to one-fourth (25%) (going from 100 ft to 75 ft) if the applicant covers the buffer with native vegetation. Native cover would mean that at least 80 percent of the buffer area has a mix of multi-age forest canopy, shrubs and woody ground cover with native plants and no lawn. Nowhere in the public application does it indicate that Mr. Dummer is committing to covering the wetland buffer with native vegetation. Instead, the plans show that Mr. Dummer will be removing 7 mature trees and the existing 1,060 sq ft house to build a 4,600+ sq ft house that comes within inches of the north and south property lines and has the minimum required road set back. In addition, the schematics show a retaining wall between the proposed house and the lake, suggesting a graded outdoor area connected with the house (a lawn perhaps).

The removal of 7 mature trees, the full use of the every inch of buildable space to create a 4.5x larger house, and the addition of retaining walls suggest that Mr. Dummer is not planning to create and maintain native vegetation if he gets the Wetlands Buffer mitigation. If he is proposing a native vegetation mitigation, his proposal should be viewed with deep skepticism.

3) Wetlands are vital to the larger ecosystem, at high risk of loss and need to be protected. When natural wetlands, such as Forbes Lake, are lost, they cannot be replaced. The US has already lost

~50% of its wetlands, and with increased development in the Puget Sound area, our wetlands are at great risk. Created/enhanced/restored wetlands do not function similarly to natural wetlands (Kentula 1996; Street 1998). Forbes Lake is a natural lake with natural wetlands. It is a breeding ground for cutthroat trout, frogs, dragonflies, fish, and more, attracting many migratory songbirds, ducks, and geese. It feeds Forbes Creek which flows into Lake Washington. In 2006/2007 a project was taken to enhance this environmental treasure. In 2016, the City of Kirkland adopted new Wetlands building ordinances to protect our wetlands. Please don't turn back the clock and destroy wetlands that cannot be replaced.

Please keep this precious natural resource natural by maintaining the existing wetland buffers.

My full name is Sara Borthwick. I live at 12307 NE 97th St. Unit D, Kirkland WA 98033. I can be reached at [saraborthwick@gmail.com](mailto:saraborthwick@gmail.com) or 310-625-5131. I look forward to attending the hearing when a date is set.

-Sara



February 21, 2017

Mr. Isaiah Dummer  
ID Construction Group  
9252 Slater Avenue NE  
Kirkland, WA. 98033

RE: Slater Avenue – Wetland Buffer Reduction  
R.A.I. Project #2017-084-001

Dear Mr. Dummer:

At your request, Raedeke Associates, Inc. staff visited the property at 9252 Slater Avenue, in Kirkland Washington on February 17, 2017. The purpose of our site visit was to verify the previously delineated wetland boundary and WDOE (2014) wetland rating prepared by the Watershed Company in 2014. In addition, we evaluated the onsite buffer conditions in order to evaluate and prepare a buffer reduction and enhancement plan suitable for submission to the City of Kirkland, Washington. This report provides a summary of our findings and is intended for planning purposes only.

**PROPERTY LOCATION**

The Slater Avenue Kirkland project site is comprised of a 0.45-acre parcel located at 9252 Slater Avenue NE in the City of Kirkland, Washington (Figure 1). The property is identified by King County Tax Parcel no. 1238500690. This places the project site in a portion of Section 4, Township 25 North, Range 5 East, W.M. Maps retrieved online from King County depict the property location.

The property is bordered to the north and south by single-family residences, to the east by Forbes Lake, and to the west by single-family homes and the Interstate 405 corridor. The property currently contains a single-family home with a garage and outbuildings.

**METHODOLOGY**

Wetlands and streams are protected by federal law as well as by state and local regulations. Federal law (Section 404 of the Clean Water Act) prohibits the discharge of dredged or fill material into “Waters of the United States,” including certain wetlands, without a permit from the U.S. Army Corps of Engineers (COE 2012). The COE makes the final determination whether an area meets the definition of a wetland and whether the wetland is under their jurisdiction.

Mr. Issaiah Dummer  
February 22, 2017  
Page 2

The COE wetland definition was used to determine if any portions of the project area could be classified as wetland. A wetland is defined as an area “inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Federal Register 1986:41251).

We based our investigation upon the guidelines of the U. S. Army Corps of Engineers (COE) Wetlands Delineation Manual (Environmental Laboratory 1987) and subsequent amendments and clarifications provided by the COE (1991a, 1991b, 1992, 1994), as updated for this area by the regional supplement to the COE wetland delineation manual for the Western Mountains, Valleys, and Coast Region (COE 2010). The COE wetlands manual is required by state law (WAC 173-22-035, as revised) for all local jurisdictions, including the City of Kirkland.

## **BACKGROUND REVIEW**

Prior to conducting our site visit, we reviewed existing background maps and information from the U.S.D.A Natural Resources Conservation Service (2017) Web Soil Survey, the U.S. Fish and Wildlife Service (USFWS 2017) National Wetland Inventory (NWI), and King County iMap (2017) database in order to assist in our determination of whether wetlands were present within the property or its vicinity. We also reviewed current and historical aerial photographs (Google Earth 2017) to assist in the definition of existing plant communities, drainage patterns, and land use.

The USDA NRCS (2017) Web Soil Survey shows that the study area consists of Alderwood gravelly sandy loam soils, a non-hydric soil. A portion of the Forbes Lake wetland complex is identified as Tukwilla Muck, a hydric soil of the state of Washington (U.S.D.A. Soil Conservation Service 1991, Federal Register 1995). Soil series boundaries or mapping units are mapped from aerial photographs with limited field verification. Thus, the location and extent of the boundaries between mapping units may be approximate for a given parcel of land within the survey area.

The USFWS (2017) NWI does not depict wetlands on the Slater Avenue property, however there are several mapped wetlands within the Forbes Lake wetland complex adjacent to the site. Portions of the complex are mapped as palustrine, forested (PFO), palustrine scrub-shrub (PSS), and palustrine, emergent (PEM) (Cowardin et al. 1992). Wetlands shown on the NWI are general in terms of locations and extent, as they are determined primarily from aerial photograph interpretation. Thus, the number and extent of existing wetlands located within the project area may differ from those marked on an NWI map.

Mr. Issaiah Dummer  
February 22, 2017  
Page 3

## **FINDINGS**

We conducted a site investigation on February 17, 2017 to verify the delineated wetland boundary and WDOE (2014) wetland rating prepared by the Watershed Company. The onsite wetland (Wetland A) is associated with the Forbes Lake wetland complex and extends off-site to the north, south, and east contains a mixture of palustrine, forested (PFO), palustrine, scrub-shrub (PSS), and palustrine, emergent (PEM) vegetation communities (Figure 2).

During our site investigation, we were only able to located two of the Watershed Company wetland delineation flags; however based on the topography of the site and the location we agree that the delineation appears to be consistent with the edge of the wetland. The onsite portion of the wetland is comprised hydrophytic vegetation communities consisting of a mixture of Douglas meadowsweet (*Spiraea douglasii*, FACW), soft rush (*Juncus effusus*, FACW), reed canarygrass (*Phalaris arundinacea*, FACW), and creeping buttercup (*Ranaculus repens*, FAC). We found that soils in the onsite wetland consisted of up to 12 inches of (10YR 2/2) muck soils. In addition, soils were saturated to the surface and we observed standing water within a portion of the wetland during our field investigation.

## **CLASSIFICATION AND DETERMINATION**

As stated above, Wetland A meets criteria to be regulated as a Category II under the WDOE (2014) wetland rating because it scored a total of 21 points (7 points for habitat functions) on the wetland rating form. In addition, the City of Kirkland classifies wetlands based on their position within drainage basins and habitat provided.

Wetland A would is classified as a Type 1 under City of Kirkland Zoning Code 2016 (KZC) because it is part of the Forbes Lake wetland complex and contains more than 1/4 acre organic soils and is greater than 10 acres with more than three Cowardin classes. The wetland is also located in a primary basin according to KZC 90.30. Type 1 wetlands in a primary basin are provided a 100-foot wide buffer under Kirkland Zoning Code. Structures must also be set back additional 10-feet from the designated buffer edge. The City of Kirkland Code Section 90.55 allows modifications to Type 1 buffers if certain criteria are met.

## **PROPOSED BUFFER REDUCTION**

Portions of the existing house, garage, outbuildings, and lawn are currently located within the wetland buffer and are considered existing, non-conforming uses. In general, the majority of the onsite wetland buffer is currently maintained as a lawn and consists primarily of mowed grasses and herbaceous cover. The applicant proposes to reduce the standard wetland buffer from 100-feet to 75-feet to accommodate a new residential development on the western portion of the property. As part of the project, enhancement

Mr. Issaiah Dummer  
February 22, 2017  
Page 4

within the reduced buffer will include removal of invasive species including Himalayan blackberry and reed canarygrass and planting of native plant species (Figure 3).

Modifications of wetland buffers are allowed under City of Kirkland Zoning Code Section 90.60. Wetland buffers may be reduced through either buffer averaging or buffer reductions with enhancement. Buffer width averaging is not practical on the site as it is almost entirely within the standard 100-foot-wide buffer. Section 90.60(2) allows for buffer reductions if the applicant demonstrates that through enhancing the wetland buffer (by removal of invasive plants, planting native vegetation, installing habitat features such as downed logs or snags, or other means) the reduced buffer will function at a higher level than the existing standard buffer. Modification requests for buffer reduction/enhancement shall be considered by the Hearing Examiner. An improvement or land surface modification shall be approved in a wetland buffer only if:

- 1) It is consistent with Kirkland's Streams, Wetlands, and Wildlife Study (The Watershed Company, 1998) and the Kirkland Sensitive Areas Regulatory Recommendations Report (Adolfson Associates, Inc., 1998);
- 2) It will not adversely affect water quality;
- 3) It will not adversely affect fish, wildlife, or their habitat;
- 4) It will not have an adverse effect on drainage and/or storm water detention capabilities;
- 5) It will not lead to unstable earth conditions or create an erosion hazard;
- 6) It will not be materially detrimental to any other property or the City as a whole;
- 7) Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;
- 8) All exposed areas are stabilized with vegetation normally associated with native wetland buffers, as appropriate; and
- 9) There is no practicable or feasible alternative development proposal that results in less impact to the buffer.

Specifically, the proposed buffer reduction/enhancement plan meets the City of Kirkland (2016) requirements listed above in the following ways:

- 1) The project will be consistent with the guidance provided in the Kirkland's Streams, Wetlands, and Wildlife Study (The Watershed Company, 1998) and the Kirkland Sensitive Areas Regulatory Recommendations Report (Adolfson Associates, Inc., 1998). The proposed wetland buffer enhancement will focus on removal of invasive plant

Mr. Issaiah Dummer  
February 22, 2017  
Page 5

species and replanting of native plants within the currently degraded buffer area. This will result in a net gain in hydrologic, water quality, and habitat functions.

2) The proposed buffer reduction will not adversely affect water quality. The current buffer is degraded and is currently maintained as a grass lawn. The topography of the site is such that stormwater currently leaving the existing house and outbuildings flows through the grass and herbaceous cover of the lawn directly into the Forbes Lake Wetland Complex. As part of the reduction, buffer enhancement will plant a variety of native trees and shrubs that will allow for increased stormwater detention, thus improving the ability of the wetland buffer to provide better water quality functions.

3) The proposed buffer reduction and enhancement would not adversely impact on fish or wildlife, or their habitat. The wetland buffer is currently maintained as a lawn and it appears that a view corridor to Forbes Lake has been historically maintained. Trees and shrubs would be planted within the reduced buffer and would increase the potential fish and wildlife habitat available onsite.

4) The proposed buffer reduction and enactment will not have a negative effect on drainage or stormwater detention. As stated above, the reduced buffer will be enhancement with a variety of native trees and shrubs. The proposed enhancement would result in a net gain in the ability of the buffer to detain stormwater. The addition of tree and shrubs in the wetland buffer will provide additional detention of stormwater and allow for increased infiltration and treatment before entering into Forbes Lake.

5) The proposed project will not lead to an increase in erosion. Any area of the buffer that is disturbed during construction will be stabilized with proper Best Management Practices (BMPs). The retained reduced buffer would not be significantly disturbed during enhancement.

6) The project will not materially impact any adjacent properties and is not anticipated to adversely impact any City of Kirkland property.

7) The project will not result in the placement of any fill materials within the wetland or its associated buffers.

8) The project will comply with TESC measures and appropriate BMPs will be selected to stabilize any exposed soils. Temporarily impacted areas within the reduced wetland buffer resulting from the removal of invasive species (Himalayan blackberry and reed canarygrass) will be planted with vegetation normally associated with native wetland buffers.

9) Portions of the existing development are already located within the 100-foot wetland buffer. No feasible alternative for redevelopment of the property exists without buffer reduction and enhancement. The function provided by the reduced wetland buffer after

Mr. Issaiah Dummer  
February 22, 2017  
Page 6

enhancement is anticipated to provide greater water quality, hydrologic, and habitat function than is currently provided.

## LIMITATIONS

We have prepared this report for the exclusive use of Mr. Isaiah Dummer and his consultants. No other person or agency may rely upon the information, analysis, or conclusions contained herein without permission from Mr. Isaiah Dummer.

The determination of ecological system classifications, functions, values, and boundaries is an inexact science, and different individuals and agencies may reach different conclusions. With regard to wetlands, the final determination of their boundaries for regulatory purposes is the responsibility of the various resource agencies that regulate development activities in wetlands. We cannot guarantee the outcome of such agency determinations. Therefore, the conclusions of this report should be reviewed by the appropriate regulatory agencies prior to any detailed site planning or construction activities.

We warrant that the work performed conforms to standards generally accepted in our field, and that this work was prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis of the information provided by the project proponents and their consultants, together with information gathered in the course of this study. No other warranty, expressed or implied, is made.

Thank you for the opportunity to prepare this material for you. If you have any questions, please do not hesitate to call us at (206) 525-8122.

Respectfully submitted,

RAEDEKE ASSOCIATES, INC.



Kolten Kosters, PWS  
Wetland Scientist

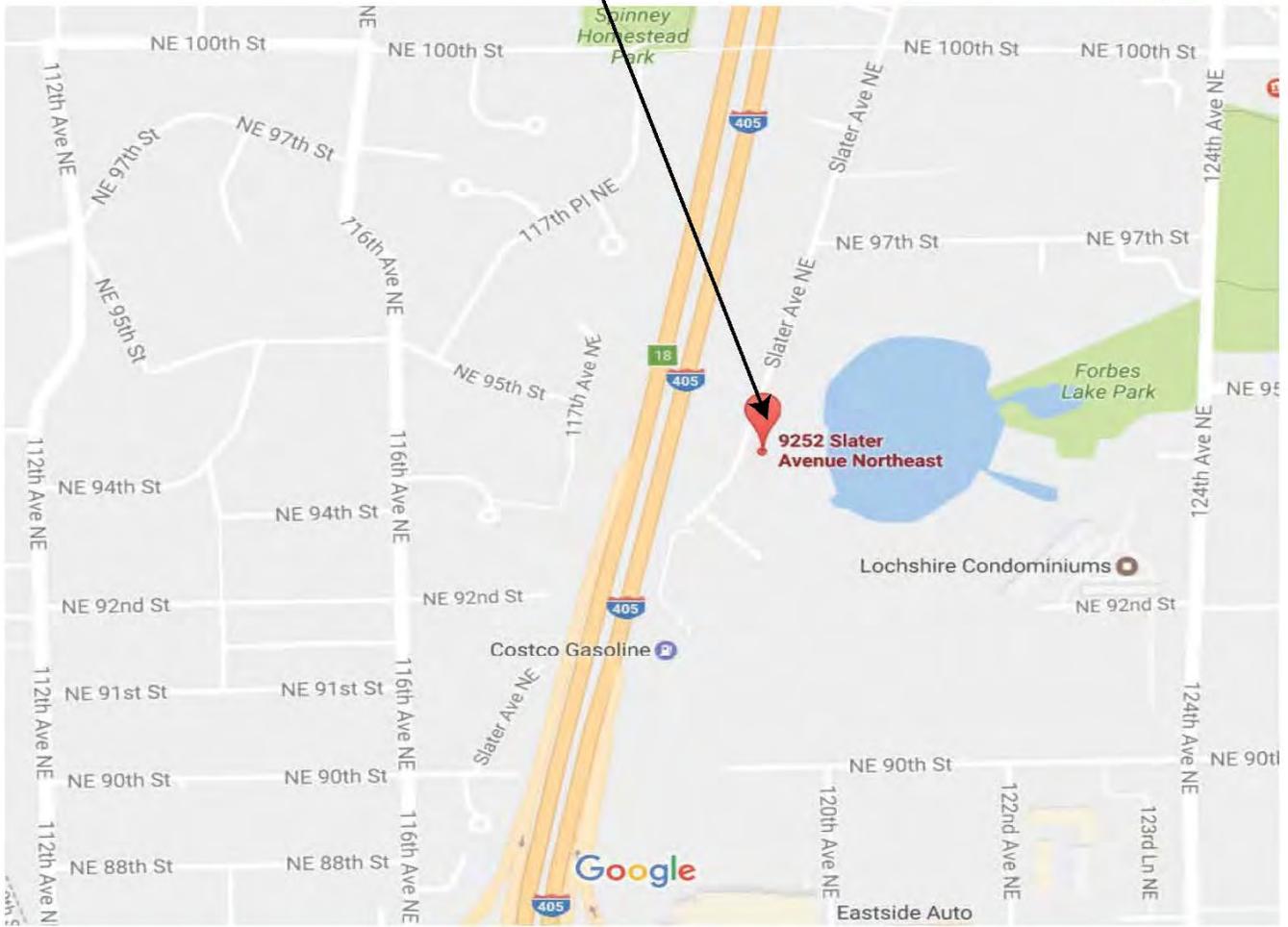
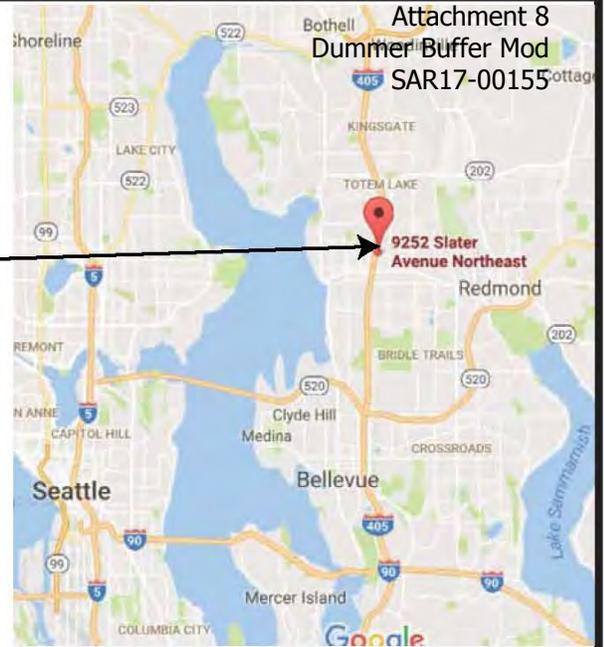
## LITERATURE CITED

- Adolfson Associates, Inc. 1998. Kirkland Sensitive Areas Regulatory Recommendations Report. August 31, 1998.
- Cowardin, L., F. Golet, V. Carter, and E. LaRoe. 1992. Classification of wetlands and deepwater habitats of the United States. U.S.D.I. Fish and Wildlife Service Publ. FWS/OBS-79/31. 103 pp.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, US Army Engineers Waterways Experiment Station, Vicksburg, Mississippi. 100 pp.
- Federal Register. 1986. 40 CFR Parts 320 through 330: Regulatory programs of the Corps of Engineers; final rule. Vol. 51. No. 219. pp. 41206-41260, U.S. Government Printing Office, Washington, D.C.
- Federal Register. 1995. U.S. Department of Agriculture, Soil Conservation Service: Changes in Hydric Soils of the United States. Volume 59, No 133, July 13, 1994. Revised September 15, 1995.
- Google Earth. 2017. Image for 47.685737° N -122.181306° E in Kirkland, WA. © 2017 Google. Accessed February 17, 2017.
- Hruby, T. 2014. Washington State wetlands rating system for western Washington: 2014 Update. Washington State Department of Ecology, Publication No. 14-06-029. October 2014.
- King County. 2017. iMAP GIS Interactive map center, King County, Washington. [http://www.metrokc.gov/gis/iMAP\\_main.htm#](http://www.metrokc.gov/gis/iMAP_main.htm#). Accessed February 17, 2017.
- Kirkland, City of. 2016. Kirkland Municipal Code. Chapter 90.60. <http://www.codepublishing.com/wa/kirkland/>. Accessed February 22, 2017.
- U.S. Army Corps of Engineers. 1991a. Special notice. Subject: Use of the 1987 wetland delineation manual. U.S. Army Corps of Engineers, Seattle District. August 30, 1991.

Mr. Issaiah Dummer  
February 22, 2017  
Page 8

- U.S. Army Corps of Engineers. 1991b. Memorandum. Subject: Questions and answers on the 1987 manual. U.S. Army Corps of Engineers, Washington D.C. October 7, 1991. 7 pp. including cover letter by John P. Studt, Chief, Regulatory Branch.
- U.S. Army Corps of Engineers. 1992. Memorandum. Subject: Clarification and interpretation of the 1987 methodology. U.S. Army Corps of Engineers, Washington D.C., March 26, 1992. 4 pp. Arthur E. Williams, Major General, U.S.A. Directorate of Civil Works.
- U.S. Army Corps of Engineers. 1994. Public Notice. Subject: Washington regional guidance on the 1987 wetland delineation manual. May 23, 1994, Seattle District. 8 pp.
- U.S. Army Corps of Engineers. 2010. Regional supplement to the Corps of Engineers wetland delineation manual: western mountains, valleys, and coast region (Version 2.0). Wakeley, J.S., R.W. Lichvar, and C.V. Noble, eds. May 2010. ERDC/EL TR-10-3. U.S. Army Engineer Research and Development Center, Vicksburg, MS.
- U.S. Army Corps of Engineers. 2012. Special Public Notice. Final Regional Conditions, 401 Water Quality Conditions, Coastal Zone Management Consistency Responses, for Nationwide Permits for the Seattle District Corps of Engineers for the State of Washington. U.S. Army Corps of Engineers, Seattle District. March 19, 2012.
- U.S.D.A., Soil Conservation Service. 1991. Hydric soils of the United States: In cooperation with the National Technical Committee for Hydric Soils. U.S.D.A. Miscellaneous Publication Number 1491.
- U.S.D.A. Natural Resources Conservation Service. 2017. On-line Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov>. Accessed February 17, 2017.
- U.S. Fish and Wildlife Service. 2017. National Wetland Inventory, Wetlands Online Mapper. <http://wetlandfws.er.usgs.gov/wtlnds/launch.html> . Accessed February 17, 2017.
- Watershed Company. 2014. Anderson Property on Forbes Lake - Wetland Delineation Report. November 26, 2014.
- Watershed Company. 1998. Kirkland's Streams, Wetlands, and Wildlife Study. July 1998.

PROJECT LOCATION



**FIGURE 1**  
VICINITY MAP  
SLATER AVENUE  
KIRKLAND, WA

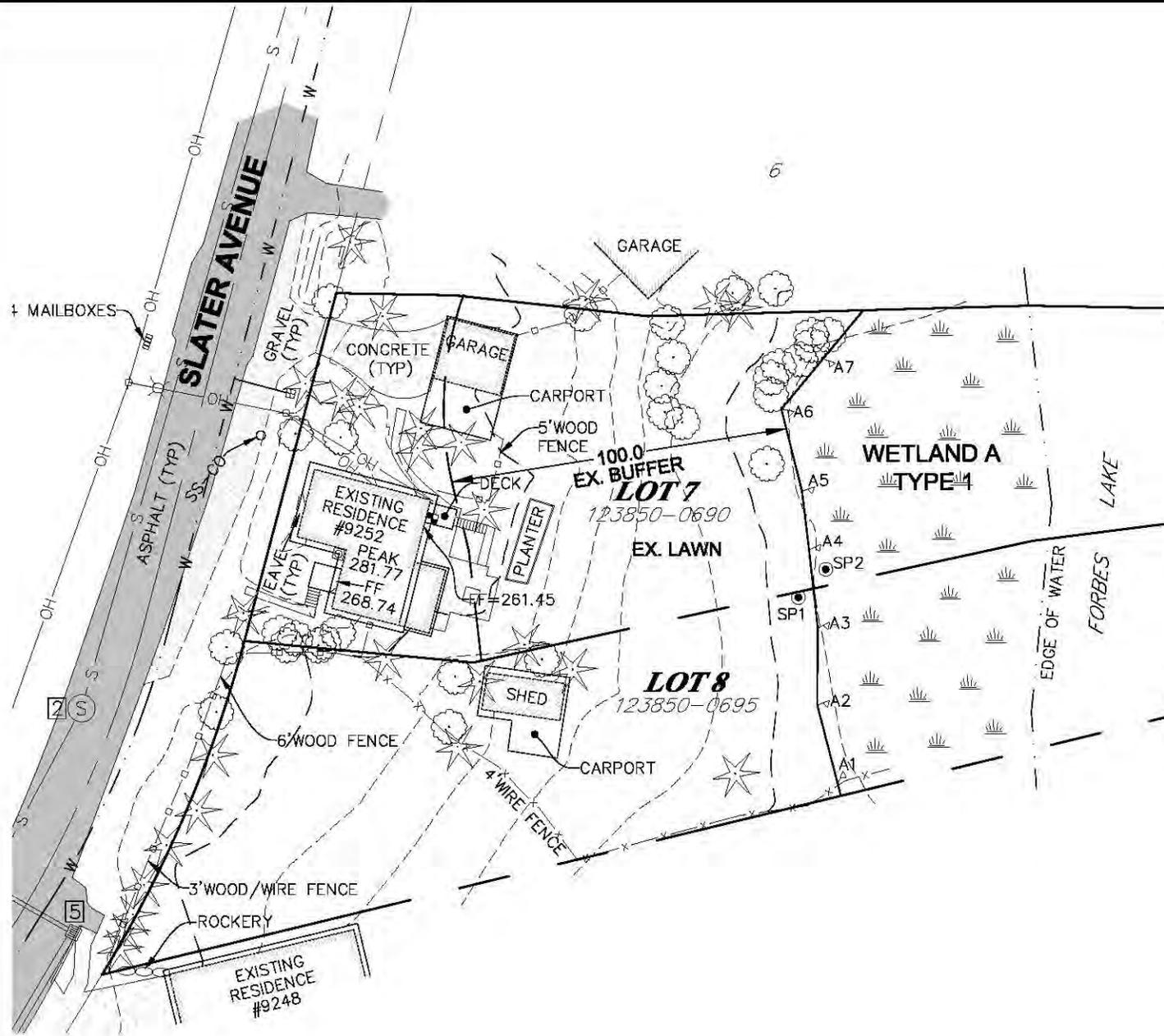


2111 N. Northgate Way, Ste. 219  
Seattle, WA 98133

2016-084

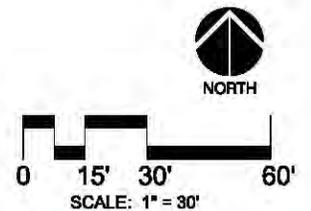


**FIGURE 2**  
**MR. ISAAH DUMMER**  
**SLATER AVENUE PROPERTY**  
 KIRKLAND, WA  
 WETLAND BUFFER REDUCTION  
 EXISTING CONDITIONS



**LEGEND**

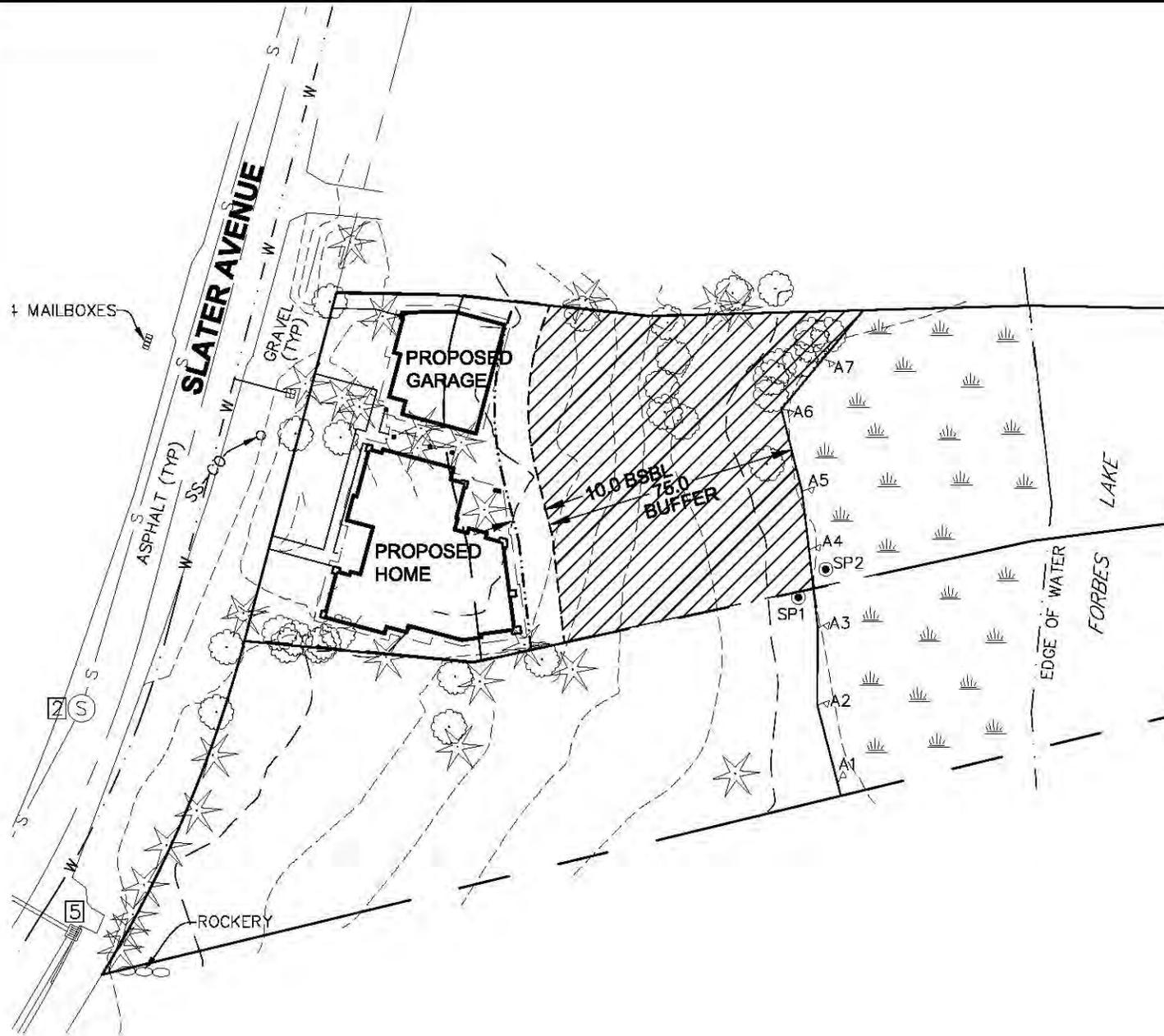
- PROPERTY LINE
- EXISTING WETLAND
- WETLAND FLAG
- SAMPLE PLOT LOCATION
- 100' WETLAND BUFFER
- EXISTING TREES
- EXISTING CONTOURS



**Raedeke**  
 Associates, Inc.  
 2111 N. Northgate Way, Ste #19  
 Seattle, WA 98105

RAI PROJECT: 2016-084  
 DATE: 2/24/17  
 DRAWN BY: AC      PM: CW  
 BASE INFORMATION: SURVEY BY:  
 Allied Land Surveying, Inc.  
 Bothell, WA 98012  
 Phone: (425) 482-0223

**FIGURE 3**  
**MR. ISAIAH DUMMER**  
**SLATER AVENUE PROPERTY**  
**KIRKLAND, WA**  
 WETLAND BUFFER REDUCTION  
**PROPOSED SITE PLAN & MITIGATION**



**LEGEND**

- PROPERTY LINE
- EXISTING WETLAND
- 100' WETLAND BUFFER
- 75' REDUCED BUFFER
- 10' BSBL
- BUFFER ENHANCEMENT  
7,085 SF

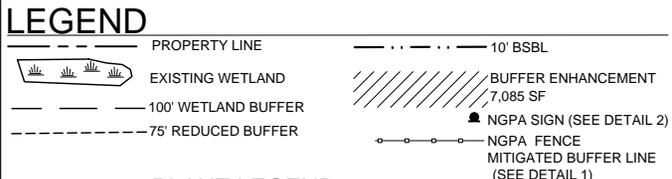
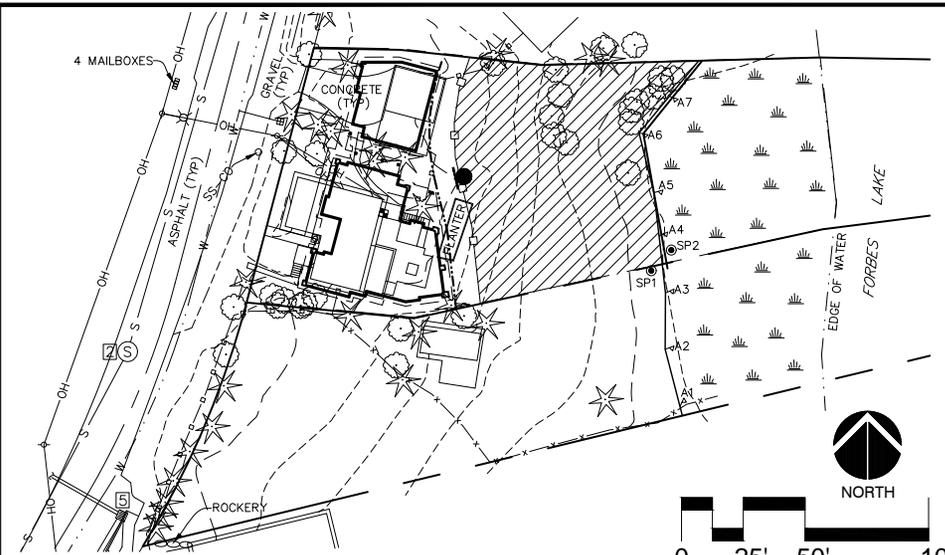
NORTH

SCALE: 1" = 30'

**Raedeke**  
 Associates, Inc.  
 2111 N. Northgate Way, Site #19  
 Seattle, WA 98133

RAI PROJECT: 2016-084	
DATE: 2/24/17	
DRAWN BY: AC	PM: CW
BASE INFORMATION: SITE PLAN BY: Allied Land Surveying, Inc. Bothell, WA 98012 Phone: (425) 482-0223	

FIGURE 4  
MR. ISAIAH DUMMER  
SLATER AVENUE PROPERTY  
KIRKLAND, WA  
WETLAND BUFFER REDUCTION  
PROPOSED PLANTING PLAN



**PLANT LEGEND**

**TREES**

SCIENTIFIC NAME	COMMON NAME	WIS STATUS	MIN. SIZE	QTY.	SPACING*
<i>Prunus emarginata</i>	Bittercherry		2 gal.	6	15 FT. O.C.
<i>Pinus contorta var. contorta</i>	Beach Pine		4' tall	7	15 FT. O.C.
<i>Pseudotsuga menziesii</i>	Douglas Fir	FACU	4' tall	6	15 FT. O.C.
<i>Thuja plicata</i>	Western red Arborvitae	FAC	4' tall	6	15 FT. O.C.
<i>Tsuga heterophylla</i>	Western Hemlock	FACU	4' tall	6	15 FT. O.C.

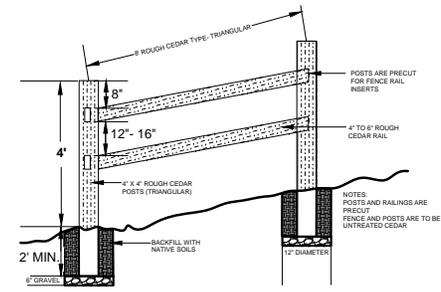
**SHRUBS**

SCIENTIFIC NAME	COMMON NAME	FAC STATUS	MIN. SIZE (container)	QTY.	SPACING
<i>Acer circinatum</i>	Vine Maple	FAC	1 gal.	10	5 FT. O.C.
<i>Cornus alba</i>	Red Osier	FACW	1 gal.	55	5 FT. O.C.
<i>Holodiscus discolor</i>	Creambush	FACU	1 gal.	10	5 FT. O.C.
<i>Mahonia aquifolium</i>	Hollyleaved Oregon grape	FACU	1 gal.	50	5 FT. O.C.
<i>Philadelphus lewisii</i>	Mock Orange	NL	1 gal.	5	5 FT. O.C.
<i>Ribes sanguineum</i>	Redflower Currant	NL	1 gal.	31	5 FT. O.C.
<i>Rosa nutkana</i>	Nootka Rose	FAC	1 gal.	40	5 FT. O.C.
<i>Symphoricarpos albus</i>	Common Snowberry	FACU	1 gal.	70	5 FT. O.C.
<i>Vaccinium ovatum</i>	Evergreen Blueberry	FACU	1 gal.	10	5 FT. O.C.

**GROUNDCOVERS**

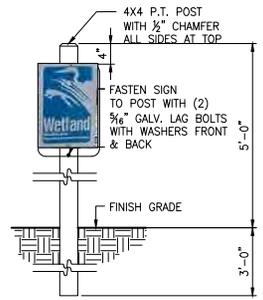
SCIENTIFIC NAME	COMMON NAME	WIS STATUS	MIN. SIZE	QTY.	SPACING*
<i>Gaultheria shallon</i>	Salal	FACU	4 inch	885	2 FT. O.C.
<i>Polystichum munitum</i>	Pineland Swordfern	FACU	4 inch	885	2 FT. O.C.

\*MATURE TREES ARE PRESENT ON THE PROPERTY, SO A CLOSER SPACING (SUCH AS 10' O.C.) IS NOT APPROPRIATE, OR NECESSARY FOR THIS SITE.



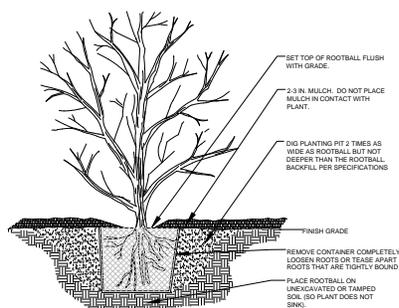
**1 NGPA SPLIT RAIL CEDAR FENCE OR SIMILAR NTS**

1. A permanent split rail, open slatted with at least 18 inches between each slat, wrought iron, chain link, or similar nonsolid fence between three (3) and six (6) feet in height must be installed along the entire edge of the buffer;
2. Solid fencing is not permitted;
3. Except for split rail, a gate is required for pedestrian access to the buffer;



**2 CRITICAL AREAS SIGN DETAIL NTS**

- NOTES:**
- 1) Upon completion of the project, permanent signage shall be attached to the fence stating that the protected critical area and buffer must not be disturbed other than necessary for maintenance of vegetation;
  - 2) The signs must be maintained and remain in perpetuity;
  - 3) Signage shall meet the administrative standards of the Planning and Building Department for design, number and location;
  - 4) The Planning Official shall inspect the signage prior to final inspection.



**3 CONTAINER TREE OR SHRUB PLANTING DETAIL NTS**

**GOALS AND OBJECTIVES**

THE OVERALL CRITERIA FOR THE ENHANCED BUFFER WOULD BE BASED ON THE SUCCESSFUL ESTABLISHMENT OF DESIRED PLANT SPECIES. OBJECTIVES OF THE BUFFER ENHANCEMENT PLAN CONSIST OF THE FOLLOWING:

1. ENHANCE BUFFER FUNCTIONS THROUGH THE INSTALLATION OF NATIVE TREES, SHRUBS, & GROUNDCOVERS.
2. REMOVE INVASIVE SPECIES IDENTIFIED BY THE PROJECT BIOLOGIST FROM THE AREAS OF ENHANCEMENT.

**PERFORMANCE STANDARDS**

SPECIFIC PERFORMANCE STANDARDS TO BE USED IN THE THREE-YEAR LONG-TERM MONITORING ARE THE FOLLOWING:

- 1) YEAR-1: 100 PERCENT SURVIVAL OF INSTALLED VEGETATION THROUGH A COMBINATION OF SURVIVAL AND REPLACEMENT;
- 2) YEAR-2: 80 PERCENT SURVIVAL OF INSTALLED VEGETATION;
- 3) YEAR-3: AT LEAST 50 PERCENT NATIVE VEGETATION COVERAGE WITHIN THE ENHANCED AND CREATED BUFFER FOR INSTALLED VEGETATION;
- 4) ALL YEARS:
  - A) LESS THAN 10 PERCENT NOXIOUS WEEDS COVER USING KING COUNTY WEED LIST, EXCEPT LESS THAN 20 PERCENT COVER OF REED CANARYGRASS WHERE A PRE-EXISTING OR PROXIMATE MONOCULTURE OCCURRED; AND
  - B) NO PRESENCE OF KNOTWEED AT ANY TIME DURING THE DURATION OF THE PROGRAM PERIOD.

**Raedeke Associates, Inc.**  
2111 N. Northgate Way, Ste 219  
Seattle, WA 98133

**RAI PROJECT: 2016-084**  
**DATE: 7/17/2017**  
**DRAWN BY: AC**      **PM: CW**  
BASE INFORMATION: SITE PLAN BY:  
Allied Land Surveying, Inc.  
Bothell, WA 98012  
Phone: (425) 482-0223

MR. ISAIAH DUMMER  
SLATER AVENUE PROPERTY  
KIRKLAND, WA  
WETLAND BUFFER REDUCTION  
GENERAL NOTES

**GENERAL NOTES AND CONDITIONS**

**1.0 GENERAL CONDITIONS**

**1.1 GENERAL DESCRIPTION**

FURNISH ALL MATERIALS, TOOLS, EQUIPMENT, AND LABOR NECESSARY FOR THE COMPLETION OF SITE PREPARATION AND PLANTING, AS INDICATED ON DRAWINGS AND SPECIFIED HEREINAFTER. WORK INCLUDES REMOVAL OF INVASIVE PLANT SPECIES BY HAND METHODS, PLANTING, MULCHING, AND GUARANTEE OF PLANTED AREAS AS SPECIFIED HEREIN.

**1.2 CONSTRUCTION OBSERVATION / QUALITY ASSURANCE / GUARANTEE**

THE PROJECT BIOLOGIST / ARCHITECT SHALL BE INVOLVED DURING THE FOLLOWING PHASES OF CONSTRUCTION: (1) ON-SITE MEETING PRIOR TO COMMENCEMENT OF WORK (PRE-CONSTRUCTION MEETING), FLAG CONSTRUCTION LIMITS FOR GARBAGE, DEBRIS, AND HARD SURFACE REMOVAL (2) APPROVAL OF INVASIVE SPECIES REMOVAL COMPLETION; (3) APPROVAL OF PLANTS, PLANTING LOCATIONS AND TECHNIQUES; AND (4) FINAL INSPECTION. PRIOR NOTICE OF 48 HOURS TO THE PROJECT BIOLOGIST FOR THE ABOVE ACTIVITIES IS REQUIRED.

APPROVAL BY THE PROJECT BIOLOGIST MUST BE RECEIVED PRIOR TO PLANT SUBSTITUTIONS. THESE MAY BE PERMITTED BASED ON PLANT AVAILABILITY.

ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE FULL YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK BY THE PROJECT BIOLOGIST. ANY DEAD PLANTED MATERIAL OR PLANTED MATERIAL THAT IS NOT IN VIGOROUS CONDITION WITHIN A PERIOD OF ONE YEAR FROM ACCEPTANCE OF THE WORK SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL FURNISH CERTIFICATES OF INSPECTION AND COMPLIANCE TO THE PROJECT BIOLOGIST AS REQUIRED BY FEDERAL AND STATE LAWS AND REGULATIONS FOR ALL PLANT MATERIALS AND FERTILIZERS USED IN THE PROJECT.

**1.3 SITE CONDITIONS / DAMAGE / CLEANUP**

THE PROJECT BIOLOGIST SHALL BE NOTIFIED IMMEDIATELY IF SITE CONDITIONS DIFFER FROM THOSE SHOWN IN THE PLANS. CARE SHALL BE TAKEN TO PROTECT THE WETLAND & UNDISTURBED BUFFER DURING CONSTRUCTION ACTIVITIES. THE MITIGATION PLANTING AREAS SHALL BE CLEARLY MARKED BY CONTRACTOR AND APPROVED BY THE PROJECT BIOLOGIST PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES.

ANY ITEMS NOT SHOWN IN THE PLANS, SUCH AS EXISTING BUILDINGS, EQUIPMENT, UNDERGROUND UTILITIES, WALKS, AND/OR ROADS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AND/OR REPAIRED AT THE CONTRACTOR'S EXPENSE, IN A MANNER SATISFACTORY TO THE OWNER/CONSTRUCTION SITE SUPERINTENDANT BEFORE FINAL PAYMENT WILL BE MADE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING PLANTED AREAS FREE OF DEBRIS. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL SURPLUS MATERIAL, EQUIPMENT, AND DEBRIS FROM THE SITES. ALL PLANTED AREAS SHALL BE RAKE-CLEAN PRIOR TO MULCHING.

**1.4 SCHEDULE**

ALL GRADING AND OTHER SOIL DISTURBING ACTIVITIES WITHIN THE MITIGATION AREAS, INCLUDING BUT NOT LIMITED TO REMOVAL OF ASPHALT AND OTHER HARDENED SURFACES OR REMOVAL OF INVASIVE SPECIES, SHALL OCCUR BETWEEN MARCH 1 AND OCTOBER 30 UNLESS OTHERWISE APPROVED BY THE PROJECT BIOLOGIST OR UNLESS OTHERWISE REQUIRED BY STATE OR FEDERAL AGENCIES FOR PERMITS THAT MAY BE REQUIRED FOR PROJECT IMPLEMENTATION.

PLANTING OF WOODY MATERIAL SHOULD OCCUR BETWEEN OCTOBER 1 AND MARCH 1 TO TAKE ADVANTAGE OF SEASONAL RAINS AND GREATER AVAILABILITY OF PLANT MATERIAL. PLANTING DURING ABNORMALLY HOT, DRY, OR FREEZING WEATHER, OR AT TIMES OTHER THAN AS NOTED IS NOT ALLOWED WITHOUT PRIOR AUTHORIZATION BY THE PROJECT BIOLOGIST PRIOR TO IMPLEMENTATION AND MAY REQUIRE PLANT SUBSTITUTIONS AND SUPPLEMENTAL IRRIGATION.

**2.0 PRODUCTS**

**2.1 TOPSOIL- IMPORTED**

THE IMPORTED TOPSOIL SHALL BE FRIABLE SURFACE SOIL FROM THE A HORIZON AS DETERMINED BY THE US AGRICULTURE SOIL CONSERVATION SERVICE SOIL SURVEY. TOPSOIL SHALL BE FREE FROM: MATERIALS TOXIC TO PLANT GROWTH, NOXIOUS WEED SEEDS, RHIZOMES, ROOTS, SUBSOIL, STONES AND OTHER DEBRIS. ALL TOPSOIL SHALL PASS THROUGH A 1" SCREEN. TOPSOIL SHALL CONSIST OF A SANDY CLAY LOAM, SANDY LOAM, LOAM, CLAY LOAM, SILTY LOAM SOIL. MAXIMUM PERCENTAGES ALLOWED IN THE SOIL IS 50% SAND AND/ OR 20% CLAY. TOPSOIL SHALL BE AMENDED WITH COMPOST IF MORE ORGANIC CONTENT IS NEEDED AS DETERMINED BY THE PROJECT BIOLOGIST. CONTRACTOR SHALL PROVIDE THE PROJECT BIOLOGIST WITH A ONE POUND SAMPLE OF TOPSOIL FOR APPROVAL PRIOR TO DELIVERY TO SITE.

**2.2 ORGANIC COMPOST**

A WELL-DECOMPOSED, HUMUS-LIKE MATERIAL DERIVED FROM THE DECOMPOSITION OF GRASS CLIPPINGS LEAVES, BRANCHES, WOOD, AND OTHER ORGANIC MATERIALS. COMPOST SHALL BE PRODUCED AT A PERMITTED SOLID WASTE COMPOSTING FACILITY (HEALTH PERMIT, WDOE STORMWATER PERMIT, PSAPCA FACILITY, AND EQUIPMENT REGISTRATION). COMPOST MUST MEET THE DEFINITION OF "COMPOSTED MATERIALS" IN WAC 173-350-220. THIS CODE IS AVAILABLE ON-LINE AT: [HTTP://WWW.ECY.WA.GOV/PROGRAMS/SWFA/FACILITIES//350.HTML](http://www.ecy.wa.gov/PROGRAMS/SWFA/FACILITIES//350.HTML)

THE SOIL AMENDMENT MUST ALSO MEET THE FOLLOWING SPECIFICATIONS:

- SCREEN SIZE (APPROX. PARTICLE SIZE): 3/4-INCH MAXIMUM
- MATURITY: GREATER THAN 80%
- MATURITY MEASURE (C/N RATIO): 35:1 MAXIMUM
- ORGANIC MATTER CONTENT BY DRY WEIGHT: 35% TO 80%
- MEETS CONTAMINANT STANDARDS FOR GRADE A COMPOST

**2.3 PLANT MATERIALS**

ALL PLANT MATERIAL SHALL BE LOCALLY GROWN AND BE OF ACCEPTED SIZE STANDARDS AS SPECIFIED IN "AMERICAN STANDARD FOR NURSERY STOCK - 2004" PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (ANSI Z60.1-2004V). ROOTED PLANTS SHALL BE FIRST QUALITY, WELL-FOLIATED, WITH WELL-DEVELOPED ROOT SYSTEMS, AND NORMAL WELL-SHAPED TRUNKS, LIMBS, STEMS, AND LEADS. THE PROJECT BIOLOGIST/INSPECTOR SHALL INSPECT FOR QUALITY CONFORMANCE. ALL ROOTED PLANT MATERIAL SHALL BE LABELED BY GENUS AND SPECIES. PLANTS DEEMED UNSUITABLE SHALL BE REJECTED BEFORE OR AFTER DELIVERY. ALL PLANT MATERIAL SHALL BE FREE FROM DAMAGE, DISEASE, INSECTS, INSECT EGGS AND LARVAE. BARE ROOT MATERIAL MAY BE USED IF PLANT MATERIAL IS INSTALLED BETWEEN FEBRUARY- MARCH. CONTACT PROJECT BIOLOGIST FOR PLANTING DETAILS FOR BARE ROOT MATERIAL.

**2.5 BARK & STRAW MULCH**

BARK MULCH SHALL CONSIST OF GROUND FIR OR HEMLOCK BARK OF UNIFORM COLOR, FREE FROM WEED, SEEDS, SAWDUST, AND SPLINTERS AND SHALL NOT CONTAIN SALTS, OR OTHER COMPONENTS DETRIMENTAL TO PLANT LIFE. SIZE RANGE OF MULCH SHALL BE FROM 1/2" TO 1-1/4" WITH MAXIMUM OF 20% PASSING A 1/2" SCREEN. STRAW MULCH WILL CONSIST OF STRAW FREE FROM WEED SEEDS.

**3.0 EXECUTION**

**3.1 SILT FENCE & TREE PROTECTION INSTALLATION**

INSTALLATION OF TREE PROTECTION AND A SILT FENCE CONSISTENT WITH BEST MANAGEMENT PRACTICES, AS REQUIRED BY THE JURISDICTION PRIOR TO REMOVAL OF ANY EXISTING NON-CONFORMING STRUCTURES, SITE GRADING, OR REMOVAL OF UNPERMITTED FILL WITHIN THE WETLAND BUFFER/RIPARIAN AREA, WILL BE PROTECTED AS SHOWN ON THE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN.

**3.2 GARBAGE, DEBRIS, AND HARD SURFACE REMOVAL**

REMOVE ALL GARBAGE AND OTHER DEBRIS FROM THE MITIGATION AREAS. REMOVE ALL HARD SURFACES SUCH AS GRAVEL, CONCRETE, ASPHALT, AND TURF WITHIN THE PROJECT AREA. DISPOSE OF ALL DEBRIS OFF-SITE AT AN APPROVED CITY, COUNTY, OR OTHER WASTE DISPOSAL FACILITY.

**3.3 INVASIVE SPECIES REMOVAL**

WALK MITIGATION SITE WITH THE PROJECT BIOLOGIST TO IDENTIFY LIMITS OF INVASIVE SPECIES REMOVAL. INVASIVE SPECIES INCLUDE HIMALYAN BLACKBERRY, ENGLISH LAUREL, ENGLISH HOLLY, REED CANARYGRASS, AND OTHER INVASIVE SPECIES IDENTIFIED BY THE PROJECT BIOLOGIST. INVASIVE SPECIES WILL BE REMOVED BY GRUBBING OUT ROOT MASS. ALL NON-NATIVE, INVASIVE SPECIES INCLUDING ALL PLANT PARTS MUST BE REMOVED FROM PROJECT SITE AND DISPOSED AT A FACILITY THAT ACCEPTS YARD WASTE.

**3.4 SOD REMOVAL**

REMOVE SOD USING A SOD CUTTER OR TILL THE SOD UP, REMOVING SOD CLUMPS FROM THE ENHANCEMENT AREA.

**3.5 COMPOST AMENDMENT**

IN ALL DE-SODDED AREAS, 3 INCHES OF COMPOST SHALL BE SPREAD AND WORKED INTO THE UPPER 12 INCHES OF THE SOIL.

**3.6 PLANT STORAGE**

PLANTS STORED UNDER TEMPORARY CONDITIONS PRIOR TO INSTALLATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PLANTS STORED ON THE PROJECT SHALL BE PROTECTED AT ALL TIMES FROM EXTREME WEATHER CONDITIONS BY INSULATING THE ROOTS, ROOT BALLS, OR CONTAINERS WITH SAWDUST, SOIL, COMPOST, BARK OR WOOD CHIPS, OR OTHER APPROVED MATERIAL AND SHALL BE KEPT MOIST AT ALL TIMES PRIOR TO PLANTING. CUTTINGS SHALL CONTINUALLY BE SHADED AND PROTECTED FROM WIND. CUTTINGS SHALL BE PROTECTED FROM DRYING AT ALL TIMES AND SHALL BE HELED INTO MOIST SOIL OR OTHER INSULATING MATERIAL OR PLACED IN WATER IF NOT INSTALLED WITHIN 8 HOURS OF CUTTING. CUTTINGS TO BE STORED FOR LATER INSTALLATION SHALL BE BUNDLED, LAID HORIZONTALLY, AND COMPLETELY BURIED UNDER 6 INCHES OF WATER, MOIST SOIL OR PLACED IN COLD STORAGE AT A TEMPERATURE OF 34°F AND 90 PERCENT HUMIDITY. CUTTINGS THAT ARE NOT PLANTED WITHIN 24 HOURS OF CUTTING SHALL BE SOAKED IN WATER FOR 24 HOURS PRIOR TO PLANTING. EMERGENT PLANTS SHALL BE STORED IN STANDING WATER, NOT HIGHER THAN THE CONTAINER.

**3.7 PLANT INSTALLATION**

PLANTING SHALL OCCUR ACCORDING TO PREVIOUSLY DEFINED SCHEDULE. PLANTS SHALL BE INSTALLED IN COMPLIANCE WITH DETAILS IN THE PLANS. SEE DETAILS PROVIDED IN THE PLANS. IF CONTAINER STOCK APPEARS TO BE ROOTBOUND, SLASH ROOTS VERTICALLY WITH A SHARP KNIFE

ALONG OUTSIDE OF BALL IN THREE (3) PLACES MINIMUM BEFORE PLANTING. SOAK DRIED ROOTBALLS IMMEDIATELY PRIOR TO AND AFTER PLANTING. CLEANLY PRUNE BROKEN ROOTS ONE-HALF-INCH OR GREATER IN DIAMETER. PLANTS SHALL BE INSTALLED SO FINISH GRADE IS LEVEL WITH THE TOP OF ROOT BALL. PLANTS SHALL BE BACKFILLED AND WATER-SETTLED. NO COMPACTION OF BACKFILL IS TO OCCUR AROUND PLANT. ALL PLANTS SHALL BE WATERED THOROUGHLY IMMEDIATELY FOLLOWING INSTALLATION. PLANTING LOCATIONS INDICATED ON THE PLAN ARE BASED ON ANTICIPATED SITE CONDITIONS. NO TREES OR SHRUBS SHALL BE PLANTED IN STANDING WATER.

**3.9 STRAW AND WOOD MULCHING**

WITHIN THE BUFFER ENHANCEMENT AREA IMMEDIATELY AFTER COMPLETION OF PLANTING, BARK MULCH SHALL BE SPREAD EVENLY TO A DEPTH OF 3 INCHES WITHIN THE ENTIRETY OF THE PLANTED AREA.

**3.10 NGPA SIGNS & FENCE**

INSTALL NGPA SIGNS AND FENCE PER PLAN.

**3.11 IRRIGATION**

A TEMPORARY IRRIGATION SYSTEM SHALL BE INSTALLED BY THE CONTRACTOR. THE IRRIGATION SYSTEM SHALL PROVIDE AT LEAST 1" OF WATER PER WEEK TO THE PLANTED MITIGATION AREAS FOR TWO YEARS. WATER WILL BE PROVIDED FROM MAY THROUGH THE END OF SEPTEMBER, OR LONGER IF HOT, DRY WEATHER PERSISTS.

A WATER TRUCK MAY BE USED TO IRRIGATE THE PLANTED AT THE SAME RATE, IF A TEMPORARY IRRIGATION SYSTEM IS UNAVAILABLE.

**CONSTRUCTION SEQUENCE**

1. CONTRACTOR SCHEDULES AND ATTENDS A PRE-CONSTRUCTION MEETING WITH THE PROJECT BIOLOGIST, LANDSCAPE DESIGNER/ ARCHITECT AND CITY OF KIRKLAND BIOLOGIST.
2. CONTRACTOR WILL FLAG ALL THE LIMITS OF THE ENHANCEMENT AREAS FOR PROJECT BIOLOGIST APPROVAL. CONTRACTOR WILL WALK THE SITE WITH THE PROJECT BIOLOGIST TO CLARIFY LIMITS OF CONSTRUCTION AND THE WORK TO BE PERFORMED.
3. CONTRACTOR WILL INSTALL TEMPORARY EROSION/SEDIMENT CONTROL MEASURES AS REQUIRED FOR PROJECT BIOLOGIST APPROVAL PRIOR TO THE COMMENCEMENT OF WORK.
4. CONTRACTOR WILL REMOVE ALL GARBAGE, DEBRIS, HARD SURFACE MATERIAL, GRAVEL AND INVASIVE SPECIES FROM BUFFER ENHANCEMENT AREA AS DIRECTED BY THE PLANS AND PROJECT BIOLOGIST.
5. CONTRACTOR WILL REMOVE SOD & AMEND EXISTING SOIL WITH COMPOST AS NECESSARY.
6. CONTRACTOR WILL LAY OUT NURSERY-GROWN PLANTS PER PLANS FOR APPROVAL BY THE PROJECT BIOLOGIST. FOLLOWING LAYOUT APPROVAL, CONTRACTOR TO INSTALL PLANTS, SEED AND MULCH AS DIRECTED BY PLANS.
7. THE PROJECT BIOLOGIST WILL APPROVE PLANT INSTALLATION.
8. CONTRACTOR SUBMITS AS-BUILT DRAWING AND COPIES OF INVOICES FOR ALL PLANT, SOIL AMENDMENT, AND MULCH MATERIALS USED TO THE PROJECT BIOLOGIST.
9. PROJECT BIOLOGIST SUBMITS AS-BUILT REPORT TO THE CITY OF KIRKLAND FOR REVIEW AND APPROVAL.



RAI PROJECT: 2016-084	
DATE: 7/17/2017	
DRAWN BY: AC	PM: CW
BASE INFORMATION: SITE PLAN BY: Allied Land Surveying, Inc. Bothell, WA 98012 Phone: (425) 482-0223	

FIGURE 6

MR. ISAIAH DUMMER  
SLATER AVENUE PROPERTY  
KIRKLAND, WA  
WETLAND BUFFER REDUCTION  
MONITORING & MAINTENANCE NOTES

**MONITORING NOTES & MAINTENANCE PLAN**

**1.0 MONITORING PROGRAM**

THIS PLAN INCLUDES A SYSTEMATIC MONITORING PROGRAM OF THE RESTORED BUFFER TO EVALUATE THE SUCCESS OF THE MITIGATION EFFORT. THE RESULTS OF THE MONITORING WILL BE USED TO DEVELOP ANY NEEDED MODIFICATIONS AND/OR ALTERATIONS OF THE SITE IN SUBSEQUENT YEARS.

THE PURPOSES OF THE MONITORING PROGRAM ARE: (1) TO DOCUMENT PHYSICAL AND BIOLOGICAL CHARACTERISTICS OF THE MITIGATION AREA, AND (2) TO ENSURE THAT THE GOALS AND OBJECTIVES COMPLY WITH PERMIT SPECIFICATIONS.

THE MONITORING PROCESS WOULD CONSIST OF THREE DISTINCT PHASES: (1) CONSTRUCTION MONITORING; (2) COMPLIANCE MONITORING; AND (3) LONG-TERM MONITORING. THE "TIME-ZERO" OR BASELINE COMPOSITION, STRUCTURE, AND COVER ABUNDANCE WOULD BE DOCUMENTED DURING THE COMPLIANCE MONITORING PHASE. THE LONG-TERM MONITORING PROGRAM WOULD DOCUMENT THE SURVIVAL OF PLANTED VEGETATION AND RATES OF COLONIZATION BY OTHER PLANTS (I.E., IN PLANTED AREAS) OVER A THREE-YEAR PERIOD AFTER INSTALLATION OF THE BUFFER RESTORATION HAS BEEN COMPLETED.

THE FOLLOWING SECTIONS DESCRIBE THE ELEMENTS OF AN EFFECTIVE MONITORING PROGRAM.

**1.1 CONSTRUCTION MONITORING**

THE PROJECT BIOLOGIST WOULD BE PRESENT ON-SITE DURING THE VARIOUS STAGES OF CONSTRUCTION IN ORDER TO: (1) DEMARK THE LIMITS OF THE AREAS TO BE RESTORED; (2) REVIEW THE REMOVAL OF HARD SURFACES AND THE DECOMPACTION OF THOSE AREAS (3) REVIEW AND APPROVE THE PLANT MATERIALS AND RECOMMEND THEIR FINAL PLACEMENT BEFORE PLANTING; (4) ENSURE THAT CONSTRUCTION ACTIVITIES ARE CONDUCTED PER THE APPROVED PLAN; AND (5) RESOLVE PROBLEMS THAT ARISE DURING CONSTRUCTION, THUS LESSENING PROBLEMS THAT MIGHT OCCUR LATER DURING THE LONG-TERM MONITORING PHASE.

**1.2 COMPLIANCE MONITORING**

COMPLIANCE MONITORING CONSISTS OF EVALUATING THE RESTORATION AREAS IMMEDIATELY AFTER ALL FEATURES OF THE MITIGATION PLAN HAVE BEEN INSTALLED BY THE CONTRACTOR. THE OBJECTIVES WOULD BE TO CERTIFY THAT ALL DESIGN FEATURES, AS AGREED TO IN THE PLANTING PLAN, HAVE BEEN CORRECTLY AND FULLY IMPLEMENTED, AND THAT ANY CHANGES MADE IN THE FIELD ARE CONSISTENT WITH THE INTENT OF THE DESIGN. EVALUATION OF THE PLANTING AREAS AFTER IMPLEMENTATION WOULD BE DONE BY THE BIOLOGIST USING EVALUATION STANDARDS AND CRITERIA DISCUSSED IN SECTION 2.0.

THE COMPLIANCE MONITORING PHASE WOULD CONCLUDE WITH THE PREPARATION OF A BRIEF COMPLIANCE REPORT BY THE BIOLOGIST. THE REPORT WOULD VERIFY THAT ALL DESIGN FEATURES HAVE BEEN CORRECTLY, FULLY, AND SUCCESSFULLY INCORPORATED.

SUBSTANTIVE CHANGES MADE IN THE PLANTING PLANS WOULD BE NOTED IN THE COMPLIANCE REPORT AND ON THE DRAWINGS FOR USE DURING THE LONG-TERM MONITORING PHASE. DOCUMENTATION OF PLAN CHANGES SHOULD INCLUDE WHAT WAS DONE, WHERE, WHY, AT WHOSE REQUEST, AND THE RESULT OF THE CHANGE. LOCATIONS OF MONITORING STATIONS ESTABLISHED FOR THE COMPLIANCE MONITORING WOULD BE IDENTIFIED ON THE AS-BUILT PLANS.

THE PLANTING PLANS, WITH THE COMPLIANCE REPORT, WOULD DOCUMENT "AS-BUILT" CONDITIONS AT THE TIME OF CONSTRUCTION COMPLIANCE. A QUANTITATIVE ASSESSMENT OF THE PLANTS ESTABLISHED IN THE BUFFER RESTORATION AREA WOULD BE RECORDED AT REPRESENTATIVE SAMPLE PLOTS FOR BASELINE DATA. THIS INFORMATION WOULD BE USED TO DOCUMENT "TIME-ZERO" CONDITIONS FROM WHICH THE LONG-TERM MONITORING PERIOD WOULD BEGIN. THE COMPLIANCE REPORT AND AS-BUILT DRAWINGS WOULD BE SUBMITTED TO THE CITY OF KIRKLAND.

**1.3 LONG-TERM MONITORING**

LONG-TERM MONITORING WOULD BE CONDUCTED OVER THREE GROWING SEASONS FOLLOWING APPROVAL OF THE COMPLIANCE REPORT AND AS-BUILT PLAN BY THE CITY. LONG-TERM MONITORING WOULD EVALUATE THE ESTABLISHMENT AND MAINTENANCE OF THE PLANT COMMUNITIES IN THE RESTORED WETLAND AND BUFFER TO DETERMINE IF THE GOALS AND OBJECTIVES OF THE MITIGATION PLAN HAVE BEEN MET.

1.4 OPTIONS FOR MONITORING WORK – THE APPLICANT MAY CHOOSE ONE OF THE FOLLOWING METHODS FOR WHO PERFORMS THE MONITORING WORK:

a. CITY DOES WORK – IF THE CITY WILL OVERSEE THE MAINTENANCE AND MONITORING THROUGH THE CITY'S CONSULTANT, THE MONITORING FEE WILL BE BASED ON AN ACTUAL COST ESTIMATE OF THE WORK. THE APPLICANT SHALL SUBMIT A CASH PREPAYMENT FOR ALL WORK TO THE CITY PRIOR TO ISSUANCE OF THE DEVELOPMENT PERMIT.

b. APPLICANT'S CONSULTANT DOES WORK

1) IF THE CITY WILL NOT PERFORM THE MONITORING, THE APPLICANT SHALL SUBMIT A SIGNED CONTRACT TO FUND A QUALIFIED CRITICAL AREA PROFESSIONAL, APPROVED BY THE CITY, TO MONITOR THE MAINTENANCE AND PERFORM THE MONITORING OVER THE LIFE OF THE PROGRAM. THE COST OF THE WORK MUST BE INCLUDED IN THE PERFORMANCE SECURITY UNDER KZC 90.165; AND

2) IN ADDITION, THE APPLICANT SHALL SUBMIT A CASH PREPAYMENT PRIOR TO FINAL INSPECTION OF THE DEVELOPMENT PERMIT FOR THE COST OF THE CITY TO DO PEER REVIEW OF THE MONITORING REPORTS

PLANT SPECIES WOULD BE IDENTIFIED AND PLANT COUNTS WOULD BE MADE DURING THE EACH YEAR OF THE LONG-TERM MONITORING IN ORDER TO DOCUMENT THE PERCENT SURVIVAL OF EACH PLANTED SPECIES. PLANT IDENTIFICATIONS WOULD BE MADE ACCORDING TO STANDARD TAXONOMIC PROCEDURES DESCRIBED IN HITCHCOCK AND CRONQUIST (1976), WITH NOMENCLATURE AS UPDATED BY THE U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST (LICHVAR AND KARTESZ 2009). SIGNS OF PLANTING STRESS OR DAMAGE, PRESENCE OF INVASIVE SPECIES, AS WELL AS SIGNS OF VIGOR, AND RATES OF COLONIZATION BY OTHER PLANTS (I.E., IN BARE SOIL AREAS) WOULD BE

DOCUMENTED DURING EACH YEAR OF THE LONG-TERM MONITORING.

PHOTOS WOULD BE TAKEN ANNUALLY TO PROVIDE PHYSICAL DOCUMENTATION OF THE CONDITION OF THE MITIGATION AREAS. PHOTOGRAPHS WOULD BE TAKEN FROM ALL LOCATIONS ESTABLISHED DURING THE COMPLIANCE MONITORING SITE VISIT AND EACH YEAR THEREAFTER OF THE MONITORING PERIOD FROM THE ESTABLISHED LOCATION POINTS.

**1.4 MONITORING AND REPORTING SCHEDULE AND CONTENTS**

FORMAL MONITORING OF THE RESTORED BUFFER WOULD OCCUR AFTER THE SEASON'S GROWTH IS VIRTUALLY COMPLETE (RECOMMENDED DURING AUGUST OR SEPTEMBER). IN ADDITION, SPRING SITE CHECKS WOULD BE CONDUCTED DURING EACH YEAR OF THE THREE-YEAR LONG-TERM MONITORING PERIOD TO ASSESS SITE PROGRESS AND TO DETERMINE WHETHER SITE MAINTENANCE IS NEEDED.

MONITORING REPORTS WOULD BE PREPARED FOLLOWING THE COMPLETION OF THE GROWING SEASON OF EACH YEAR OF THE THREE-YEAR LONG-TERM MONITORING PERIOD FOR SUBMITTAL TO THE CITY OF Kirkland. THE LONG-TERM MONITORING PERIOD WILL COMMENCE FOLLOWING ACCEPTANCE OF THE COMPLIANCE REPORT AND "AS-BUILT" DRAWINGS BY THE CITY OF KIRKLAND.

MONITORING REPORTS WOULD BE SUBMITTED FOR REVIEW AND APPROVAL BY THE CITY OF Kirkland AS SOON AS POSSIBLE AFTER THE MONITORING HAS BEEN COMPLETED, WITH A TARGET DATE OF DECEMBER 31 OF EACH MONITORING YEAR. THE REPORT WOULD DOCUMENT CONDITIONS WITHIN THE RESTORED AREAS AND MAKE RECOMMENDATIONS FOR CORRECTING ANY PROBLEMS ENCOUNTERED.

**2.0 CONTINGENCY PLAN**

CONTINGENCY PLANS ARE NEEDED IF POST-MITIGATION MONITORING SHOWS THAT OBJECTIVES AND PERFORMANCE STANDARDS HAVE NOT BEEN MET. IT SHOULD BE NOTED, HOWEVER, THAT IT IS NOT POSSIBLE TO DEVELOP A DETAILED CONTINGENCY PLAN UNTIL THE SPECIFIC PROBLEMS THAT NEED TO BE ADDRESSED ARE KNOWN. IT WOULD BE UNPRODUCTIVE TO TRY TO ANTICIPATE ALL POSSIBLE PROBLEMS AND THEIR SOLUTIONS AT THIS TIME.

COMMON PROBLEMS, BOTH HUMAN AND NATURAL, THAT MIGHT ARISE CAN BE IDENTIFIED AND GENERAL RECOMMENDATIONS FOR REMEDY PROPOSED. FOR EXAMPLE, AFTER THE SECOND YEAR, PLANT COMMUNITIES WITHIN THE CREATED, RESTORED AND ENHANCED AREAS MAY NOT BE ESTABLISHED AT ACCEPTABLE LEVELS. IT MAY BE NECESSARY TO REPLANT WITH NEW OR DIFFERENT STOCK, PROVIDE ADDITIONAL WATERING OR IRRIGATION DURING CRITICAL SEASONS, OR AUGMENT THE SOIL.

THE CONTINGENCY PLAN MAY REQUIRE EXTENSION OF THE MONITORING PHASE OF THE PROJECT, ESPECIALLY IF MAJOR CHANGES IN THE PLAN ARE REQUIRED. IF, AT THE END OF THE LONG-TERM MONITORING PERIOD, PERFORMANCE STANDARDS FOR YEAR THREE HAVE NOT BEEN MET, IDENTIFIED PROBLEMS WILL BE ADDRESSED, AND ADDITIONAL MONITORING WILL BE CONDUCTED DURING AN ADDITIONAL MONITORING YEAR(S) AS RECOMMENDED BY THE PROJECT BIOLOGIST AND APPROVED BY THE CITY OF KIRKLAND.

**3.0 MAINTENANCE**

**3.1 IRRIGATION**

SUPPLEMENTAL WATER WILL BE PROVIDED TO ALL TREE AND SHRUB PLANTINGS DURING THE FIRST TWO GROWING SEASONS FOLLOWING INSTALLATION. HAND WATERING OR A TEMPORARY IRRIGATION SYSTEM MAY BE USED. IRRIGATION WILL OCCUR FROM JUNE 1 THROUGH OCTOBER 30 OR OTHER PERIODS OF HOT, DRY WEATHER AND WILL DELIVER APPROXIMATELY 1 INCH OF WATER PER WEEK THROUGHOUT THE RESTORATION AREAS. IF WATERED BY HAND, THEN THE MINIMUM WATERING REQUIREMENTS WILL BE 1 TO 3 GALLONS OF WATER FOR SMALL SHRUBS AND 3 TO 5 GALLONS PER WEEK FOR SAPLING TREES AND LARGE SHRUBS. THESE MINIMUM REQUIREMENTS ARE GUIDELINES THAT MAY VARY DEPENDING ON PLANT LOCATION, EXPOSURE, SOIL CONDITION, AND PRESENCE OF EXISTING VEGETATION.

**3.2 SITE MAINTENANCE**

THE ENHANCED BUFFER IS DESIGNED TO BE SELF-SUSTAINING. TO ENSURE THE SUCCESS OF THE PLANTINGS, ADDITIONAL REPLANTING AND CONTROL OF UNDESIRABLE PLANT SPECIES MAY BE NECESSARY AFTER INITIAL INSTALLATION. THIS MAINTENANCE PLAN INCLUDES ALL ACTIONS REQUIRED TO MAINTAIN PLANTS FREE OF INSECTS AND DISEASE, CONTROL COMPETITION WITH GRASSES AND WEEDS, AND LIMIT DIE-BACK OR MORTALITY DUE TO INADEQUATE SOIL MOISTURE TO WITHIN PERFORMANCE STANDARDS SPECIFIED ON PREVIOUS SHEET.

UPON COMPLETION OF THE REMOVAL OF ALL NON-CONFORMING STRUCTURES AND UNPERMITTED FILL AND INSTALLATION OF THE RESTORATION PLANTINGS, MULCH AND ALL OTHER ITEMS SPECIFIED BY THE BUFFER ENHANCEMENT PLAN, ALL SURPLUS MATERIAL, EQUIPMENT, AND DEBRIS SHALL BE REMOVED FROM THE MITIGATION SITE. ALL SILT FENCES WILL BE REMOVED FROM WITHIN THE ENHANCED BUFFER WHEN THE ADJACENT HERBACEOUS VEGETATION IS ONE FOOT IN HEIGHT OR AS APPROVED BY THE PROJECT BIOLOGIST AND OR THE CITY OF KIRKLAND.

THE SITE MAINTENANCE PROGRAM WOULD COMMENCE UPON APPROVAL OF THE COMPLIANCE REPORT AND AS-BUILT PLAN BY THE CITY. THE SITE WOULD BE REGULARLY MAINTAINED FOR THE DURATION OF THE LONG-TERM MONITORING PERIOD. THE PROJECT BIOLOGIST WOULD INSPECT THE SITE DURING SPRING (MARCH-APRIL) DURING EACH YEAR OF THE LONG-TERM MONITORING PERIOD TO IDENTIFY ANY DEVELOPING PROBLEMS WITHIN THE MITIGATION SITE. ITEMS TO BE EVALUATED WITHIN THE RESTORATION AREAS INCLUDE IRRIGATION SYSTEM OPERABILITY (IF APPLICABLE), PRESENCE OF INVASIVE SPECIES, PLANT HEALTH, ANIMAL DAMAGE TO PLANTINGS, AND PRESENCE OF TRASH.

THE PROJECT BIOLOGIST WOULD SUBMIT A WRITTEN SUMMARY OF HIS/HER FINDINGS ALONG WITH MAINTENANCE RECOMMENDATIONS TO THE PROJECT PROPONENT WITHIN 10 DAYS AFTER COMPLETION OF HIS/HER INSPECTION. MAINTENANCE RECOMMENDATIONS WOULD BE IMPLEMENTED BY THE PROJECT PROPONENT WITHIN 30 DAYS OF RECEIPT FROM THE PROJECT BIOLOGIST.

INVASIVE SPECIES WOULD BE CONTROLLED BY METHODS THAT DO NOT COMPROMISE THE ESTABLISHED VEGETATION OR THE REST OF THE RESTORATION PLANTINGS. UNLESS OTHERWISE AUTHORIZED BY THE PROJECT BIOLOGIST, REMOVAL OF INVASIVE SPECIES WILL BE DONE BY HAND, WITH HAND PULLING OF ALL WEEDS WITHIN THE DRIP RING OF ANY INSTALLED SHRUB OR TREE. NO WEED-WHIPPING WITH MECHANIZED LINE TRIMMERS WILL BE ALLOWED BETWEEN WOODY PLANTS WITHIN CLUSTER OR CLUMPED PLANTINGS.

**3.3 MAINTENANCE WORK GUARANTEE**

PRIOR TO FINAL INSPECTION OF THE VEGETATION AND ANY OTHER MITIGATING MEASURES REQUIRED IN THIS CHAPTER, THE APPLICANT SHALL SUBMIT A SIGNED CONTRACT WITH A LANDSCAPE MAINTENANCE COMPANY TO MAINTAIN THE INSTALLED IMPROVEMENTS OVER THE PERIOD OF THE MONITORING PROGRAM THAT INCLUDES THE REQUIRED MAINTENANCE TASKS AND SCHEDULE, EXCEPT FOR THE FOLLOWING:

A. FOR SINGLE-FAMILY RESIDENTIAL USES, HOMEOWNERS MAY MAINTAIN THE INSTALLED IMPROVEMENTS IF THEY SIGN AN AGREEMENT THAT RUNS WITH THE PROPERTY TO MAINTAIN THE IMPROVEMENTS OVER THE PERIOD OF THE MONITORING PROGRAM. THE AGREEMENT MUST BE RECORDED WITH THE KING COUNTY RECORDER'S OFFICE WITH THE RECORDING FEE PAID BY THE HOMEOWNER.

IF THE IMPROVEMENTS ARE NOT SATISFACTORILY MAINTAINED BASED ON THE MONITORING REPORT AT THE END OF ANY GROWING SEASON, THEN THE HOMEOWNER SHALL SUBMIT A COPY OF A CONTRACT WITH A LANDSCAPE MAINTENANCE COMPANY TO HAVE THE COMPANY MAINTAIN THE IMPROVEMENTS. THIS OPTION IS NOT AVAILABLE TO DEVELOPERS AND BUILDERS WHERE THE PROPERTY WILL BE SOLD ON COMPLETION OF THE CONSTRUCTION.

**4.0 PROJECT ACCEPTANCE**

AFTER COMPLETION OF THE THREE-YEAR MONITORING PERIOD AND CONFIRMATION BY THE CITY OF KIRKLAND THAT THE BUFFER ENHANCEMENT HAS SUCCESSFULLY MET THE PERFORMANCE STANDARDS, THE CITY OF KIRKLAND SHALL PROVIDE WRITTEN ACCEPTANCE AND APPROVAL OF THE BUFFER ENHANCEMENT AND RELEASE ALL BONDS IN PLACE AS GUARANTEE OF MITIGATION SITE CONSTRUCTION AND PERFORMANCE.

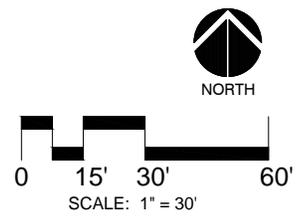
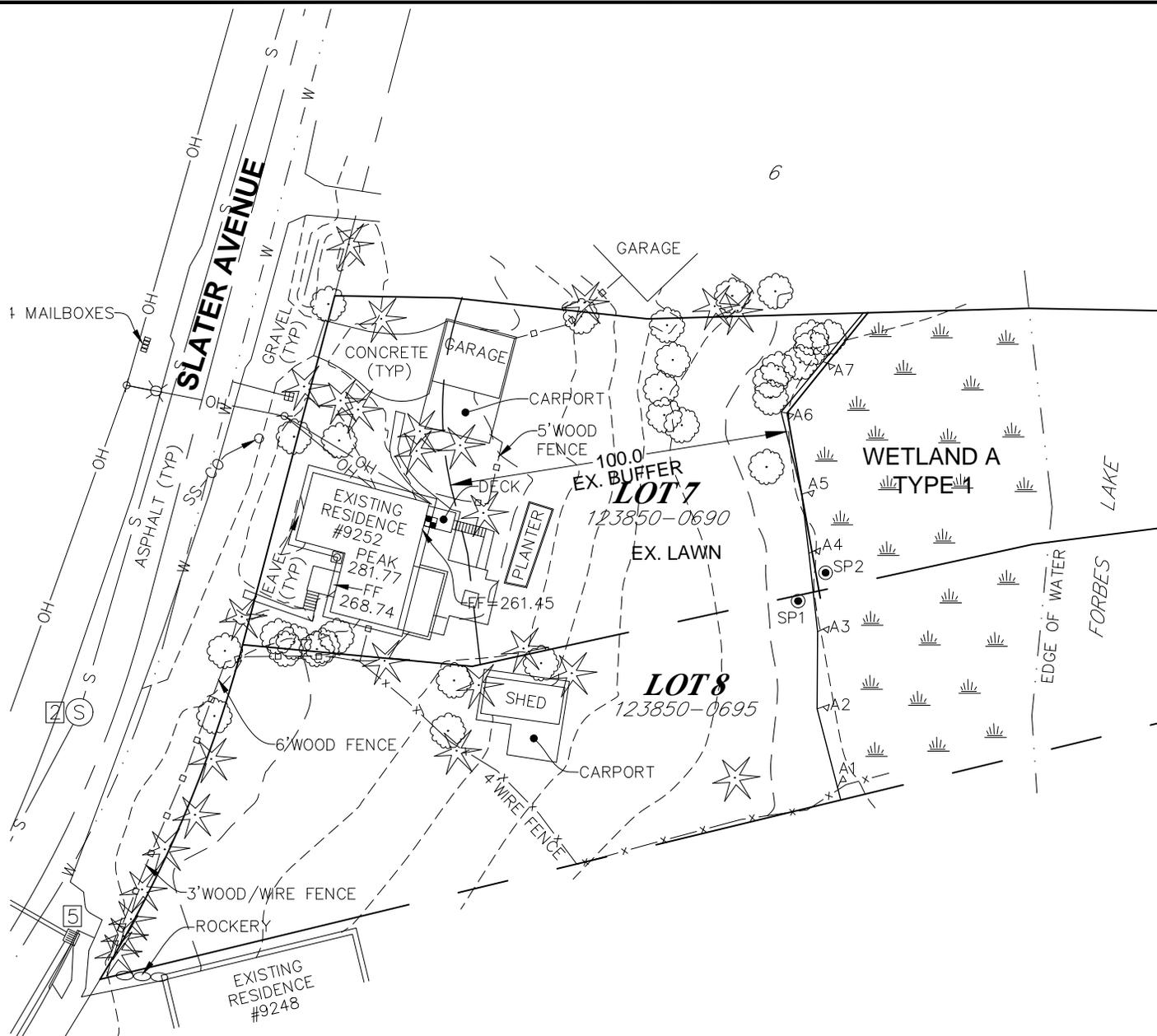


RAI PROJECT: 2016-084	
DATE: 7/17/2017	
DRAWN BY: AC	PM: CW
BASE INFORMATION: SITE PLAN BY: Allied Land Surveying, Inc. Bothell, WA 98012 Phone: (425) 482-0223	

FIGURE 2  
 MR. ISAIAH DUMMER  
 SLATER AVENUE PROPERTY  
 KIRKLAND, WA  
 WETLAND BUFFER REDUCTION  
 EXISTING CONDITIONS

**LEGEND**

-  PROPERTY LINE
-  EXISTING WETLAND
-  WETLAND FLAG
-  SAMPLE PLOT LOCATION
-  100' WETLAND BUFFER
-  EXISTING TREES
-  EXISTING CONTOURS

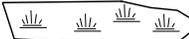


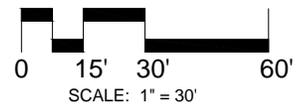
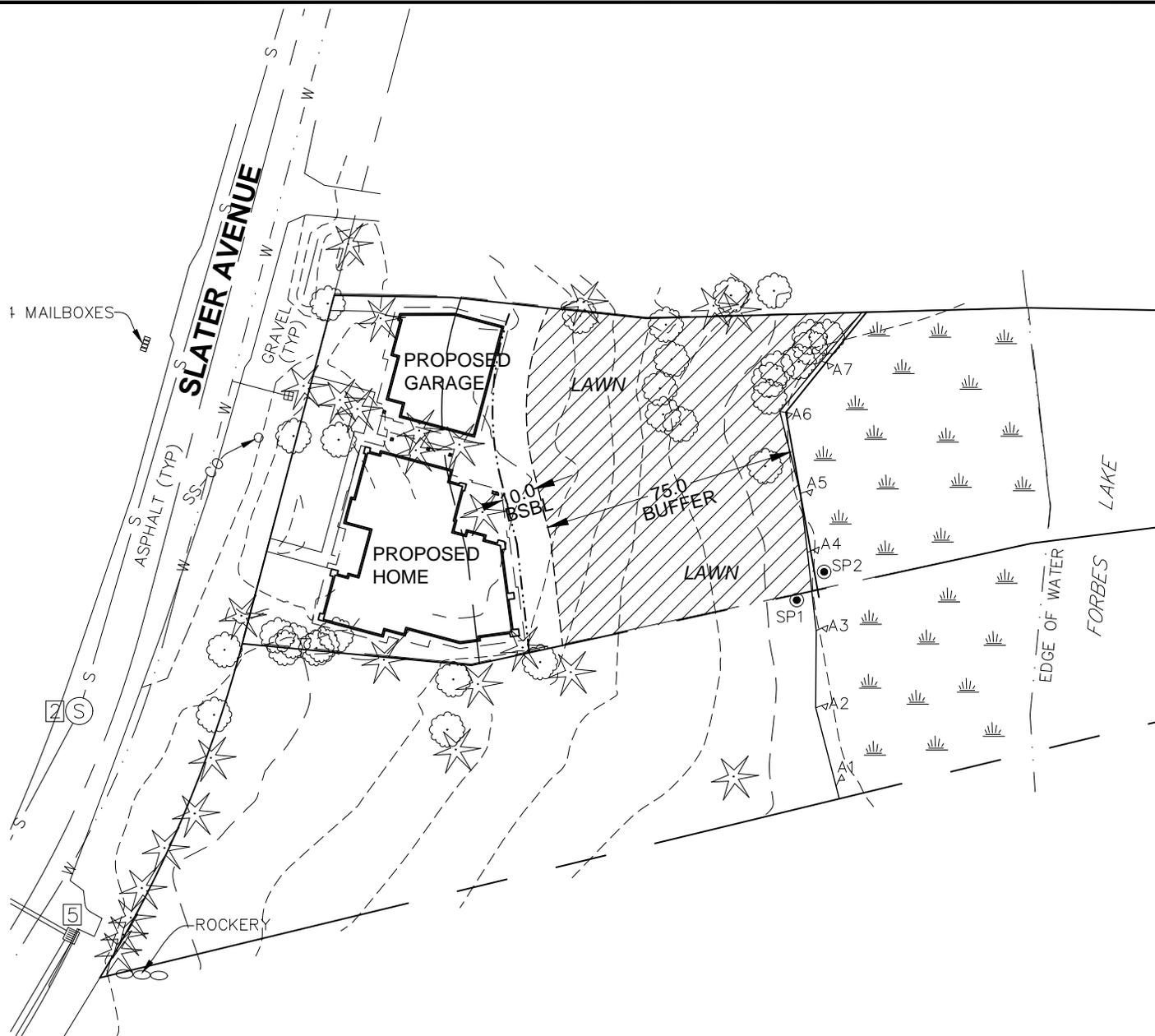
**Raedeke**  
 Associates, Inc.  
 2111 N. Northgate Way, Ste 219  
 Seattle, WA 98133

RAI PROJECT: 2016-084	
DATE: 2/24/17	
DRAWN BY: AC	PM: CW
BASE INFORMATION: SURVEY BY: Allied Land Surveying, Inc. Bothell, WA 98012 Phone: (425) 482-0223	

FIGURE 3  
 MR. ISAIAH DUMMER  
 SLATER AVENUE PROPERTY  
 KIRKLAND, WA  
 WETLAND BUFFER REDUCTION  
 PROPOSED SITE PLAN & MITIGATION

**LEGEND**

- — — — — PROPERTY LINE
-  EXISTING WETLAND
- — — — — 100' WETLAND BUFFER
- - - - - 75' REDUCED BUFFER
- · · · · 10' BSBL
-  BUFFER ENHANCEMENT  
7,085 SF



RAI PROJECT: 2016-084	
DATE: 2/24/17	
DRAWN BY: AC	PM: CW
BASE INFORMATION: SITE PLAN BY: Allied Land Surveying, Inc. Bothell, WA 98012 Phone: (425) 482-0223	





July 24, 2017

Susan Lauinger  
City of Kirkland  
Planning & Community Development  
123 Fifth Avenue  
Kirkland, WA 98033

**Re: Dummer Project – Wetland Buffer Modification Plan Review.** The Watershed Company Reference Number: 140622.16

Dear Susan:

This letter presents the findings of a buffer modification review. The wetland was delineated and classified by The Watershed Company in November 2014. The delineated boundary was recently verified by Raedeke Associates, who has also prepared a buffer modification proposal. This proposed buffer modification would support replacement of the existing home and detached garage with a new home and detached garage, including a second-story Accessory Dwelling Unit. Buffer enhancement is proposed to reduce the standard 100-foot wetland buffer width by 25% to 75-feet.

The following documents were reviewed for this project:

- Buffer modification letter and mitigation plans. Prepared by Raedeke Associates, Inc., February 21, 2017.
- Bond Quantity Worksheet. Completed by Raedeke Associates, Inc., July 24, 2017.
- Architectural plans. Drafted by Garrett Charlson (firm name not listed), February 28, 2017.
- Civil engineering plans. Prepared by Cecil and Associates, September 30, 2016.

## Findings

The proposed buffer reduction improves the existing buffer condition by planting an assemblage of native woody species. Overall the plan is well prepared and meets most of the requirements in the pre-March 2017 version of KZC Chapter 90. However, there are a few questions that should be addressed by the applicant:

1. In addition to weed removal and native species planting, KZC Chapter 90 lists the addition of woody debris as one feature that can be used to improve buffer function. Given that several trees will be removed for this project, the hauling and disposal costs could be saved and habitat conditions improved by reusing some of this wood in the buffer. The plan should propose an appropriate number of habitat features in the buffer.
2. The proposed tree planting density is low, partially due to the presence of existing trees, as explained by Raedeke. However, a quick estimation shows approximately two thirds (about 4,700SF) of the mitigation area is not beneath existing trees. Per King County recommended tree density of 9-foot (triangular spacing), the plan should propose about 57 trees compared to just 31 on the mitigation plan. Additionally, most of the retained trees are aging Lombardy poplars; a tree known for its short lifespan and poor perching habitat for birds. Since these non-native trees are likely near the end of their lifespan and are of relatively low function, replacement native trees are needed to ensure the canopy layer and its buffer function are perpetuated.
3. The submitted plan shows a simple hatch of the planted mitigation area. This is composed of species that are mainly tolerant of open areas. Since some of the planted area is in shade under the poplars, a shade-tolerant plant assemblage is warranted. The plan should include two separate plant schedules: one for shade and another for full sun.
4. It is unclear if the plan is to be uniformly installed with respect to trees. The highest function will be obtained from the creation of a multi-layered assemblage consisting of overstory canopy trees, mid-story shrubs and a groundcover layer. The revised plan should show where tall trees will be planted.
5. As called for in the Raedeke plan, much of the invasive Himalayan blackberry had been recently removed from beneath the poplars. However, the roots will still need to be grubbed out to limit resprouting. Other invasive weeds not mentioned by Raedeke were noted and should be specifically targeted for removal on the mitigation plan. These include English laurel, morning glory/bindweed and bamboo.
6. Figure 5 of the mitigation plan allows for the use of a water truck to supply irrigation. Past projects have shown trucks to be unreliable and impractical. The plan or permit should require the use of the municipal water supply to the house as the source for the irrigation system. The temporary system should be set on automated timers to improve consistency and plant success.

7. The buffer modification criteria in 90.60.2.b.#9 requires there is no practical feasible alternative development proposal that results in less impact to the buffer. Overall the plan meets the criteria except for how the buffer is drawn and where the buffer fence will be. There is about 5 feet between the main house and the building setback line and an additional few hundred square feet occupied by a 24-inch Douglas-fir tree that should be included in the buffer or setback. See figure below.



8. Figure 6 of the mitigation plan (section 1.4) describes a three-year monitoring period with annual inspections. KZC 90.55.4 requires two site visits per year for five years. The plan text should be changed to conform to this code requirement.
9. During the mitigation site inspection a new boardwalk was noted, constructed entirely of treated lumber. A Google Earth photo review going back to 1990 shows evidence of a small footpath, but no prior boardwalk. This boardwalk has incurred minor clearing (pruning/mowing) impacts to wetland vegetation and also presents shading impacts. Furthermore, the use of treated lumber may have additional impacts to soils and wildlife. None of these impacts are described in the Raedeke letter. In past projects, limited footpaths have been allowed on Forbes Lake to access the lakeshore or mooring structures. The applicant should discuss the permitting feasibility of the new boardwalk with city planners.
10. Additionally, a new or replacement dock was under construction near the existing house. Mooring structures are allowed on "minor lakes," including Forbes Lake, provided they meet the criteria outlined in KZC 90.75. As with the boardwalk, the dock was not described by Raedeke (in both instances it appears

Raedeke's report predates both features). The applicant should submit a report outlining how the new dock meets these criteria.

11. The stormwater dispersal trenches are considered stormwater outfalls per Chapter 90. Such outfalls are allowed within buffer setbacks as proposed, subject to certain provisions. The applicant should document how the outfalls meet the requirements of KZC 90.45.3.
12. The plan correctly requires irrigation of the installed buffer vegetation but gives the option of using manual watering. To ensure reliability, the plan should specify installation of a temporary, above-ground irrigation system with zones set to automated timers.
13. Bond estimate: The bond estimate is missing the split rail fence charge. Given the proximity of adjacent development and levels of nearby weeds, it is anticipated that more than just five maintenance visits would be needed over the five-year maintenance period. Similarly, the annual monitoring quantity should be changed to 10 to cover the twice-per-year monitoring required in KZC 90.55.4.

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

Sincerely,



Hugh Mortensen, PWS  
President

## NATURAL GREENBELT PROTECTIVE EASEMENT

---

**Grantor:** \_\_\_\_\_, owner of the hereinafter described real property, hereby grants to

**Grantee:** The City of Kirkland, a municipal corporation.

A natural greenbelt protective easement over and across the following described real property to wit ("Easement Area"):

No tree trimming, tree topping, tree cutting, tree removal, shrub or brush-cutting or removal of native vegetation, application of pesticides, herbicides, or fertilizers; construction; clearing; or alteration activities shall occur within the Easement Area without prior written approval from the City of Kirkland. Application for such written approval to be made to the Kirkland Department of Planning and Community Development who may require inspection of the premises before issuance of the written approval and following completion of the activities. Any person conducting or authorizing such activity in violation of this paragraph or the terms of any written approval issued pursuant hereto, shall be subject to the enforcement provisions of Chapter 1.12, Kirkland Municipal Code. In such event, the Kirkland Department of Planning and Community Development may also require within the immediate vicinity of any damaged or fallen vegetation, restoration of the affected area by planting replacement trees and other vegetation as required in applicable sections of the Kirkland Zoning Code. The Department also may require that the damaged or fallen vegetation be removed.

It is the responsibility of the property owner to maintain critical areas and their buffers by removing non-native, invasive, and noxious plants in a manner that will not harm critical areas or their buffers and in accordance with Kirkland Zoning Code requirements for trees and other vegetation within critical areas and critical area buffers.

The City shall have a license to enter the Easement Area (and the property if necessary for access to the Easement Area) for the purpose of monitoring compliance with the terms of this easement.

Development outside of this Natural Greenbelt Protective Easement may be limited by codified standards, permit conditions, or movement of the critical area.

Each of the undersigned owners agree to defend, pay, and save harmless the City of Kirkland, its officers, agents, and employees from any and all claims of every nature whatsoever, real or imaginary, which may be made against the City, its officers, agents, or employees for any damage to property or injury to any person arising out of the existence of said Natural Greenbelt Protective Easement over said owner's property or the actions of the undersigned owners in carrying out the responsibilities under this agreement, including all costs and expenses, and recover attorney's fees as may be incurred by the City of Kirkland in defense thereof; excepting therefrom only such claims as may arise solely out of the negligence of the City of Kirkland, its officers, agents, or employees.

This easement is given to satisfy a condition of the development permit approved by the City of Kirkland under Kirkland File/Permit No. \_\_\_\_\_, for construction of \_\_\_\_\_ upon the following described real property:

This easement shall be binding upon the parties hereto, their successors and assigns, and shall run with the land.

DATED at Kirkland, Washington, this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.





**(Corporations Only)**

OWNER(S) OF REAL PROPERTY

\_\_\_\_\_  
(Name of Corporation)

\_\_\_\_\_  
By President

\_\_\_\_\_  
By Secretary

**(Corporations Only)**

STATE OF WASHINGTON )  
County of King ) SS.

On this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared \_\_\_\_\_ and \_\_\_\_\_ to me, known to be the President and Secretary, respectively, of \_\_\_\_\_, the corporation that executed the Public Ingress and Egress Easement and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth, and on oath stated that they were authorized to sign said instrument and that the seal affixed is the corporate seal of said corporation.

WITNESS my hand and official seal hereto affixed the day and year first above written.

\_\_\_\_\_  
Notary's Signature

\_\_\_\_\_  
Print Notary's Name  
Notary Public in and for the State of Washington,  
Residing at: \_\_\_\_\_  
My commission expires: \_\_\_\_\_





## SAVE HARMLESS AGREEMENT - WETLAND

---

The undersigned, being all of the owners of the hereinafter described real property, hereby agree to indemnify, defend, and save harmless the City of Kirkland, its officers and employees from any claim, real or imaginary, filed against the City of Kirkland, its officers, or employees, alleging damage or injury caused by fault on the part of the undersigned, their employees or agents, and/or the City of Kirkland, its officers, or employees and arising out of maintenance, flooding, damming or enlargement of the wetland existing on the hereinafter described real property; provided, however, this agreement shall not include damage resulting from the sole fault of the City of Kirkland, its officers, or employees. Fault as herein used shall have the same meaning as set forth in RCW 4.22.01. This Agreement shall also include all reasonable cost and expense, including attorney's fees, incurred by the City of Kirkland in investigation and/or defense of any such claim.

This Agreement shall be binding upon the heirs, successors, and assigns of the parties hereto and shall run with the land.

The real property subject to this Agreement is situated in Kirkland, King County, Washington, and described as follows:

DATED at Kirkland, Washington, this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.





**(Corporations Only)**

OWNER(S) OF REAL PROPERTY

\_\_\_\_\_  
(Name of Corporation)

\_\_\_\_\_  
By President

\_\_\_\_\_  
By Secretary

**(Corporations Only)**

STATE OF WASHINGTON )  
County of King ) SS.

On this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared \_\_\_\_\_ and \_\_\_\_\_ to me, known to be the President and Secretary, respectively, of \_\_\_\_\_, the corporation that executed the Save Harmless Agreement for a Wetland and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth, and on oath stated that they were authorized to sign said instrument and that the seal affixed is the corporate seal of said corporation.

WITNESS my hand and official seal hereto affixed the day and year first above written.

\_\_\_\_\_  
Notary's Signature

\_\_\_\_\_  
Print Notary's Name  
Notary Public in and for the State of Washington,  
Residing at: \_\_\_\_\_  
My commission expires: \_\_\_\_\_