

From: **Di Mikesell** di.mikesell@shorelineschools.org  
Subject: Public Records Request  
Date: September 12, 2019 at 8:19 AM  
To: kryptographik@gmail.com

DM

Di Mikesell  
Executive Assistant to Deputy Superintendent  
Shoreline School District  
18560-1st Ave. NE  
Shoreline, WA 98155  
[di.mikesell@shorelineschools.org](mailto:di.mikesell@shorelineschools.org)

ph: 206-393-4366  
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**Board of Directors**  
Header Fralick  
Mike Jacobs  
Richard Nielson  
Richard Potter  
David Wilson  
Rebecca Miner  
*Superintendent*  
*Secretary to the Board*

September 12, 2019

Noah Tippett  
19815 55<sup>th</sup> Ave. NE  
Lake Forest Park, WA 98155

*Sent via email to kryptographik@gmail.com*

Dear Mr. Tippett,

This is Shoreline School District's final response to your public records request received August 9, 2019, requesting a copy of the following information:

- "Cedarbrook Elementary - PBS Engineering Critical Areas Assessment report."

Since no paper copies were provided in response to your request, there is no charge for copies associated with this response.

If you have any questions, please call me or my assistant, Di Mikesell, at 206-393-4366.

Sincerely,

A handwritten signature in black ink that reads "Marla S. Miller".

Marla S. Miller  
Deputy Superintendent

Electronic Enc: Documents found to be responsive to public records request

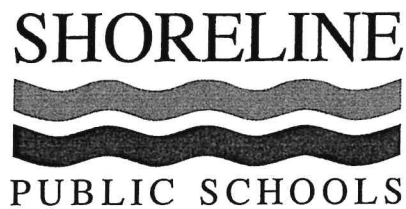
Administrative Offices, 18560 1st Ave NE, Shoreline, WA 98155-2148, Office (206) 393-4366, Fax (206) 393-4204

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CedarbrookCritic  
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*Secretary to the Board*

September 12, 2019

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If you have any questions, please call me or my assistant, Di Mikesell, at 206-393-4366.

Sincerely,

A handwritten signature in cursive script that reads "Marla S. Miller".

Marla S. Miller  
Deputy Superintendent

Electronic Enc: Documents found to be responsive to public records request

From: **Marla Miller** [marla.miller@shorelineschools.org](mailto:marla.miller@shorelineschools.org)   
Subject: **Courtesy Notice of Public Records Request for Cedarbrook Critical Areas Report**  
Date: **August 27, 2019 at 5:11 PM**  
To: [Mike.Bagley@pbsusa.com](mailto:Mike.Bagley@pbsusa.com)



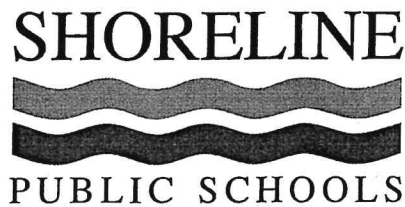
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Marla

Marla S. Miller  
Deputy Superintendent  
Shoreline School District  
206.393.4514  
206.393.4204 (fax)  
[marla.miller@shorelineschools.org](mailto:marla.miller@shorelineschools.org)



**Board of Directors**  
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Richard Potter  
David Wilson  
Rebecca L. Miner  
*Superintendent*  
*Secretary to the Board*

August 27, 2019

Mike Bagley, Project Geologist  
PBS Seattle  
2517 Eastlake Avenue East, Suite 100  
Seattle, WA 98102

*Sent via email to Mike.Bagley@pbsusa.com*

Dear Mike,

Shoreline School District has received a public records request for a copy of the Critical Areas Report for the Cedarbrook School Demolition Site produced for the District by PBS. This letter is a courtesy notice for your information only; you do not need to respond or provide any documents in response to this request. If any documents are required to be released under the law, the District will make every effort to redact all information that is exempt from disclosure prior to release.

Please note that the Public Records Act (RCW 42.56.270) provides an opportunity for a business to seek an injunction to protect certain business information. We have estimated that our response to this request will be released by September 11, 2019. At that time, we intend to transmit all requested information that is not exempt under the Public Records Act, unless you obtain a court injunction that prevents release of the document(s).

If you have any questions, please call me at 206.393.4514.

Sincerely,

A handwritten signature in black ink that reads "Marla S. Miller". The signature is written in a cursive style with a large, looped "M" and "L".

Marla S. Miller  
Deputy Superintendent

Enc: Request for public records



Please Email This Form To: [public.records@shorelineschools.org](mailto:public.records@shorelineschools.org)

### PUBLIC RECORDS REQUEST

It is the policy of Shoreline School District to make available for inspection and/or copying all district records falling within the classification of public records as defined by laws, except those which are exempted from such disclosure subject to the procedures, limitations, and qualifications set forth in the laws and/or school district regulations.

#### Requester Information (we will honor anonymous request)

Name*		Company/Organization	
Noah Tippett			
Email*		Address line 1*	
kryptographik@gmail.com		19815 55 <sup>th</sup> Ave NE	
City*	State*	Zip code*	Phone*
Lake Forest Park	WA	98155	(206) 786-2629

#### Description of the document(s) you are requesting\*

Time period of the information you are seeking:

Start date\* June 1, 2016 End Date\* December 31, 2017

Please provide enough information that we may identify and locate the records you seek. Attach additional page if necessary.

Sometime in 2017 you demolished the buildings on the lot of the old Cedarbrook elementary school (2000 NE Perkins Way). Before doing this you hired PBS Engineering to perform a Critical Areas assessment in which several wetland areas were delineated. I am looking for a copy of this report. When I look at wetland data using the Shoreline iMap viewer I find this report is referred to as "PBS Cedarbrook Rpt 2017\_03\_29" with an "InventoryDate" of 8/31/2016, 5:00 PM. Thank you.

If the request is for a list of individuals, I certify, by checking this box, that the information will not be used for commercial purposes. The district is not authorized to provide public records consisting of a list of individuals for commercial use (RCW42.56.070(9)).

#### Records Delivery Options

Select one option to receive the records\*:

Printed copies will be 15 cents per page. Mailing cost will be additional (unless copies are picked-up in person).

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\* Required Fields

From: **Di Mikesell** di.mikesell@shorelineschools.org   
Subject: Public Records Request  
Date: August 14, 2019 at 11:56 AM  
To: kryptographik@gmail.com



Di Mikesell  
Executive Assistant to Deputy Superintendent  
Shoreline School District  
18560-1st Ave. NE  
Shoreline, WA 98155  
[di.mikesell@shorelineschools.org](mailto:di.mikesell@shorelineschools.org)

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*Secretary to the Board*

August 14, 2019

Noah Tippet  
19815 55<sup>th</sup> Ave. NE  
Lake Forest Park, WA 98155

*Sent via email to kryptographik@gmail.com*

Dear Mr. Tippet,

This is to acknowledge receipt of your public records request on August 9, 2019, requesting a copy of the following information:

- "Cedarbrook Elementary - PBS Engineering Critical Areas Assessment report."

The District currently estimates the documents found to be responsive to your request will be available to you within 20 business days from the date of this letter. The additional time required to respond to your request is based upon the need to locate and assemble the information requested, to notify third persons or agencies affected by the request, if any, or to determine whether any of the information requested is exempt from disclosure.

A copy of your full request is enclosed with this response. If you have any questions, please call me or my assistant, Di Mikesell, at 206-393-4366.

Sincerely,

Marla S. Miller  
Deputy Superintendent

Electronic Enc: Request for Public Records

Administrative Offices, 18560 1st Ave NE, Shoreline, WA 98155-2148, Office (206) 393-4366, Fax (206) 393-4204



Please Email This Form To: [public.records@shoreschools.org](mailto:public.records@shoreschools.org)

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Requester Information (we will honor anonymous request)

Name*	Company/Organization		
Noah Tippett			
Email*	Address line 1*		
kryptographik@gmail.com	19815 55 <sup>th</sup> Ave NE		
City*	State*	Zip code*	Phone*
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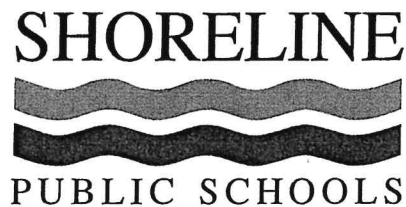
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August 14, 2019

Noah Tippett  
19815 55<sup>th</sup> Ave. NE  
Lake Forest Park, WA 98155

*Sent via email to [kryptographik@gmail.com](mailto:kryptographik@gmail.com)*

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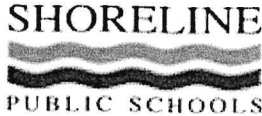
From: **Kryptographik** kryptographik@gmail.com  
Subject: Public Records request regarding Cedarbrook lot  
Date: August 9, 2019 at 4:09 PM  
To: public.records@shorelineschools.org



Hello,

Attached is my completed Public Record Requests form.

Thank you for your time,  
\_Noah Tippett



**Please Email This Form To: [public.records@shorelineschools.org](mailto:public.records@shorelineschools.org)**

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\* Required Fields



## **Critical Areas Report**

Cedarbrook School Demolition Site  
Shoreline, Washington

Prepared for:  
Shoreline School District

Revised March 2017  
Project No. 40958.011

2517 Eastlake Avenue East, Suite 100, Seattle, WA 98102  
206.233.9639 Main  
866.727.0140 Fax  
[www.pbsenv.com](http://www.pbsenv.com)

Bend | Boise | Coos Bay | Eugene | Portland | Seattle | Tri-Cities | Vancouver | Walla Walla

**Prepared for**  
Shoreline Public Schools  
Shoreline, Washington



**Prepared by:**  
Katharine Lee, M.S.  
Ecologist, Professional Wetland Scientist  
&  
Kate Machata, M.S.  
Professional Wetland Scientist

PBS Engineering and Environmental  
2517 Eastlake Ave East, Suite 100  
Seattle, WA 98102  
(206) 233-9639

PBS Project No: 40958.011

Revised March, 2017

*This report is for the exclusive use of the client for planned development of the property and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced in total or in part without the expressed written consent of the client and PBS.*

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## **SUPPORTING DATA**

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Figure 2	City of Shoreline Critical Areas Map
Figure 3	Aerial Photograph with 2' Contours
Figure 4	Water/Wetlands Delineation Map
Figure 5	Critical Area Impacts
Figure 6	Site Restoration Plan

### **Appendix B – Site Photographs**

### **Appendix C – Data Sheets and Wetland Rating Forms**

### **Appendix D – Hydrophytic Vegetation Indicator Categories**

### **Appendix E – Geotechnical Review Letter**

## Critical Areas Summary

Project Name:	Cedarbrook School Demolition
Location:	2000 NE Perkins Way in Shoreline, WA (King County parcel # 042604-9011)
Legal Description:	SW ¼ of Section 4, T26N, R04E
Jurisdiction:	City of Shoreline, King County, Washington
Zoning:	Zoned as R-6, residential-6 units per acre.
Project Staff:	Katharine Lee (PWS) and Kate Machata (PWS)
Field Dates:	September 1 and 6, 2016
Study Area:	The study area encompasses 1 tax lot and approximately 10.5 acres.
Owner:	Shoreline School District
Elevation:	225-275 feet above sea level in study area.
Hydrology:	WRIA 8 – Cedar/Sammamish River, McAleer creek watershed. The primary hydrologic input is currently from direct precipitation and surface and shallow subsurface runoff.
Soils:	NRCS soil survey data not available in City of Shoreline
Geologic Hazard Areas:	Rockery is identified as a steep slope. No other geologic hazard areas identified on parcel
Floodplain:	The study area is located outside the FEMA 100-year floodplain
Streams:	The study identified 6 streams on or immediately adjacent to the property, which include Whisper Creek and tributaries to Whisper Creek.
Wetlands:	The study identified six slope wetlands and two riverine wetlands.
Categories and Buffers:	One Category II wetland, six Category III wetlands and one Category IV wetland. Three wetlands have 165 foot standard buffers, three have 105 foot buffers, one has a 75 foot buffer and one has a 40 foot buffer. Buffers are increased by 33 percent if best management practices are not followed.
Previous Delineations:	Watershed Company. 2007. Off-site Wetland and Stream Delineation Study at NE Perkins Way Parcels. Letter Report prepared for City of Shoreline Planning Department



## 1.0 INTRODUCTION

The Shoreline School District # 412 operated the Cedarbrook Elementary School from 1954 to 1971. After closing the elementary school, the district used the site for a number of years for special programs and most recently rented the buildings to a private school. For the last several years the buildings have been vacant and boarded up. The district wishes to demolish the buildings before they become a public nuisance or hazard and to prepare the site for eventual reuse, sale or transfer. This report has been prepared to address City of Shoreline identified critical areas at the project site in support of the permits required to remove the buildings and infrastructure and stabilize the site.

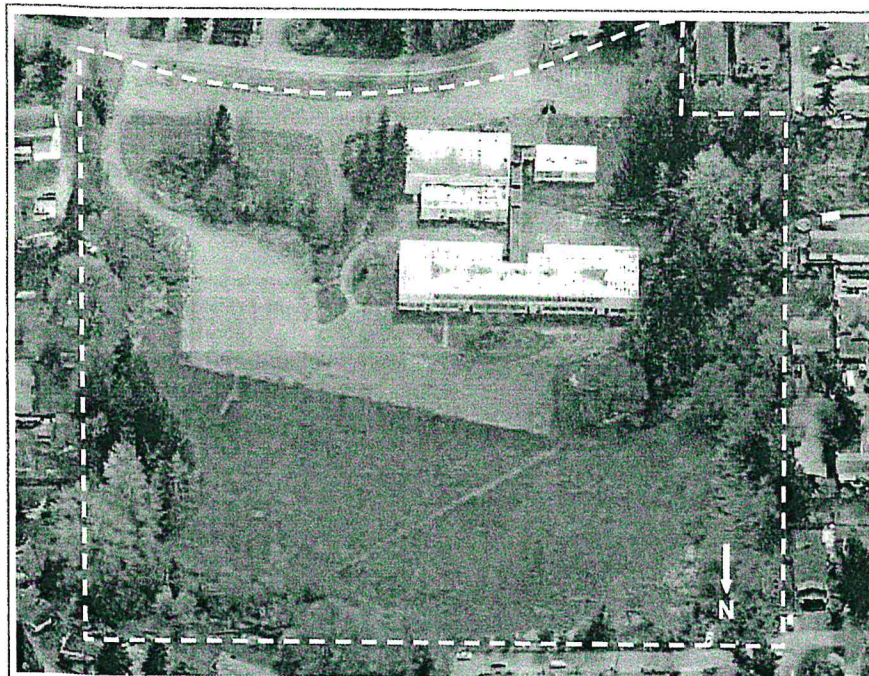
## 2.0 PROPERTY DESCRIPTION

### 2.1 Location

The project is located at 2000 NE Perkins Way in Shoreline, WA (King County parcel # 042604-9011) (Figure 1). The project is occurring in the SW  $\frac{1}{4}$  of Section 4, T26N, R04E.

### 2.2 Site Description

The 10.5 acre project site is the old Cedarbrook Elementary school located in the northwest portion of the City of Shoreline, WA. The school consists of three buildings totaling 34,808 square feet. Parking areas and paved playgrounds cover approximately 2 acres. There is a large grass playing field in the north portion of the property. Wooded areas are present along the north, east and west sides of the property. The school is situated on a northeast facing hillslope and the buildings are built into the hill on two levels. The property borders NE Perkins Way to the south, NE 190<sup>th</sup> Street to the north, and residential properties to the east and west.



Birds-eye view of property looking south

Elevations on the property range from 275 feet in the southwest corner to 225 in the northeast corner with topography generally sloping from southwest to northeast. The site was graded when the school was constructed such that there is a relatively flat parking area along the south edge and a relatively flat play field to the north. Some short steep slopes and stairs are present in the middle portion of the site.

### 2.3 Land Use

Land use in the vicinity of the Cedarbrook Elementary School site is mostly residential. The site and surrounding area within the City of Shoreline is zoned as R-6, residential-6 units per acre. Zoning in Lake Forest Park to the east is RS-15,000, single family residential with a minimum lot size of 15,000 square feet. The Shoreline Comprehensive Plan designation for the City of Shoreline is low-density residential. The public has been using the open space surrounding the school as a neighborhood park.

### 2.4 Hydrology

The project site is in WRIA 8, Cedar/Sammamish River. The site is in the headwaters of Whisper Creek, a tributary to McAleer Creek, which flows into Lake Washington near the north end of the lake. An unnamed stream enters the property in the southwest corner and flows along the west edge past the school buildings and then is piped diagonally across the playfield to connect with Whisper Creek, which flows west to east across the northeast corner of the site. Several small stream segments feed into this stream from the west. Drainage that is picked up in catchbasins from the parking areas on the east side of the site also discharges to Whisper Creek in the northeast corner. Seeps are present in several places on the hillside. A swale along NE Perkins Way drains to the east and discharges to another tributary to Whisper Creek located to the east of the southeast corner of the property.

### 2.5 Soils

As the site is located in urban Shoreline, NRCS has not mapped soils at this location. Soils north of the project area include Alderwood-urban land complex, Alderwood gravelly sandy loam and Indianola loamy sand. Soils over much of the site have been disturbed through grading.

### 2.6 Plant Communities

Vegetation around the buildings includes lawns and a few mostly ornamental trees and shrubs. There is a large cedar tree just east of the buildings. The north half of the site has a large grass playfield. Along the east, north and most of the west edges of the property there is a narrow fringe of native forest vegetation with a relatively mature canopy of Douglas fir, western red cedar, big-leaf maple, red alder, black cottonwood, and cherry. Native understory plants include swordfern, salmonberry, red elderberry, creeping blackberry, ladyfern, scouring rush, etc. Non-native and invasive species are prevalent. Himalayan blackberry forms dense thickets in a number of places. Other invasive species include English ivy, holly, cherry laurel, reed canary grass, deadly nightshade and field bindweed.

### 2.7 Stormwater

Approximately 1/3 of the site is currently impervious surface. Water is collected in a series of catch basins and discharged via pipe directly to Whisper Creek. There is currently no treatment of stormwater.



### 3.0 PROJECT DESCRIPTION

The Shoreline School District wishes to demolish the aging buildings before they become a safety hazard. Because several of the buildings are built into the hillslope, some grading will be necessary to ensure slope stability after the buildings are removed. All demolition debris will be removed from the site and the disturbed areas will be covered with topsoil or mulch and seeded to grasses.

### 4.0 IDENTIFICATION AND CLASSIFICATION OF CRITICAL AREAS AND BUFFERS

#### 4.1 Geologic Hazard Areas

Liquefaction susceptibility is rated as low to very low on the WA DNR geologic maps and the seismic site class is ranked as moderate (C-D). Some short steep slopes are present on the school property including a rockery that was constructed east of the buildings where the slope was cut back to allow for a flat parking area, a steep slope in the southwest corner across the stream, and some areas around the buildings where the ground steps down from the upper parking area to the field. Areas over 40% slope are considered potential landslide areas under Section 20.80.210 of the Shoreline Municipal Code, particularly if they are underlain by glacial till. The project will not impact the rockery to the east or the steep slope in the southwest corner. Grading will result in a reduction in slope near the buildings with a resulting maximum slope of 3 to 1.

A geotechnical engineer at PBS reviewed the site and proposed plans and determined that there were no geologic hazards at the site and that the grading would not result in any increase in risk. The geotechnical analysis letter is attached as Appendix E.

#### 4.2 Fish and Wildlife Habitat Conservation Areas

##### 4.2.1 Streams

Whisper Creek, a tributary to McAleer Creek flows onto the property from the north near the intersection of NE 190th St and 20th Ave NE. It flows along the north boundary before exiting near the northeast corner of the property. An unnamed stream flows onto the property in the southwest corner through a culvert under NE Perkins Way. That creek flows north along the west portion of the property, and then enters an 85 foot long culvert near the school buildings. It daylights just west of the main building and continues north to the edge of the playfield where it enters a 300 foot long culvert that carries it diagonally across the playfield to join Whisper Creek. Several very small creeks drain from the west into this unnamed creek, as well as several small seeps. There is another small tributary to Whisper Creek just off property near the southeast corner that flows north through a culvert under NE Perkins Way and then turns east.

Ordinary high water was delineated on Whisper Creek and the unnamed tributary to Whisper Creek on the west edge of the property. The seep features and smaller stream segments were not mapped separately as streams, but were included within the wetlands described in the next section.

McAleer Creek flows into Lake Washington near the town of Lake Forest Park at the north end of the lake. It is shown on WDFW's SalmonScape website as having documented fall Chinook and winter steelhead salmon use up to within 450 feet of the project site. Fall Chinook, winter steelhead, coho and sockeye salmon all spawn in the

lower portion of the creek. The Washington State stream type mapping shows McAleer creek as a Type F stream, but does not rate either Whisper Creek or the smaller tributaries. The City of Shoreline maps Whisper Creek and the unnamed tributary along the west edge of the property as Type III non-fish perennial (Np) streams. However Whisper Creek up to the property has no known complete barriers to fish passage and fish may be present. The small stream just east of the southeast corner of the property is not typed. The McAleer Creek Basin Plan groups Whisper Creek and its tributaries and collectively assigns a DNR Type F (fish) and City Type II designation which they say could be downgraded to a Type III if lack of salmonid use could be definitively documented or a Type IV if there were no fish and the stream was less than 2 feet in width.

The unnamed tributary was realigned and straightened as part of construction of the Cedarbrook School grounds in the 1950s. Thus, the stream is conveyed northward through a series of piped sections which serve as barriers to fish passage. Several reaches of the non-piped sections of this small tributary have fringing wetland. Other reaches are deeply incised with steep banks and no fringing wetland. The tributary flows through approximate 400 feet of pipe before outflowing to Whisper Creek near the north edge of the parcel.

#### 4.2.2 Stream Buffers

Buffers for Whisper Creek, a Type F – non anadromous stream are 75 feet measured horizontally from OHW. The tributary stream along the west edge of the property is a Type Np – non fish, perennial stream. Buffers are 65 feet from OHW. The project area does not include either Whisper Creek or its buffers. Buffers for the tributary stream extend into the project area and include portions of the buildings and paved areas to be demolished.

#### 4.2.3 Habitat Conditions

Habitat conditions of the tributary stream and its buffer in the project area are generally poor. Half of the total length of the stream on the property is culverted. The channel was moved and straightened when the school was constructed. While there is a narrow band of native trees that is 15 to 25 feet wide along most of the above ground channel areas near the buildings, the balance of the buffer is currently paved, grass lawn or buildings. Disturbance of the banks is high throughout the project area due to a number of informal paths, which has led to bank erosion. Invasive species have high cover throughout the buffer and include Himalayan blackberry, English ivy, holly and cherry laurel. Where the stream enters the property at the south end of the project area, the stream is bordered by dense blackberries.

### 4.3 Wetlands

While no wetlands are identified by The National Wetland Inventory (NWI) on the property, the City of Shoreline Critical Areas mapping identifies several wetlands. A wetland delineation was conducted in September, 2016 to verify the boundaries of all on-site wetlands.

#### 4.3.1 Rationale for Use of the Routine Delineation Methods

The project site occurs in the region defined in the Western Mountains, Valleys and Coast Regional Supplement (WMVC Supplement). Based upon guidance provided in

the *Corps of Engineers 1987 Wetland Delineation Manual* (1987 Manual) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: WMVC (Version 2.0), it is the best professional judgment of the PBS delineation team that the current wetlands in the study area exist under "normal circumstances" as defined in the 1987 Manual and supplement. Therefore, we delineated waters and wetlands on the project using methods recommended in the manual for routine situations.

#### 4.3.2 Office Methods

Office preparation for the delineation consisted of reviewing a variety of on-line sources and information provided by the client. The review included but was not limited to NWI mapping, soil mapping, topography, regional plant communities, priority habitats, water quality assessments and local regulations.

#### 4.3.3 Field Methods

A site reconnaissance field visit occurred on September 1 and 6 by Professional Wetland Scientists Katharine Lee, and Kate Knox Machata. Wetlands were delineated using the three parameter approach as required in the WMVC Supplement. Wetland boundaries were flagged using wetland delineation pin flags. Plot locations were also marked with pin flags. A professional land survey was completed by HDJ, a division of PBS, to accurately locate wetland boundary and data plots.

##### 4.3.3.1 Hydrology

The presence of wetland hydrology was determined by evaluating a variety of direct and indirect indicators. In addition to hydrologic data and records pertaining directly to the study area, hydrologic indicators can be used to infer satisfaction of the wetland hydrology criterion. Field indicators of wetland hydrology listed in the Regional Supplement include, but are not limited to, visual observation of inundation or saturation, sediment deposition, hydric soil characteristics, watermarks, drift lines, oxidation around living roots and rhizomes, salt or biotic crusts, and water-stained leaves. To satisfy the hydrology criterion for wetlands, soils need to be inundated, saturated to the surface, or have a water table 12 inches or less below the surface for at least 14 consecutive days during the growing season in five years out of ten. The delineation was conducted during the growing season, but past the optimum time for assessing wetland hydrology.

##### 4.3.3.2 Soils

The presence of hydric soils was determined consistent with the WVMC Regional Supplement and current regulatory guidance. The supplement includes a number of hydric soil indicators specific to this region. Soils were evaluated based on these indicators.

##### 4.3.3.3 Vegetation

The existing vegetation was characterized for wetlands and adjacent uplands. Species identifications and taxonomic nomenclature followed the USDA Plants Database. Each species' indicator status was assigned using the WVMC 2016 Regional Wetland Plant List (Lichvar et al. 2016). A species indicator status refers to the relative frequency with which the species occurs in jurisdictional wetlands (Appendix D).

An area satisfies the hydrophytic vegetation criteria when, under normal circumstances, more than 50 percent of the dominant species from each stratum are obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC) species.

#### 4.3.4 Climate

The City of Shoreline has a predominantly temperate marine climate typical of much of the Puget Sound area. Summers are warm and relatively dry, and winters tend to be mild, but rather wet. Mean high temperatures for Shoreline range from 45°F in January to 74°F in August. Mean low temperatures range from 34°F in January to 54°F in August (NRCS 2013). Precipitation is generally light in late spring and summer. Rainfall averages almost 36 inches per year (Seattle Sand Point Station, WA290), most of which typically falls as rain between November and April. Snow is rare and does not remain long on the ground.

Precipitation levels are considered normal when the probability of that rainfall amount for a given month is greater than or equal to 30% either side of the mean, as displayed in the table below (Table 1). Rainfall accumulation as estimated at the Seattle weather station in the 3 months prior to the September 1, 2016 field delineation effort (June through August 2016) was 2.1 inches, which is 1.52 inches below average, but within the normal range (Table 1). A total of only 0.01 inches of rain was recorded in the 2 weeks prior to the September 1, 2016 field effort. Precipitation recorded between September 1 and September 6 was 0.23 inches.

**Table 1.** Monthly precipitation in inches for Seattle, WA and “normal” ranges and averages for Seattle, WA. From: <http://agacis.rcc-acis.org/53033/mtot/results>.

Month	Seattle*, WA 2015/2016	Seattle, WA 1971-2000			Above or Below Normal
		30% chance will have		Average	
		Less than	More than		
October 2015	3.83	1.85	4.04	3.32	Within
November 2015	7.16	3.59	5.80	4.92	Above
December 2015	9.41	3.86	6.45	5.45	Above
January 2016	7.19	3.07	5.36	4.49	Above
February 2016	4.07	2.43	4.40	3.67	Within
March 2016	5.22	2.95	4.45	3.84	Above
April 2016	1.56	2.04	3.36	2.84	Below
May 2016	1.63	1.49	2.49	2.10	Within
June 2016	1.52	0.99	2.04	1.68	Within
July 2016	0.53	0.49	1.19	0.97	Within
August 2016	0.05	0.43	1.18	0.97	Below
September 2016	1.53	0.59	2.05	1.71	Within
<b>Year Total</b>	<b>43.7</b>	<b>32.57</b>	<b>38.86</b>	<b>35.96</b>	<b>Above</b>
<b>3 Month Prior</b>	<b>2.11</b>	<b>2.97</b>	<b>5.72</b>	<b>4.75</b>	<b>Below</b>

\* Monthly totals from: <http://agacis.rcc-acis.org/53033/mtot/results>. Sand Point WSFO Station #94290



### 4.3.5 Delineation Results

#### 4.3.5.1 National and Local Wetland Inventories

The National Wetland Inventory (NWI) does not map any wetlands on the property. The City of Shoreline GIS maps show six wetlands distributed across the site (Figure 2). Several mapped tributaries are shown to join together and flow to Whisper Creek in the northeast corner of the site. These mapped features are similar to what was observed during the 2016 site visit.

#### 4.3.5.2 Previous Wetland Delineations and Assessments

A prior delineation was completed on a portion of the property as part of an off-site wetland and stream delineation (Watershed Company 2007). Results of this 2016 delineation closely match findings in the 2007 report.

#### 4.3.5.3 Growing Season

The growing season is generally defined as the portion of the year when soil temperatures at approximately 20 inches below the soil surface are above biological zero or 5 degrees Celsius (US Department of Agriculture – Soil Conservation Service 1985). When soil temperature data are not available, the Wetland Delineation Manual allows using the closest and best available weather station data to estimate the length of the growing season based on a 50% probability of a temperature of 28°F or higher (Ecology 1997, paragraph 46). Using this approximation, the growing season in this region would be 305 days long at least 50% of the time (WETS Station WA233). Generally this translates to the period of February to December. To meet the hydrology criteria at this site, soils would need to be ponded, flooded or have a water table 12 inches or less below the soil surface for at least 14 consecutive days during that interval. The fieldwork was conducted during the growing season.

### 4.3.6 Characterization of Delineated Wetlands

Six slope wetlands and two riverine wetlands were delineated on the subject property. Table 2 lists the Cowardin classification, HGM classification, and size of these wetlands on the subject property. Figure 5 shows the boundaries of the wetlands and location of data plots. Data sheets are included in Appendix C.

**Table 2.** Wetland Characteristics. Note that several of the wetlands extend off property and only the area of wetland mapped on the property is included in the area calculation.

Name	Cowardin <sup>1</sup>	HGM	Acres	Sq Ft
Wetland A	PF	Slope	0.57	2,482
Wetland B	PEM/PSS	Slope	0.17	759
Wetland C	PF	Slope	0.01	355
Wetland D	PSS	Riverine	0.26	1,157
Wetland E	PSS/PEM PF	Slope	0.76	33,131
Wetland F	PSS	Riverine	0.27	11,661
Wetland G	PSS/PF/PEM	Slope	0.32	13,774
Wetland H	PEM	Slope	0.06	2,600
Total			1.67	65,919

Notes: <sup>1</sup> PF = Palustrine Forested, PSS = Palustrine Scrub Shrub, PEM = Palustrine Emergent

#### Wetland A

Wetland A is a slope wetland which receives hydrologic inputs from several hillslope seeps. Parts of this wetland could be considered riverine or depressional, but the vast majority is slope wetland. The unnamed tributary to Whisper Creek flows to Wetland A where it loses bed and bank features in this broad shallow slope. Another indistinct channel flows through the northwestern portion of this wetland. Water leaves the wetland at its north east edge where it flows into a culvert. Surface water is present in much of the wetland. Dominant vegetation in Wetland A includes red alder, willows, salmonberry, Himalayan blackberry, English ivy, cherry laurel and skunk cabbage. Much of the wetland has an overstory of western red cedar rooted outside the wetland. Very dark low chroma (10YR 3/1) organic or mucky modified soils were observed in this wetland.

#### Wetland B

Wetland B is a small hillslope seep wetland located between two of the buildings. The north edge of the wetland abuts an asphalt playground. The eastern portion of Wetland B is mowed herbaceous vegetation with a mix of grasses and herbs (*Juncus effusus*, *Plantago spp.*, *Carex spp.*, *Ranunculus repens*, etc). The western portion of Wetland B is dominated by Himalayan blackberry and cottonwood saplings. Soils are low chroma with prominent redox concentrations starting at the surface. The water table was observed within 12 inches of the surface near the edge of the wetland. Water flows out of the wetland across the paved area.

#### Wetland C

Wetland C is a hillslope seep wetland that starts as a small depression at the crest of a slope. Vegetation in this area includes a canopy of cottonwood and alder with shrub canopy of western mountain ash (*Sorbus sitchensis*), Himalayan blackberry and holly (*Ilex aquifolium*). English ivy (*Helix hedera*) covers much of the ground surface and is creeping up many of the trees. Herbaceous vegetation includes bittersweet nightshade (*Solanum dulcamara*), creeping buttercup, and field horsetail (*Equisetum arvense*). Water spills from the depression to the bare hillslope where it seeps near the surface to the northeast to intercept the unnamed tributary near the upstream edge of Wetland D. The hillslope is dominated by western red cedar (*Thuja plicata*) canopy, but has a nearly unvegetated understory. This area is near the school building along an informal path to the forest and has likely received extensive recreational use and disturbance in the past.

#### Wetland D

Wetland D is a fringing wetland along the unnamed tributary to Whisper Creek. The creek was realigned when the school buildings were constructed. This wetland extends from the creek to the edge of the sidewalk along one of the school buildings. Dominant vegetation includes Himalayan blackberry, bindweed, salmon berry, and field horsetail. Most of this narrow wetland has a tree canopy which is rooted in adjacent uplands. Soils are saturated to the surface with evidence of surface flow across the sidewalk to the east to the adjacent building. Soils exhibit hydric indicators with a gley matrix and prominent redox concentrations (7.5YR 4/4) starting at 5 inches from the surface and increasing with depth.

#### Wetland E

Wetland E is a large wetland complex along the northern part of the west edge of the parcel. This wetland is fed by a series of hillslope seeps. Several inches of water was observed in the upslope portion of this wetland. Vegetation in Wetland E includes a

portion of the mowed field with grasses (*Agrostis* spp., *Schedonorus arundinaceus*) and creeping buttercup (*Ranunculus repens*). The portion of Wetland E at the toe of the slope has been mowed at some times in the past but is likely too wet to mow regularly and is now dominated by a mix of grasses (mostly reed canary grass), sedges, and rushes (*Juncus effusus*) with some Himalayan blackberry. The upslope portion of the wetland is dominated by a shrub community dominated by salmonberry and Himalayan blackberry. Alders are present in the southwestern portion of the wetland and a few willows are present near the northwest corner. A surface drain collects surface water on the playfield at the toe of slope along the northeast edge of Wetland E. Soils in the wetland are silt loam to sandy loam with low chroma matrix (10YR 4/1) and prominent redox concentrations starting at the surface.

#### Wetland F

Wetland F is a riverine wetland associated with Whisper Creek. The creek enters the property midway along the northern edge of the property and exits just south of the northeast corner. Wetland F borders the creek along the north bank and portions of the south bank within the property, extending off property to the north and east. Much of Wetland F has shallow surface flow associated with the creek. Wetland vegetation includes black cottonwood, western red cedar, red alder, willow species, salmonberry, skunk cabbage, yellow iris, horsetail and reed canarygrass. Himalayan blackberry is also present.

#### Wetland G

Wetland G is a slope wetland fed by a series of hillslope seeps. The hillslope at this location was cut back to create a flat asphalt parking lot for the school, which intercepted subsurface flows and formed a wetland. Water from the seeps sheet-flows across the asphalt parking surface to the east. Water was flowing up to several inches in depth on the parking lot in September 2016 despite a recent period of unusually dry conditions. Lack of maintenance on the parking lot has resulted in growth of herbaceous wetland vegetation across much of the inundated area, however soils have not developed on the surface of the asphalt beyond a film of moss and organic matter present in localized parts of the parking lot. Dominant vegetation on the hillslope portion of this wetland includes willow and red alder with an understory of salmonberry and other wetland shrubs, Himalayan blackberry, and reed canarygrass. East of the parking lot the wetland extends a short distance, but then the water goes subsurface so hydric soil and hydrology indicators are lost. Wetland G did not have a visible surface connection to downstream waters but likely has a shallow subsurface connection to Whisper Creek to the north and east.

#### Wetland H

Wetland H is a constructed roadside swale along NE Perkins way. Much of the swale is regularly mowed and maintained by the City. This wetland is actually in the right-of way to NE Perkins Way. Vegetation consists of lawn grasses (e.g. *Agrostis* spp. and *Holchus lanatus*) and herbaceous plants including *Equisetum arvense*, *Ranunculus repens* and several sedge and rush species. The swale ends in a catchbasin to a culvert under the driveway. Water flows through the culvert to join a small tributary stream that flows east towards Whisper Creek. Soils in the wetland are sandy loam with lower chroma matrix than adjacent upland soils and prominent redox features at 10YR 4/6 starting within 3 inches of the surface. Soils were moist throughout the profile within the wetland in comparison to dry soils throughout the profile in the adjacent upland.

#### 4.4 Wetland Functional Assessment

The City of Shoreline code uses the 2014 version of the Washington State Wetland Rating System for Western Washington (Ecology Publication #014-06-029) to assess wetland functions and values. Wetlands can be rated from Category I (highly functioning) to Category IV (low functioning). Prior to rating, wetlands are classified according to landscape position. The rating system relies on a combination of field observations and office research to evaluate wetland functions and values. A variety of sources are used to obtain local information on water quality, hydrology, priority species presence and surrounding land use. The scoring and rating forms and figures for the rating system are located in Appendix C.

The Wetland Categories derived from the rating system are then used by the local jurisdictions to set buffers and mitigation ratios. Table 3 lists ratings and associated buffer widths determined for each wetland (see rating forms in Appendix C). The City of Shoreline has a standard minimum buffer width that requires the implementation of the mitigation measures in Table 20.80.330(A)(2), where applicable, to minimize the impacts of the adjacent land uses. If these mitigation measures are not implemented, buffer widths must be increased by 33 percent.

**Table 3. Scores Obtained from the Wetland Rating System for Western Washington**

Function	Wetland Name							
	A	B	C	D	E	F	G	H
Water Quality	6	6	6	7	6	7	6	6
Hydrology	5	5	5	7	5	7	6	5
Habitat	6	5	5	5	6	6	4	3
Total	17	16	15	19	17	20	16	14
Category	III	III	III	III	III	II	III	IV
Category Based on Special Characteristics	NA	NA	NA	NA	NA	NA	NA	NA
Minimum Standard Buffer Width (SMC 20.80.330)	165	105	105	105	165	165	75	40
Buffer Width with no Mitigation Measures (per Table 20.80.330(A)(2) R)	219	140	140	140	219	219	100	53

##### 4.4.1 Water Quality

Water quality functions scored moderate for each of the slope wetlands and moderately high for the riverine wetlands. Water quality functions include nutrient cycling, filtering of pollutants, and retention of sediment and particulates. Because each of these wetlands receives stormwater inputs from the adjacent neighborhood and from recreational uses including dogs, there is potential to improve water quality. These wetlands are connected to downstream waterways by adjacency and/or proximity to Whisper Creek. McAleer Creek is on the 303d list of impaired waterbodies.



#### 4.4.2 Hydrology

The slope wetlands are rated as having moderate level of hydrology functions. The slope wetlands on the site are predominantly fed by groundwater seeps. Hydrologic functions of slope wetlands include short- and long-term water storage and groundwater recharge. The riverine wetlands provide similar functions, but also provide flood storage. The two riverine wetland rated moderately high for hydrologic functions. There are known flooding concerns for downstream waters in McAleer Creek.

#### 4.4.3 Habitat

Habitat functions were rated as moderate to low. These wetlands lie within an urban residential neighborhood with little available habitat in the vicinity. No priority species are known to occur in the area. Cutthroat trout may inhabit Whisper Creek but use of this tributary to McAleer Creek by other salmonids is not documented (City of Shoreline 2015). Invasive weeds including reed canarygrass and Himalayan blackberry dominate several of the wetlands. Some of the wetlands had priority habitats in the form of riparian and instream habitats and logs and snags in the immediate vicinity.

### 5.0 REGULATORY CONTEXT

#### 5.1 Federal

The Army Corps of Engineers has jurisdiction over all non-isolated wetlands and water bodies under Section 404 of the Clean Water Act. All of the wetlands are likely to fall under Corps of Engineers jurisdiction, and impacts within the water/wetland boundary would require a permit from the Corps. Permits for impacts to waters/wetlands would also be subject to review under Section 7 of the Threatened and Endangered Species Act and Section 106 of the National Historic Preservation Act.

#### 5.2 Washington State

The Washington State Department of Ecology will review permits for impacts to waters/wetlands under Section 401 of the Clean Water Act, which regulates water quality. A 401 permit is generally not required unless a Corps permit is triggered. Any work below ordinary high water of a stream, or work in an adjacent wetland that could impact stream hydrology would trigger a Hydraulic Projects Approval (HPA) from Washington Department of Fish & Wildlife. The project should not need an HPA permit. Construction activities will be covered under the state National Pollution Discharge Elimination System (NPDES) general permit for construction projects since more than 1 acre will be disturbed.

#### 5.3 City of Shoreline

Figure 4 shows ordinary high water, wetland boundary and extent of wetland buffer and riparian management areas on the subject property. The City sets minimum 60 foot buffers from the edge of Category III wetlands with a habitat score of 4, 105 foot buffers for Category III wetlands with a habitat score of 5 and 165 foot buffers for Category II or III wetlands with a habitat score of 6. Buffers are increased by 33 percent if mitigation measures to reduce impacts are not followed. Since the project involves no development, the minimum buffers would apply.

Stream buffer widths are based on stream typing. Whisper Creek is considered a fish bearing stream (Type F) and the unnamed tributary is typed as a non-fish perennial stream (Np). Cutthroat trout are expected to be present in Whisper Creek (City of

Shoreline 2015), but other fish presence is not documented in these tributaries to McAleer Creek (WDFW 2016: SalmonScape 2016). The nearest documented presence of listed salmonid species is in McAleer Creek, approximately 0.5 miles south and east, downstream of the project area.

For a Type Np stream, the buffer extends 65 feet landward from the Ordinary High Water mark. For a Type F – non-anadromous fish bearing stream, the buffer extends 75 feet landward from OHW. Clearing, grading, building, vegetation removal and topping of trees is prohibited in the wetland and stream buffers. There are exemptions and variances possible under certain conditions. Mitigation is required for non-exempt activities.

If no development were proposed within these setbacks, the City would not require the school district to remove the existing infrastructure. New buildings could be built on the same footprint if the redevelopment occurred within one year of demolition. If the property is not developed within one year, redevelopment will be subject to all critical areas restrictions. Under the City of Shoreline Municipal Code 20.80.040 C2, demolition of structures located within critical areas or their buffers is allowed with approval of a stormwater pollution prevention plan provided that clearing limits will adequately protect the critical areas.

## 6.0 IMPACTS TO CRITICAL AREAS

The three school buildings and surrounding infrastructure will be demolished and removed, including foundations, sidewalks, asphalt areas and utilities. Figure 5 shows the project footprint. The project will have no direct impacts to wetlands or streams. Impacts will occur to portions of the buffer for the tributary to Whisper Creek along the west side and several of the wetlands near the project area. Approximately 1 acre of buffer will be impacted. All buffer areas to be impacted have been previously disturbed and are currently occupied by buildings, other impervious surfaces, grass lawns or landscaped areas. No undisturbed native vegetation or native trees will be removed. As mentioned in the previous section, demolition activities are allowed in critical area buffers. Figure 5 shows impacts to the Critical Area buffers

## 7.0 SITE STABILIZATION/ MITIGATION MEASURES

Following demolition, the foundations will be filled using on-site borrow or imported clean fill and the slope will be graded to a stable condition with slopes no greater than 3:1. The areas of disturbance will be hydroseeded with a native grass seed mixed with a cellulose fiber mulch and tackifier. Where the sidewalk and building are being removed adjacent to Wetland D, a low berm will be constructed to prevent the Whisper Creek tributary from eroding into this area and to provide a buffer between the slope and the stream and wetland. The berm will be planted with native Douglas-fir and western red-cedar trees to provide additional protection to the stream and Wetland D. Several western red-cedar will also be planted around Wetland B following grading. The site stabilization measures are shown on Figure 6.

## 8.0 CONCLUSION

The Shoreline School District plans to demolish all buildings at the old Cedarbrook Elementary School site. Eight wetlands, two streams, and several small tributaries were delineated on or immediately adjacent to the project site. Wetlands were rated using the most recent (2104)

version of the Washington State Wetland Rating System as Category II, III and IV wetlands. Streams were rated using the Washington State Stream Typing System and the City of Shoreline designations as F (fish bearing – non anadromous) and Np (non-fish perennial) streams. Buffers are set by the City of Shoreline depending on stream type, wetland category. No geologic hazard areas will be impacted by the project. The project will have no direct impact to any of the identified wetlands or streams and no federal or state permit will be required except for coverage under the NPDES Construction Stormwater General Permit during construction. Buffer impacts are all occurring to previously disturbed surfaces. Approximately 41,010 square feet of impervious surface will be removed. Impervious surfaces will be reduced from 2.78 acres to 1.84 acres. This a 34 percent reduction in impervious surface. All disturbed areas will be graded to a stable slope and seeded with a native grass seed mix. A dozen native trees will be planted adjacent to the wetlands.

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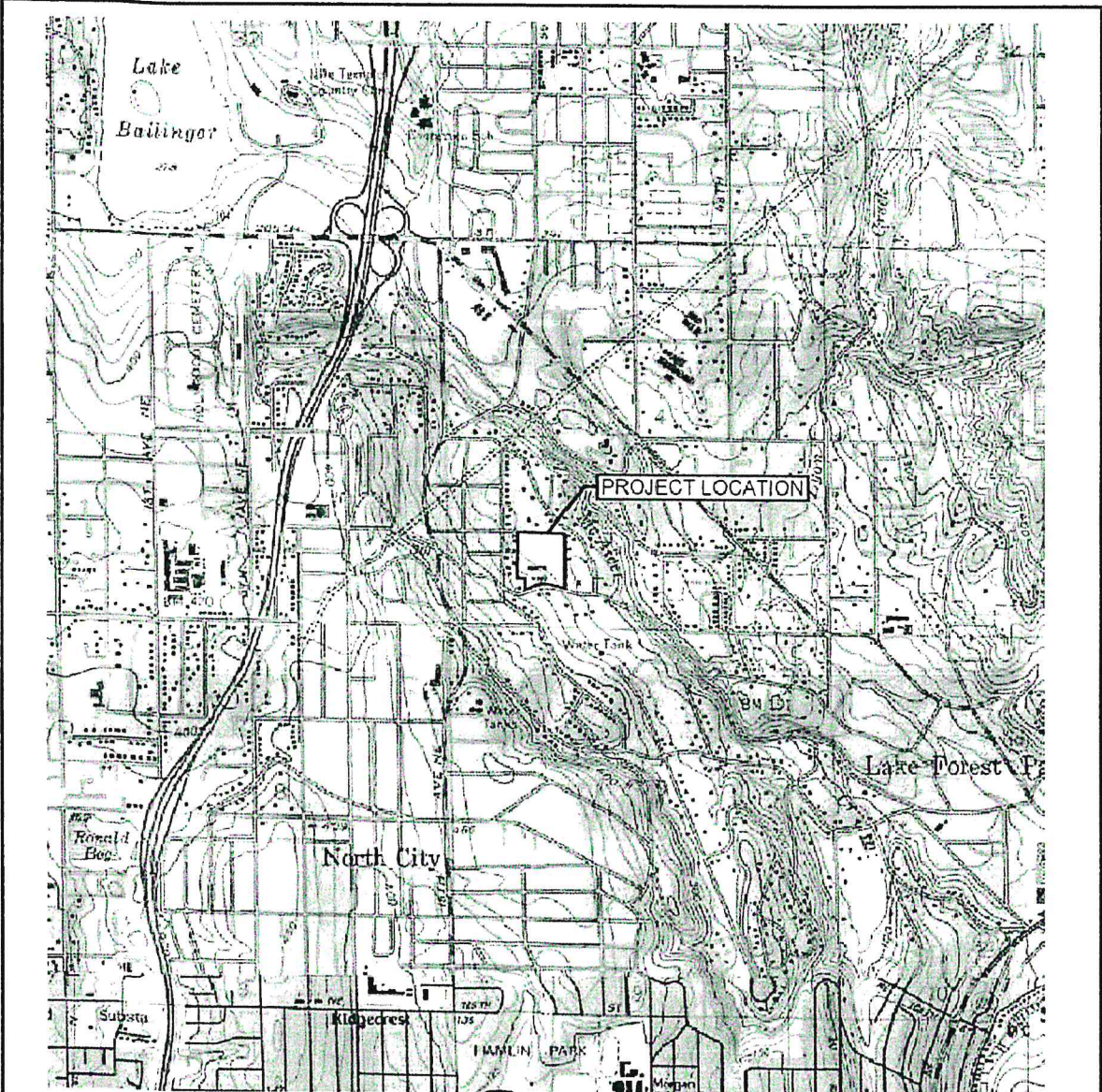
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## APPENDIX A

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Figures





SOURCE USGS EDMONDS EAST, WA QUADRANGLE 1961



WASHINGTON



SCALE 1" = 2,000'

PREPARED FOR: SHORELINE PUBLIC SCHOOLS



Project # 40958.011  
Date: Jan 2017

**SITE VICINITY MAP**







Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**FIGURE**

**1**



**KEY:**

-  Property Boundary
-  City of Shoreline Mapped Wetlands
-  Np – Perennial non-fish streams
-  Not Typed
-  Culverted streams
-  Steep slopes

*Note: Data from City of Shoreline Surface Water GIS layer*



Project # 40958.011  
Date: Jan 2017

**SHORELINE MAPPED CRITICAL AREAS**  
Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**FIGURE**  
**2**





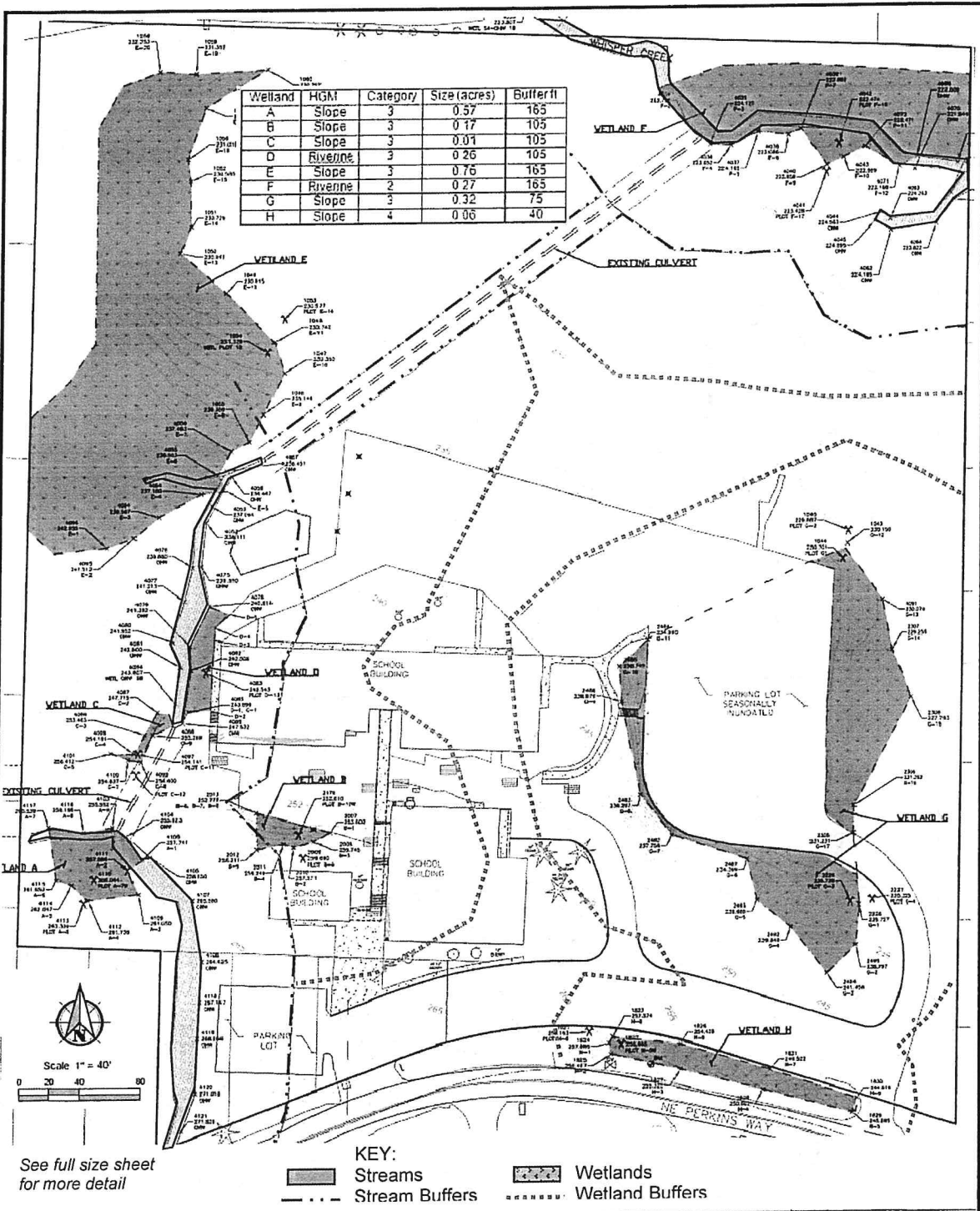
Topography from City of Shoreline GIS database – 2' contours

  
Project # 40958.011  
Date: Jan 2017

**PARCEL AERIAL / TOPOGRAPHY**  
Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**FIGURE**  
**3**

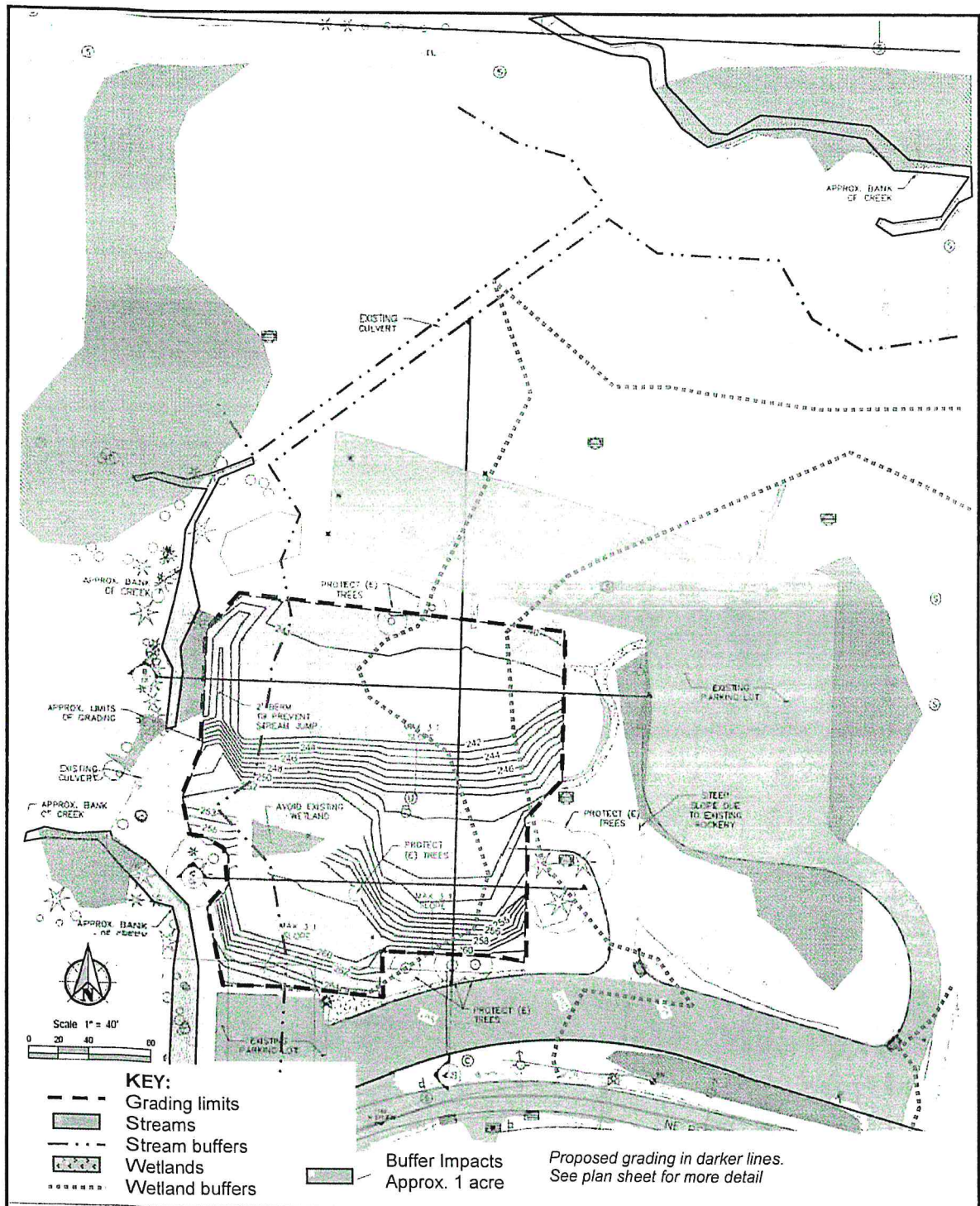




**PBS**  
 Project # 40958.011  
 Date: Jan 2017

**WATERS/WETLANDS DELINEATION**  
 Cedarbrook School Site  
 2000 NE Perkins Way Shoreline, Washington

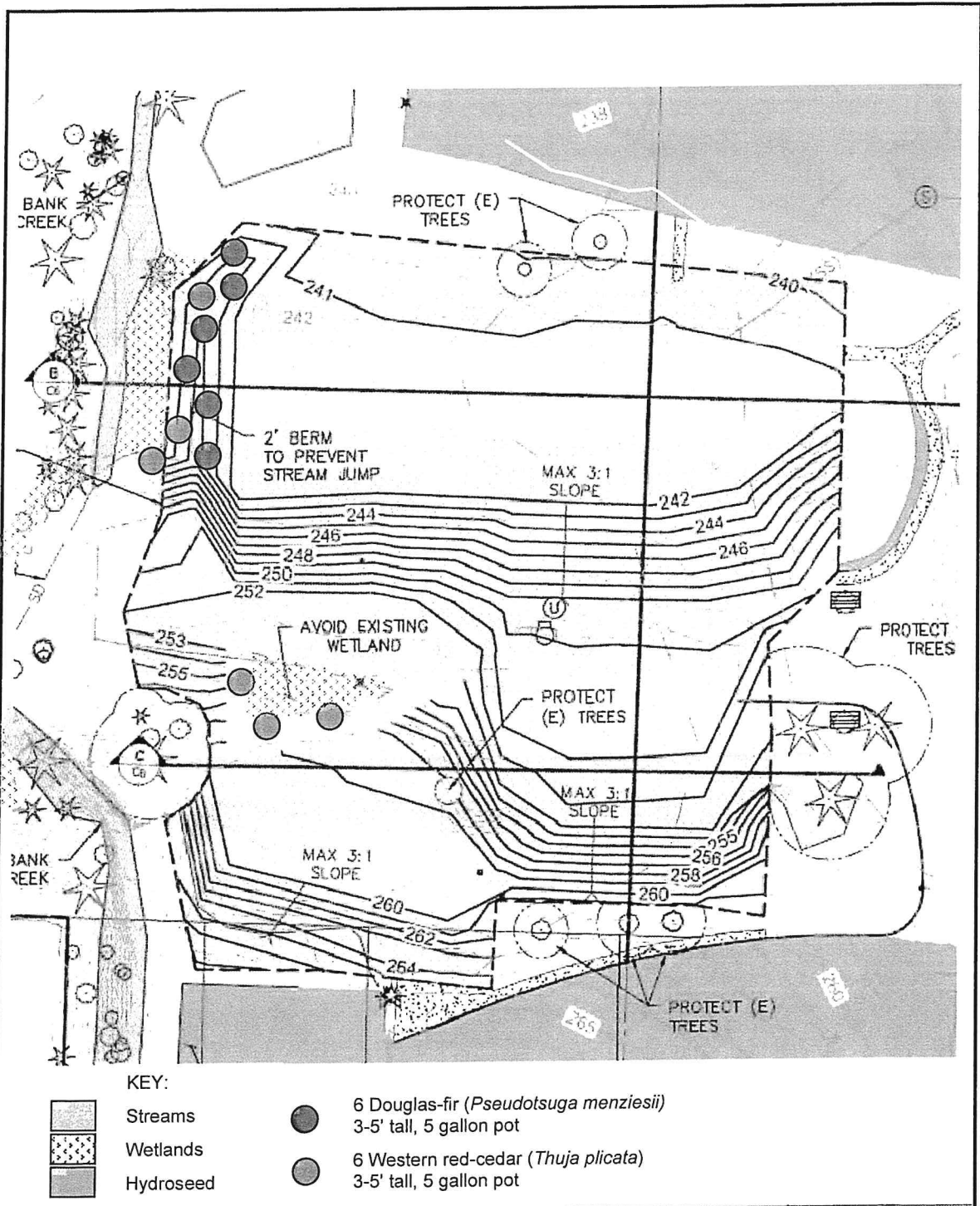
**FIGURE**  
**4**



**PBS**  
 Project # 40958.011  
 Date: Jan 2017

**CRITICAL AREA IMPACTS**  
 Cedarbrook School Site  
 2000 NE Perkins Way Shoreline, Washington

**FIGURE**  
**5**



Project # 40958.011  
Date: Jan 2017

### SITE STABILIZATION PLAN

Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

FIGURE  
6

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**APPENDIX B**

Site Photographs





Photo 1. Wetland A looking north



Photo 2. Wetland A wetland plot

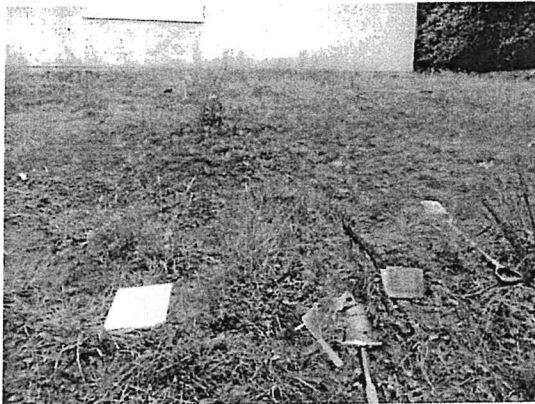


Photo 3. Wetland B looking north along east edge of wetland.

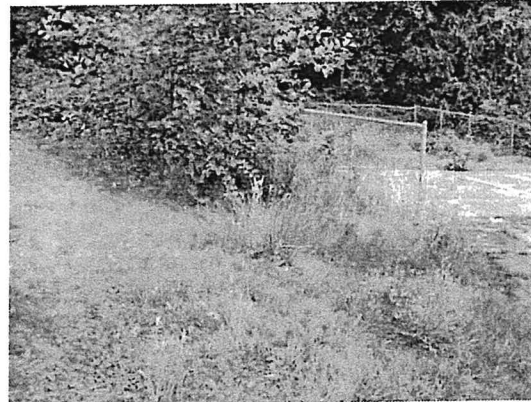


Photo 4. Wetland B looking west



Photo 5. Wetland C seeps downslope to unnamed tributary and Wetland D.



Photo 6. Wetland D looking north. Wetland extends to sidewalk along building





Photo 9. Wetland D looking south. Wetland extends to sidewalk along building. Creek is on photo right.



Photo 10. Wetland E looking southwest

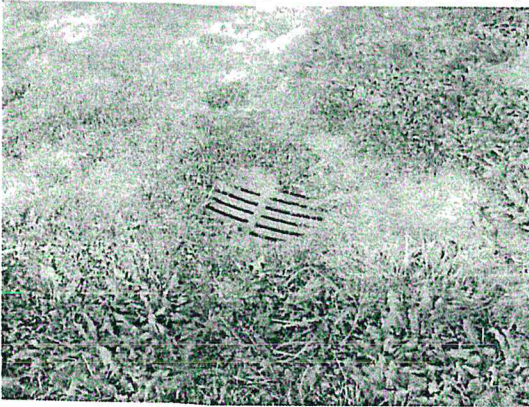


Photo 11. Surface drain in playfield at base of Wetland E



Photo 12. Wetland E looking south. Greener vegetation is approximate extent of wetland.



Photo 13. Wetland F fringing wetland on Whisper Creek

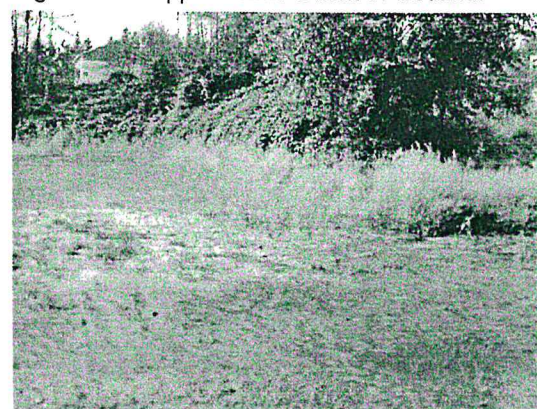


Photo 14. Wetland G starts as hillslope seeps along the cut slope and flows across asphalt parking area.





Photo 15. Looking west from middle of Wetland G across water flowing over asphalt parking area.



Photo 16. Looking southwest across wetland G from northeast corner of wetland.



Photo 17. Wetland H. Looking southeast along wetland H roadside swale along Perkins Way.

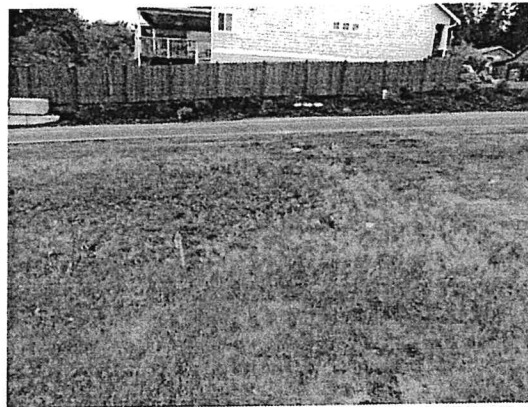


Photo 18. Wetland H. Plots and wetland boundary along west end of Wetland H.



Photo 19. Upper (southern) reach of unnamed tributary as it enters wetland A.



Photo 20. Unnamed tributary flowing out of pipe near upstream section of Wetland D.





Photo 21. Unnamed tributary flowing to piped reach under playfields.



Photo 22. Outfall of east unnamed tributary pipe to Whisper Creek



Photo 23. Whisper Creek near northeast corner of property

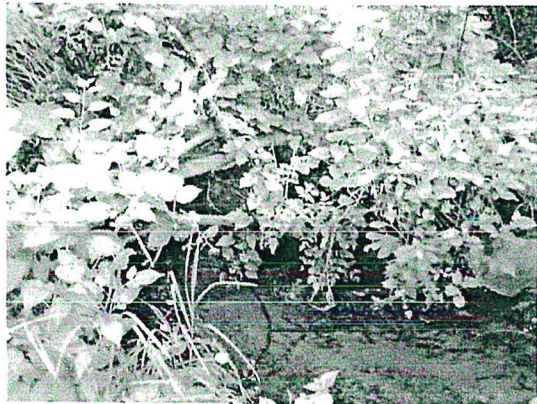


Photo 24. Whisper Creek has fringing wetland.

**APPENDIX C**

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Data Sheets and Wetland Rating Form

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: G-1  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): graded field Local relief: none Slope (%): 2  
 Subregion (LRR): A Lat: 47.765575 Long: -122.307092 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: Upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a wetland? Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>	

Remarks:

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Total Cover: <u>0</u>				
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				<b>Prevalence Index worksheet:</b>
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by:
2. _____	_____	_____	_____	OBL species <u>0</u> x 1 = _____
3. _____	_____	_____	_____	FACW species <u>0</u> x 2 = _____
4. _____	_____	_____	_____	FAC species <u>87</u> x 3 = <u>261</u>
5. _____	_____	_____	_____	FACU species <u>16</u> x 4 = <u>64</u>
Total Cover: <u>0</u>				UPL species <u>0</u> x 5 = _____
<b>Herb Stratum (Plot size: 5 ft)</b>				Column Totals: <u>103</u> (A) <u>325</u> (B)
1. <i>Agrostis species</i>	<u>85</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.16</u>
2. <i>Hypochaeris radicata</i>	<u>15</u>	<u>No</u>	<u>FACU</u>	Rapid Test for Hydrophytic Vegetation <u>X</u>
3. <i>Holcus lanatus</i>	<u>2</u>	<u>No</u>	<u>FAC</u>	Dominance Test is >50% <u>    </u>
4. <i>Plantago lanceolata</i>	<u>1</u>	<u>No</u>	<u>FACU</u>	Prevalence Index is ≤3.0 <sup>1</sup> <u>    </u>
5. <i>Trifolium species</i>	<u>1</u>	<u>No</u>	<u>FACW to UPL</u>	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>    </u>
6. _____	_____	_____	_____	Wetland Non-Vascular Plants <sup>1</sup> <u>    </u>
7. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <u>    </u>
8. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present. <u>    </u>
Total Cover: <u>104</u>				
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: <u>0</u>				
% Bare Ground in Herb Stratum <u>0</u> %				

Remarks:

**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2	100	None				sandy silty loam	
4-9	10YR 5/2	97	10YR 4/4	3	C	M	sandy silty loam	much gravel
9-18	10YR 4/2	80	10YR 4/6	20	C	M	sandy silty loam	much gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/>	Histosol (A1)	<input type="checkbox"/>	Sandy Redox (S5)	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/>	Histic Epipedon (A2)	<input type="checkbox"/>	Stripped Matrix (S6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Black Histic (A3)	<input type="checkbox"/>	Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/>	Hydrogen Sulfide (A4)	<input type="checkbox"/>	Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	Other (Explain in Remarks)
<input checked="" type="checkbox"/>	Depleted Below Dark Surface (A11)	<input checked="" 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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
----------------------------------------------------------------	---------------------------------------------------------------------------------------------

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)			
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water-Stained Leaves (B9) (except NW coast)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Salt Crust (B11)
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Aquatic Invertebrates (B13)
<input type="checkbox"/>	Water Marks (B1)	<input checked="" type="checkbox"/>	Hydrogen Sulfide Odor (C1)
<input type="checkbox"/>	Sediment Deposits (B2)	<input checked="" type="checkbox"/>	Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/>	Drift Deposits (B3)	<input type="checkbox"/>	Presence of Reduced Iron (C4)
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/>	Surface Soil Cracks (B6)	<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/>		<input type="checkbox"/>	Water-Stained Leaves (B9) (NW coast)
		<input checked="" type="checkbox"/>	Drainage Patterns (B10)
		<input type="checkbox"/>	Dry-Season Water Table (C2)
		<input checked="" type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
		<input checked="" type="checkbox"/>	Geomorphic Position (D2)
		<input type="checkbox"/>	Shallow Aquitard (D3)
		<input type="checkbox"/>	Frost-Heave Hummocks (D4)
		<input type="checkbox"/>	FAC-Neutral Test (D5)
		<input type="checkbox"/>	Raised Ant Mounds (D6) (LRR A)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): >18 Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): >18 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------

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

Remarks: This is the driest time of year. Top 1 inch of soil profile is moist from recent rainfall. The soil is moist starting from 9 inches and below. Plot is located at toe of asphalt parking lot. Aerial imagery shows many year record of water flowing over asphalt.



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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: G-2  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): flat Local relief: none Slope (%): 0  
 Subregion (LRR): A Lat: 47.765629 Long: -122.307083 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a wetland?	Yes <u>    </u>	No <u>X</u>
Hydric Soil Present?	Yes <u>    </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>			

Remarks:

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>1</u> (A)
3. _____	_____	_____	_____	Total Number of Dominant
4. _____	_____	_____	_____	Species Across All Strata: <u>1</u> (B)
Total Cover: <u>0</u>				Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 30 ft)				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: <u>0</u>				OBL species <u>0</u> x 1 = _____
Herb Stratum (Plot size: 5 ft)				FACW species <u>0</u> x 2 = _____
1. <u>Agrostis species</u>	<u>85</u>	<u>Yes</u>	<u>FAC</u>	FAC species <u>85</u> x 3 = <u>255</u>
2. <u>Plantago lanceolata</u>	<u>2</u>	<u>No</u>	<u>FACU</u>	FACU species <u>5</u> x 4 = <u>20</u>
3. <u>Taraxacum officinale</u>	<u>2</u>	<u>No</u>	<u>FACU</u>	UPL species <u>0</u> x 5 = _____
4. <u>Hypochaeris radicata</u>	<u>1</u>	<u>No</u>	<u>FACU</u>	Column Totals: <u>90</u> (A) <u>275</u> (B)
5. _____	_____	_____	_____	Prevalence Index = B/A = <u>3.06</u>
6. _____	_____	_____	_____	Rapid Test for Hydrophytic Vegetation
7. _____	_____	_____	_____	<u>X</u> Dominance Test is >50%
8. _____	_____	_____	_____	Prevalence Index is ≤3.0 <sup>1</sup>
Total Cover: <u>90</u>				Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Woody Vine Stratum (Plot Size: 5 ft)				Wetland Non-Vascular Plants <sup>1</sup>
1. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Total Cover: <u>0</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No <u>    </u>
% Bare Ground in Herb Stratum <u>0</u> %				

Remarks:

Does not meet Prevalence Index

**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/1	100	None				Sandy loam	
12-18	10YR 4/2	90	7.5YR 4/4	10	C	M	Sandy loam	some gravel.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth: _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
----------------------------------------------------------------	--------------------------------------------------------------------------

Remarks: Some evidence of mixing in soil profile. Garbage found at 12".

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------

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

Remarks: Soil is very dry throughout profile. Plot is located farther from the asphalt where water flows over surface to plot 1.



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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: G-3  
 Investigator(s): Katharine Lee, Kate Machala Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): hillslope Local relief: convex Slope (%): 0.04  
 Subregion (LRR): A Lat: 47.764920 Long: -122.307020 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b> Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>	

Remarks:

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus rubra</u>	10	Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)
2. <u>    </u>				Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u>    </u>				
4. <u>    </u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Total Cover: <u>10</u>				
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				
1. <u>Rubus armeniacus</u>	100	Yes	FAC	Prevalence Index worksheet: Total % Cover of: <u>    </u> Multiply by: <u>    </u>
2. <u>    </u>				
3. <u>    </u>				OBL species <u>5</u> x 1 = <u>5</u>
4. <u>    </u>				FACW species <u>5</u> x 2 = <u>10</u>
5. <u>    </u>				FAC species <u>125</u> x 3 = <u>375</u>
Total Cover: <u>100</u>				FACU species <u>0</u> x 4 = <u>    </u>
<b>Herb Stratum (Plot size: 5 ft)</b>				
1. <u>Equisetum arvense</u>	10	Yes	FAC	UPL species <u>0</u> x 5 = <u>    </u>
2. <u>Ranunculus repens</u>	5	Yes	FAC	Column Totals: <u>135</u> (A) <u>390</u> (B)
3. <u>Scirpus microcarpus</u>	5	Yes	OBL	Prevalence Index = B/A = <u>2.89</u>
4. <u>Phalaris arundinacea</u>	5	Yes	FACW	Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. <u>    </u>				
6. <u>    </u>				
7. <u>    </u>				
8. <u>    </u>				
Total Cover: <u>25</u>				
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>				
1. <u>    </u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>    </u>				
Total Cover: <u>0</u>				
<b>% Bare Ground in Herb Stratum <u>75</u> %</b>				

Remarks:

Alnus rubra appears to be dying.

**SOIL**

Sampling Point: G-3

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1"	10YR 2/2	100					sandy loam	
1-6"	7.5YR 3/2	98	10YR 5/2	2	D	M	sandy loam	
6-18"	10YR 5/2	80	7.5YR 4/6	20	C	M	sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth: _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
-----------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Frost-Heave Hummocks (D4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)

<b>Field Observations:</b>	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (in): 15"	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (in): 6"	

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

Remarks: Saturation to 6 inches during dry season. There is an upwelling spring about 20 feet west and a few feet upslope of this plot.

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: G-4  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): hillslope Local relief: concave Slope (%): 4  
 Subregion (LRR): A Lat: 47.764921 Long: -122.306970 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes      No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b> Yes <u>    </u> No <u>X</u>
Hydric Soil Present?	Yes <u>    </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>	

Remarks: Plot is located east of plot G-3 about 15 feet at about the same elevation, thus it is 15 feet further from the upwelling spring.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>2</u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
Total Cover: <u>0</u>				Percent of Dominant Species	
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. <u>Rubus armeniacus</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	<b>Prevalence Index worksheet:</b>	
2. _____	_____	_____	_____		Total % Cover of: _____ Multiply by: _____
3. _____	_____	_____	_____		OBL species <u>0</u> x 1 = _____
4. _____	_____	_____	_____		FACW species <u>0</u> x 2 = _____
5. _____	_____	_____	_____		FAC species <u>108</u> x 3 = <u>324</u>
Total Cover: <u>15</u>				FACU species <u>4</u> x 4 = <u>16</u>	
<b>Herb Stratum (Plot size: 5 ft)</b>				UPL species <u>0</u> x 5 = _____	
1. <u>Agrostis species</u>	<u>88</u>	<u>Yes</u>	<u>FAC</u>	Column Totals: <u>112</u> (A) <u>340</u> (B)	
2. <u>Hypochaeris radicata</u>	<u>2</u>	<u>No</u>	<u>FACU</u>	Prevalence Index = B/A = <u>3.04</u>	
3. <u>Schedonorus arundinaceus</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	<b>Rapid Test for Hydrophytic Vegetation</b> X <u>    </u> Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
4. <u>Taraxacum officinale</u>	<u>2</u>	<u>No</u>	<u>FACU</u>		
5. <u>Trifolium species</u>	<u>3</u>	<u>No</u>	<u>FACW to UPL</u>		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
Total Cover: <u>100</u>					
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>					
1. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
Total Cover: <u>0</u>				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>	

Remarks: Does not meet Prevalence Index

**SOIL**

Sampling Point: G-4

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/3	100					sandy loam	many fine roots
4-11	10YR 4/2	100					sandy loam	much gravel
11-14	10YR 4/2	95	10YR 4/6	5	C	M	sandy loam	much gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<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)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth: \_\_\_\_\_

Hydric Soil Present?  
Yes \_\_\_\_\_ No **X**

Remarks: Shovel refusal due to dry soils and gravel at 14 inches. Gravel increases with depth.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

**Field Observations:**

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

Wetland Hydrology Present?  
Yes \_\_\_\_\_ No **X**

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

Remarks: Soil profile is dry all the way to bottom. Top approximately 1/2 inch is slightly moist from recent rainfall.

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: H-5  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): swale Local relief: concave Slope (%): 0.01  
 Subregion (LRR): A Lat: 47.764662 Long: -122.307687 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a wetland? Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>	

Remarks: Plot is located in a roadside ditch or swale along Perkins Way.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <u>0</u> x 1 = _____ FACW species <u>0</u> x 2 = _____ FAC species <u>91</u> x 3 = <u>273</u> FACU species <u>3</u> x 4 = <u>12</u> UPL species <u>0</u> x 5 = _____ Column Totals: <u>94</u> (A) <u>285</u> (B) Prevalence Index = B/A = <u>3.03</u>
Total Cover: <u>0</u>	<u>0</u>			
Sapling/Shrub Stratum (Plot size: 30 ft)				Rapid Test for Hydrophytic Vegetation
1. _____	_____	_____	_____	<u>X</u> Dominance Test is >50%
2. _____	_____	_____	_____	Prevalence Index is ≤3.0 <sup>1</sup>
3. _____	_____	_____	_____	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Total Cover: <u>0</u>	<u>0</u>			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Herb Stratum (Plot size: 5 ft)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u>    </u>
1. <u>Agrostis species</u>	<u>85</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Trifolium species</u>	<u>8</u>	<u>No</u>	<u>FACW to UPL</u>	
3. <u>Ranunculus repens</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
4. <u>Equisetum arvense</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
5. <u>Holcus lanatus</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
6. <u>Hypochaeris radicata</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>102</u>	<u>102</u>			
Woody Vine Stratum (Plot Size: 5 ft)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: <u>0</u>	<u>0</u>			
% Bare Ground in Herb Stratum <u>0</u> %	<u>0</u> %			

Remarks: Wetland is along roadside and is regularly mowed.

**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/1	100					sandy loam	
3-10	10YR 4/1	95	10YR 4/6	5	C	M	sandy loam	some gravel
10-18	10YR 4/2	80	10YR 5/6	20	C	M	sandy loam	some gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :			
<input type="checkbox"/>	Histosol (A1)		<input type="checkbox"/>	Sandy Redox (S5)	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/>	Histic Epipedon (A2)		<input type="checkbox"/>	Stripped Matrix (S6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Black Histic (A3)		<input type="checkbox"/>	Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/>	Hydrogen Sulfide (A4)		<input type="checkbox"/>	Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	Other (Explain in Remarks)
<input checked="" type="checkbox"/>	Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/>	<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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) (NW coast)
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Frost-Heave Hummocks (D4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/>	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): >18 Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): >18 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Moist throughout entire depth of soil profile.



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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: 0  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): swale Local relief: concave Slope (%): 0.01  
 Subregion (LRR): A Lat: 47.764673 Long: -122.307769 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? Yes  No

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			

Remarks: Plot is located near edge of roadside swale between road and parking lot. Plot H-6 is about 15 feet west of plot H-5

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>1</u> (A)
3. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Total Cover: <u>0</u>				<b>Prevalence Index worksheet:</b>
				Total % Cover of: _____ Multiply by: _____
				OBL species <u>0</u> x 1 = _____
				FACW species <u>0</u> x 2 = _____
				FAC species <u>82</u> x 3 = <u>246</u>
				FACU species <u>18</u> x 4 = <u>72</u>
				UPL species <u>0</u> x 5 = _____
				Column Totals: <u>100</u> (A) <u>318</u> (B)
				Prevalence Index = B/A = <u>3.18</u>
				<b>Rapid Test for Hydrophytic Vegetation</b>
				<input checked="" type="checkbox"/> Dominance Test is >50%
				<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
				Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
				Wetland Non-Vascular Plants <sup>1</sup>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: Area is regularly mowed. Does not meet Prevalence Index

**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 4/2	100					sandy loam	many fine roots
8-12	10YR 5/2	99	10YR 4/6	1	C	M	sandy loam	much gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :			
<input type="checkbox"/>	Histosol (A1)		<input type="checkbox"/>	Sandy Redox (S5)	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/>	Histic Epipedon (A2)		<input type="checkbox"/>	Stripped Matrix (S6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Black Histic (A3)		<input type="checkbox"/>	Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/>	Hydrogen Sulfide (A4)		<input type="checkbox"/>	Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/>	Depleted Below Dark Surface (A11)	X	<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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: Shovel refusal at 12 inches due to very dry soil and gravel.

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Frost-Heave Hummocks (D4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): >12" Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): >12" (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil profile is very dry throughout.

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: A-7  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): toe of slope Local relief: concave Slope (%): <1%  
 Subregion (LRR): A Lat: 47.765 Long: -122.309134 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b> Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>	

Remarks: Plot is located at toe of slope between two creeks.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Alnus rubra</u>	60	Yes	FAC	Number of Dominant Species	
2. <u>    </u>				That Are OBL, FACW, or FAC: <u>6</u> (A)	
3. <u>    </u>				Total Number of Dominant Species Across All Strata: <u>7</u> (B)	
4. <u>    </u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>86%</u> (A/B)	
Total Cover:	60			Prevalence Index worksheet:	
				Total % Cover of: <u>    </u> Multiply by:	
				OBL species <u>10</u> x 1 = <u>10</u>	
				FACW species <u>10</u> x 2 = <u>20</u>	
				FAC species <u>117</u> x 3 = <u>351</u>	
				FACU species <u>30</u> x 4 = <u>120</u>	
				UPL species <u>0</u> x 5 = <u>    </u>	
				Column Totals: <u>167</u> (A) <u>501</u> (B)	
				Prevalence Index = B/A = <u>3.00</u>	
Rapid Test for Hydrophytic Vegetation					
<u>X</u> Dominance Test is >50%					
<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>					
Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)					
Wetland Non-Vascular Plants <sup>1</sup>					
Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)					
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.					
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>					

Remarks:

% Bare Ground in Herb Stratum 78 %

Woody Vine Stratum (Plot Size: 5 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Solanum dulcamara</u>	15	Yes	FAC
2. <u>Hedera helix</u>	30	Yes	FACU
3. <u>    </u>			
4. <u>    </u>			
5. <u>    </u>			
6. <u>    </u>			
7. <u>    </u>			
8. <u>    </u>			
Total Cover:	45		

**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/1	100					mucky loam	
6-18	2.5N	100					mucky loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, 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"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input checked="" type="checkbox"/> Black Histic (A3)	<input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<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)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (in): 6" Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (in): surface (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Ponding is observed within 10 feet of plot.

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: A-8  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): steep slope Local relief: convex Slope (%): 0.35  
 Subregion (LRR): A Lat: 47.764901 Long: -122.309205 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b> Yes <u>    </u> No <u>X</u>
Hydric Soil Present?	Yes <u>    </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>	

Remarks: Plot is located on very steep slope about 5 feet in elevation above wetland. Plot is located south from Plot 7 approximately 10 feet but at least 5 feet higher in elevation.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Thuja plicata</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. <u>Alnus rubra</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>    </u>				Total Number of Dominant Species Across All Strata: <u>5</u> (B)
4. <u>    </u>				
Total Cover:	<u>80</u>			Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80%</u> (A/B)
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				
1. <u>Acer circinatum</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: <u>    </u> Multiply by:
2. <u>Prunus laurocerasus</u>	<u>5</u>	<u>No</u>	<u>NOL</u>	
3. <u>Thuja plicata</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>    </u>
4. <u>Aesculus species</u>	<u>1</u>	<u>No</u>	<u>NOL</u>	FACW species <u>0</u> x 2 = <u>    </u>
5. <u>    </u>				FAC species <u>160</u> x 3 = <u>480</u>
Total Cover:	<u>66</u>			FACU species <u>80</u> x 4 = <u>320</u>
<b>Herb Stratum (Plot size: 5 ft)</b>				
1. <u>Athyrium filix-femina</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	UPL species <u>0</u> x 5 = <u>    </u>
2. <u>    </u>				Column Totals: <u>240</u> (A) <u>800</u> (B)
3. <u>    </u>				Prevalence Index = B/A = <u>3.33</u>
4. <u>    </u>				Rapid Test for Hydrophytic Vegetation <u>X</u> Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup>
5. <u>    </u>				
6. <u>    </u>				Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
7. <u>    </u>				
8. <u>    </u>				Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Total Cover:	<u>20</u>			
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>				
1. <u>Hedera helix</u>	<u>80</u>	<u>Yes</u>	<u>FACU</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>    </u>				
Total Cover:	<u>80</u>			<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>
% Bare Ground in Herb Stratum <u>5</u> %				

Remarks: Also about 5 percent cover by an unidentified ornamental shrub with assumed no listing. Hedera helix makes up the majority of the herb layer.



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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 4/1	100					silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	Other (Explain in Remarks)
<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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth: _____	<b>Hydric Soil Present?</b> Yes _____ No <u> X </u>
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Remarks: plot is located on very steep slope. Soil is very dry with many roots. It was too difficult to excavate soil pit beyond 8 inches.

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/>	Water-Stained Leaves (B9) (NW coast)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/>	Frost-Heave Hummocks (D4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/>	Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u> X </u> Depth (in): _____ Water Table Present? Yes _____ No <u> X </u> Depth (in): _____ Saturation Present? Yes _____ No <u> X </u> Depth (in): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u> X </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil is very dry. Plot is located on very steep slope about 5 feet in elevation above wetland boundary.

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: B-9  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): hillslope Local relief: convex Slope (%): 15  
 Subregion (LRR): A Lat: 47.764993 Long: -122.308632 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b>		
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>		Yes <u>    </u>	No <u>X</u>
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>			

Remarks: Plot 9 is about 4 feet higher in elevation and about 15 feet south of Plot 10.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>    1    </u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>    1    </u> (B)	
Total Cover:	<u>    0    </u>			Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: 30 ft)				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____	Prevalence Index worksheet:	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by:	
3. _____	_____	_____	_____	OBL species <u>    0    </u> x 1 = _____	
4. _____	_____	_____	_____	FACW species <u>    0    </u> x 2 = _____	
5. _____	_____	_____	_____	FAC species <u>    86    </u> x 3 = <u>    258    </u>	
Total Cover:	<u>    0    </u>			FACU species <u>    14    </u> x 4 = <u>    56    </u>	
Herb Stratum (Plot size: 5 ft)				UPL species <u>    0    </u> x 5 = _____	
1. <u>Agrostis species</u>	<u>    86    </u>	<u>Yes</u>	<u>FAC</u>	Column Totals: <u>    100    </u> (A) <u>    314    </u> (B)	
2. <u>Taraxacum officinale</u>	<u>    4    </u>	<u>No</u>	<u>FACU</u>	Prevalence Index = B/A = <u>    3.14    </u>	
3. <u>Hypochaeris radicata</u>	<u>    10    </u>	<u>No</u>	<u>FACU</u>	Rapid Test for Hydrophytic Vegetation	
4. _____	_____	_____	_____	<u>X</u> Dominance Test is >50%	
5. _____	_____	_____	_____	Prevalence Index is ≤3.0 <sup>1</sup>	
6. _____	_____	_____	_____	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
7. _____	_____	_____	_____	Wetland Non-Vascular Plants <sup>1</sup>	
8. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Total Cover:	<u>    100    </u>			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
Woody Vine Stratum (Plot Size: 5 ft)				<b>Hydrophytic Vegetation</b>	
1. _____	_____	_____	_____	Present? Yes <u>X</u> No <u>    </u>	
2. _____	_____	_____	_____		
Total Cover:	<u>    0    </u>				
% Bare Ground in Herb Stratum <u>    0    </u> %					

Remarks: Does not meet Prevalence Index

SOIL								Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)	
Depth (in.)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>			
0-6	10YR 4/2	100					sandy loam	many fine roots	
6-13	10YR 5/2	98	10YR 4/4	2	C	M	sandy loam	some gravel	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/>	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/>	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	X	<input type="checkbox"/>	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/>	<input type="checkbox"/>	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth: _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/>	Water-Stained Leaves (B9) (NW coast)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/>	Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/>	Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/>	Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/>	Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/>	Frost-Heave Hummocks (D4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/>	FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/>	Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/>	

<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (in): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: soil dry

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: B-10  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): 0 Local relief: 0 Slope (%): 0  
 Subregion (LRR): A Lat: 47.765035 Long: -122.308627 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)

Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No     

Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a wetland? Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>	

Remarks:

### VEGETATION

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>3</u> (A)
3. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Total Cover: <u>0</u>	<u>0</u>			<b>Prevalence Index worksheet:</b>
Sapling/Shrub Stratum (Plot size: 30 ft)				Total % Cover of: _____ Multiply by: _____
1. _____	_____	_____	_____	OBL species <u>0</u> x 1 = _____
2. _____	_____	_____	_____	FACW species <u>5</u> x 2 = <u>10</u>
3. _____	_____	_____	_____	FAC species <u>135</u> x 3 = <u>405</u>
4. _____	_____	_____	_____	FACU species <u>15</u> x 4 = <u>60</u>
5. _____	_____	_____	_____	UPL species <u>0</u> x 5 = _____
Total Cover: <u>0</u>	<u>0</u>			Column Totals: <u>155</u> (A) <u>475</u> (B)
Herb Stratum (Plot size: 5 ft)				Prevalence Index = B/A = <u>3.06</u>
1. <u>Ranunculus repens</u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Juncus tenuis</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Taraxacum officinale</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
4. <u>Holcus lanatus</u>	<u>35</u>	<u>Yes</u>	<u>FAC</u>	
5. <u>Hypochaeris radicata</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
6. <u>Juncus effusus</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	
7. <u>Trifolium pratense</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
8. <u>Agrostis species</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	
Total Cover: <u>155</u>	<u>155</u>			
Woody Vine Stratum (Plot Size: 5 ft)				
1. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. _____	_____	_____	_____	
Total Cover: <u>0</u>	<u>0</u>			
% Bare Ground in Herb Stratum <u>0</u> %				Hydrophytic Vegetation Present? Yes <u>X</u> No <u>    </u>

Remarks:

Also 1% cover each by *Plantago lanceolata* and *Plantago major*.

**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 4/1	99	7.5YR 4/4	1	C	PL	silt loam	some organic matter
7-11	10YR 4/1	98	10YR 4/4	2	C	M	sandy loam	many roots
11-18	10YR 4/1	95	7.5YR 4/4	5	C	M	sandy loam	more sand

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, 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 checked="" type="checkbox"/>	<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"/> 2 cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very shallow dark surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth: \_\_\_\_\_

**Hydric Soil Present?**  
 Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (in): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (in): 12" and rising  
 Saturation Present? Yes  No  Depth (in): 7"

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks: Water in pit is still rising after 5 minutes

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: C-11  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): hillslope Local relief: concave Slope (%): 1  
 Subregion (LRR): A Lat: 47.765183 Long: -122.309108 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b> Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>	

Remarks:

### VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum (Plot size: 30 ft)</b>				
1. <u>Populus balsamifera</u>	60	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)  Total Number of Dominant Species Across All Strata: <u>8</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>88%</u> (A/B)
2. <u>Alnus rubra</u>	30	Yes	FAC	
3. <u>    </u>				
4. <u>    </u>				
Total Cover:	90			
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				
1. <u>Sorbus sitchensis</u>	10	No	FAC	<b>Prevalence Index worksheet:</b> Total % Cover of: <u>    </u> Multiply by: OBL species <u>0</u> x 1 = <u>    </u> FACW species <u>0</u> x 2 = <u>    </u> FAC species <u>175</u> x 3 = <u>525</u> FACU species <u>75</u> x 4 = <u>300</u> UPL species <u>0</u> x 5 = <u>    </u> Column Totals: <u>250</u> (A) <u>825</u> (B) Prevalence Index = B/A = <u>3.30</u>
2. <u>Prunus laurocerasus</u>	10	No	NOL	
3. <u>Rubus spectabilis</u>	5	No	FAC	
4. <u>Populus balsamifera</u>	15	Yes	FAC	
5. <u>Rubus armeniacus</u>	25	Yes	FAC	
Total Cover:	65			
<b>Herb Stratum (Plot size: 5 ft)</b>				
1. <u>Ranunculus repens</u>	20	Yes	FAC	Rapid Test for Hydrophytic Vegetation X Dominance Test is >50% Prevalence Index is ≤3.0 <sup>1</sup>  Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  Wetland Non-Vascular Plants <sup>1</sup>  Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Equisetum arvense</u>	5	Yes	FAC	
3. <u>    </u>				
4. <u>    </u>				
5. <u>    </u>				
6. <u>    </u>				
7. <u>    </u>				
8. <u>    </u>				
Total Cover:	25			
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>				
1. <u>Solanum dulcamara</u>	5	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>Hedera helix</u>	75	Yes	FACU	
Total Cover:	80			
% Bare Ground in Herb Stratum	10	%		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>

Remarks:

Woody vine stratum covering herb layer so no bare ground. Helix hedera is also in tree canopy vertically climbing trunks. There are 2 varieties of ivy.



**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	7.5YR 2.5/1	100					sandy loam	mucky modified
4-15	Gley 2 4/10B	98	10YR 5/4	2	M	C	sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/>	Histosol (A1)	<input type="checkbox"/>	Sandy Redox (S5)	<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/>	Histic Epipedon (A2)	<input type="checkbox"/>	Stripped Matrix (S6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Black Histic (A3)	<input checked="" type="checkbox"/>	Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/>	Hydrogen Sulfide (A4)	<input checked="" type="checkbox"/>	Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	Other (Explain in Remarks)
<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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
----------------------------------------------------------------	---------------------------------------------------------------------------------------------

Remarks: surface is very black. Area is saturated year round with spring/seep. Profile gets sandier with depth.

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)			
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water-Stained Leaves (B9) (except NW coast)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Water-Stained Leaves (B9) (NW coast)
<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 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)
		<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)
		<input type="checkbox"/>	Water-Stained Leaves (B9) (NW coast)
		<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"/>	Frost-Heave Hummocks (D4)
		<input type="checkbox"/>	FAC-Neutral Test (D5)
		<input type="checkbox"/>	Raised Ant Mounds (D6) (LRR A)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (in): 13" Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (in): 5" (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------

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

Remarks: Water is still rising in pit after 5 minutes. Soil profile is wet to surface. Plot is located adjacent to hillslope seep that appears to be saturated year round.

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: C-12  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): 0 Local relief: 0 Slope (%): 0  
 Subregion (LRR): A Lat: 47.765141 Long: -122.309086 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a wetland?	Yes <u>    </u>	No <u>X</u>
Hydric Soil Present?	Yes <u>    </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>			

Remarks: Plot is located about 15 feet south and about 10 inches above plot 11w.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Alnus rubra</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species	
2. <u>Prunus avium</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	That Are OBL, FACW, or FAC: <u>6</u> (A)	
3. <u>Populus balsamifera</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>10</u> (B)	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Percent of Dominant Species	
Total Cover:	<u>80</u>			That Are OBL, FACW, or FAC: <u>60%</u> (A/B)	
Sapling/Shrub Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:	
1. <u>Ilex aquifolium</u>	<u>25</u>	<u>Yes</u>	<u>FACU</u>	Total % Cover of: <u>    </u> Multiply by: <u>    </u>	
2. <u>Prunus laurocerasus</u>	<u>5</u>	<u>No</u>	<u>NOL</u>	OBL species	<u>0</u> x 1 = <u>    </u>
3. <u>Sorbus sitchensis</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	FACW species	<u>0</u> x 2 = <u>    </u>
4. <u>Rubus spectabilis</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	FAC species	<u>150</u> x 3 = <u>450</u>
5. <u>Rubus armeniacus</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	FACU species	<u>135</u> x 4 = <u>540</u>
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	UPL species	<u>0</u> x 5 = <u>    </u>
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Column Totals:	<u>285</u> (A) <u>990</u> (B)
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Prevalence Index = B/A = <u>3.47</u>	
Total Cover:	<u>95</u>			Rapid Test for Hydrophytic Vegetation	
Herb Stratum (Plot size: 5 ft)	Absolute % Cover	Dominant Species?	Indicator Status	<u>X</u> Dominance Test is >50%	
1. <u>Ranunculus repens</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index is ≤3.0 <sup>1</sup>	
2. <u>Calystegia sepium</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Wetland Non-Vascular Plants <sup>1</sup>	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u>    </u>	
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		
Total Cover:	<u>15</u>				
Woody Vine Stratum (Plot Size: 5 ft)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Hedera helix</u>	<u>90</u>	<u>Yes</u>	<u>FACU</u>		
2. <u>Solanum dulcamara</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>		
Total Cover:	<u>100</u>				
% Bare Ground in Herb Stratum	<u>20</u> %				

Remarks: Plant community is similar in plot 11 and 12. There is more ivy and less Ranunculus repens in the upland plot. Does not meet Prevalence Index.

**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR 3/2	100					sandy loam	
14-18	10YR 4/2	90	10YR 4/6	10	C	M	sandy loam	more sand with depth

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<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)				

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth: _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks: soil profile appears to have some mixing.

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)	<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"/> Frost-Heave Hummocks (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (in): _____ Water Table Present? Yes _____ No <u>X</u> Depth (in): _____ Saturation Present? Yes _____ No <u>X</u> Depth (in): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil profile is slightly moist throughout. It is possible that it hydrology would be met in early spring.

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: D-13  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): 0 Local relief: 0 Slope (%): 0  
 Subregion (LRR): A Lat: 47.765311 Long: -122.308855 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes  No

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Remarks: There is no upland paired plot for wetland D as it is wetland up to edge of concrete sidewalk adjacent to building.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>3</u> (A)
3. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
4. _____	_____	_____	_____	Percent of Dominant Species
Total Cover: <u>0</u>	_____	_____	_____	That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				<b>Prevalence Index worksheet:</b>
1. <u>Rubus armeniacus</u>	<u>35</u>	<u>Yes</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species <u>0</u> x 1 = _____
3. _____	_____	_____	_____	FACW species <u>30</u> x 2 = <u>60</u>
4. _____	_____	_____	_____	FAC species <u>75</u> x 3 = <u>225</u>
5. _____	_____	_____	_____	FACU species <u>0</u> x 4 = _____
Total Cover: <u>35</u>	_____	_____	_____	UPL species <u>0</u> x 5 = _____
<b>Herb Stratum (Plot size: 5 ft)</b>				Column Totals: <u>105</u> (A) <u>285</u> (B)
1. <u>Ranunculus repens</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>2.71</u>
2. <u>Calystegia sepium</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	<b>Rapid Test for Hydrophytic Vegetation</b>
3. <u>Athyrium filix-femina</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
4. <u>Epilobium ciliatum</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
5. <u>Equisetum telmateia</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
6. <u>Stachys chamissonis</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	Wetland Non-Vascular Plants <sup>1</sup>
7. <u>Holcus lanatus</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
8. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Total Cover: <u>70</u>	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: <u>0</u>	_____	_____	_____	
<b>% Bare Ground in Herb Stratum <u>0</u> %</b>				

Remarks: \_\_\_\_\_

**SOIL**

Sampling Point: D-13

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 3/1	100					sandy loam	mucky
5-13	Gley 2 4/10B	95	7.5YR 4/4	5			sandy loam	
13-18	10YR 5/1	80	7.5YR 4/4	20			sandy loam	mixed

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth: _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: Soil profile appears to be disturbed with mixing evidence.

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input checked="" type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (in): 15"		
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (in): surface		

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

Remarks:

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: E-14  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): graded field Local relief: none Slope (%): 0  
 Subregion (LRR): A Lat: 47.766025 Long: -122.308691 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b>		
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>		Yes <u>    </u>	No <u>X</u>
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>			

Remarks: Plot is located beyond toe of slope in graded playfield. A surface drain is located at toe of slope about 10 feet south of plot.

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>    1    </u> (A)
3. _____	_____	_____	_____	Total Number of Dominant
4. _____	_____	_____	_____	Species Across All Strata: <u>    1    </u> (B)
Total Cover: <u>    0    </u>				Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 30 ft)				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species <u>    0    </u> x 1 = _____ FACW species <u>    0    </u> x 2 = _____ FAC species <u>    80    </u> x 3 = <u>    240    </u> FACU species <u>    50    </u> x 4 = <u>    200    </u> UPL species <u>    0    </u> x 5 = _____ Column Totals: <u>    130    </u> (A) <u>    440    </u> (B) Prevalence Index = B/A = <u>    3.38    </u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: <u>    0    </u>				
Herb Stratum (Plot size: 5 ft)				
1. <u>Agrostis species</u>	80	Yes	FAC	<b>Rapid Test for Hydrophytic Vegetation</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Taraxacum officinale</u>	25	No	FACU	
3. <u>Trifolium pratense</u>	25	No	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>    130    </u>				
Woody Vine Stratum (Plot Size: 5 ft)				
1. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. _____	_____	_____	_____	
Total Cover: <u>    0    </u>				
% Bare Ground in Herb Stratum <u>    5    </u> %				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>

Remarks: Does not meet Prevalence Index



**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/1.5	100					silt loam	many fine roots
6-15	10YR 5/2	85	7.5YR 5/4	15	C	M	sandy loam	some gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> X	<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)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth: \_\_\_\_\_

**Hydric Soil Present?**

Yes  X No

**Remarks:**

Possibly relic hydric soil indicators from grading to make school site and field.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

**Field Observations:**

Surface Water Present? Yes  No  X Depth (in): \_\_\_\_\_  
 Water Table Present? Yes  No  X Depth (in): >15"  
 Saturation Present? Yes  No  X Depth (in): >15"  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes  No  X

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

**Remarks:**

Soil profile is dry. Surface drain is about 12 feet to south at toe of slope. Recommend revisiting wetland hydrology during wet part of growing season

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: E-15  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): hillslope Local relief: convex Slope (%): 3  
 Subregion (LRR): A Lat: 47.765973 Long: -122.308750 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes      No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	<b>Is the Sampled Area within a wetland?</b> Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>	

Remarks:

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: <u>0</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of: _____ <u>Multiply by:</u> OBL species <u>0</u> x 1 = _____ FACW species <u>0</u> x 2 = _____ FAC species <u>125</u> x 3 = <u>375</u> FACU species <u>15</u> x 4 = <u>60</u> UPL species <u>0</u> x 5 = _____ Column Totals: <u>140</u> (A) <u>435</u> (B) Prevalence Index = B/A = <u>3.11</u>
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: <u>0</u>				
<b>Herb Stratum (Plot size: 5 ft)</b>				
1. <u>Ranunculus repens</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Agrostis species</u>	<u>20</u>	<u>No</u>	<u>FAC</u>	
3. <u>Trifolium repens</u>	<u>25</u>	<u>No</u>	<u>FAC</u>	
4. <u>Taraxacum officinale</u>	<u>15</u>	<u>No</u>	<u>FACU</u>	
5. <u>Schedonorus arundinaceus</u>	<u>20</u>	<u>No</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>140</u>				
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: <u>0</u>				
<b>% Bare Ground in Herb Stratum <u>0</u> %</b>				

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Wetland Non-Vascular Plants<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes X No     

Remarks:

**SOIL**

Sampling Point: E-15

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 4/1	98	7.5YR 3/4	2	C	M	silt loam	
5-16	10YR 5/2	80	7.5YR 5/6	15	C	M	sandy loam	some gravel
			7.5YR 3/4	5	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> X	<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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth: _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> X No <input type="checkbox"/>
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Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)	
<input checked="" type="checkbox"/> X High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> X Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input checked="" type="checkbox"/> X Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> X Depth (in): _____		Yes <input checked="" type="checkbox"/> X No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> X No _____ Depth (in): 11"		
Saturation Present? Yes <input checked="" type="checkbox"/> X No _____ Depth (in): 7"		

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

Remarks:

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: F-16  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): terrace Local relief: concave Slope (%): 1  
 Subregion (LRR): A Lat: 47.766422 Long: -122.307170 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a wetland?	Yes <u>X</u>	No <u>    </u>
Hydric Soil Present?	Yes <u>X</u>	No <u>    </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u>    </u>			

Remarks:

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Alnus rubra</u>	<u>    </u>	<u>No</u>	<u>FAC</u>	Number of Dominant Species	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	That Are OBL, FACW, or FAC: <u>3</u> (A)	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Percent of Dominant Species	
Total Cover:	<u>0</u>			That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
Sapling/Shrub Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:	
1. <u>Rubus spectabilis</u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	Total % Cover of: <u>    </u> Multiply by: <u>    </u>	
2. <u>Rubus armeniacus</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	OBL species	<u>0</u> x 1 = <u>    </u>
3. <u>Ilex aquifolium</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	FACW species	<u>10</u> x 2 = <u>20</u>
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	FAC species	<u>90</u> x 3 = <u>270</u>
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	FACU species	<u>10</u> x 4 = <u>40</u>
Total Cover:	<u>100</u>			UPL species	<u>0</u> x 5 = <u>    </u>
				Column Totals:	<u>110</u> (A) <u>330</u> (B)
				Prevalence Index = B/A = <u>3.00</u>	
Herb Stratum (Plot size: 5 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Rapid Test for Hydrophytic Vegetation	
1. <u>Equisetum telmateia</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	<u>X</u>	Dominance Test is >50%
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>X</u>	Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		Wetland Non-Vascular Plants <sup>1</sup>
5. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		
7. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		
8. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		
Total Cover:	<u>10</u>				
Woody Vine Stratum (Plot Size: 5 ft)	Absolute % Cover	Dominant Species?	Indicator Status	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
1. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u>    </u>	
2. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>		
Total Cover:	<u>0</u>				
% Bare Ground in Herb Stratum	<u>90</u> %				

Remarks: Also one non-native horticultural weeping willow in tree layer rooted outside wetland.

**SOIL**

Sampling Point: F-16

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2	100					silt loam	mucky
4-12	10YR 3/2	98	7.5YR 3/4	2	C	PL, M	loam	mucky
12-18	10YR 3/1	100						mucky

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/>	Histosol (A1)		<input type="checkbox"/>	2 cm Muck (A10)
<input type="checkbox"/>	Histic Epipedon (A2)		<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Black Histic (A3)	X	<input type="checkbox"/>	Very shallow dark surface (TF12)
<input type="checkbox"/>	Hydrogen Sulfide (A4)		<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/>	Depleted Below Dark Surface (A11)		<input type="checkbox"/>	
<input type="checkbox"/>	Thick Dark Surface (A12)		<input type="checkbox"/>	
<input type="checkbox"/>	Sandy Mucky Mineral (S1)		<input type="checkbox"/>	
<input type="checkbox"/>	Sandy Gleyed Matrix (S4)		<input type="checkbox"/>	
<input type="checkbox"/>			<input type="checkbox"/>	Sandy Redox (S5)
<input type="checkbox"/>			<input type="checkbox"/>	Stripped Matrix (S6)
<input type="checkbox"/>			<input type="checkbox"/>	Loamy Mucky Mineral (F1) (except MLRA 1)
<input type="checkbox"/>			<input type="checkbox"/>	Loamy Gleyed Matrix (F2)
<input type="checkbox"/>			<input type="checkbox"/>	Depleted Matrix (F3)
<input type="checkbox"/>			<input type="checkbox"/>	Redox Dark Surface (F6)
<input type="checkbox"/>			<input type="checkbox"/>	Depleted Dark Surface (F7)
<input type="checkbox"/>			<input type="checkbox"/>	Redox Depressions (F8)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth: _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> X <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)			
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water-Stained Leaves (B9) (except NW coast)
<input type="checkbox"/>	High Water Table (A2)	<input type="checkbox"/>	Water-Stained Leaves (B9) (NW coast)
X	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)
		<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)
		<input type="checkbox"/>	Drainage Patterns (B10)
		X	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"/>	Frost-Heave Hummocks (D4)
		<input type="checkbox"/>	FAC-Neutral Test (D5)
		<input type="checkbox"/>	Raised Ant Mounds (D6) (LRR A)

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (in): _____	Yes <input type="checkbox"/> X <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No _____	Depth (in): 14	
Saturation Present? Yes <input checked="" type="checkbox"/> No _____	Depth (in): 7	
(includes capillary fringe)		

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

Remarks:

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

Project/Site: Cedarbrook Site City/County: King Sampling Date: 9/6/2016  
 Applicant/Owner: Seattle Public Schools State: WA Sampling Point: F-17  
 Investigator(s): Katharine Lee, Kate Machata Section/Township/Range: S4 T26N R4E  
 Landform (hillslope, terrace etc.): terrace Local relief: convex Slope (%): <1  
 Subregion (LRR): A Lat: 47.766339 Long: -122.307243 Datum: WGS 84  
 Soil Map Unit Name: Not Mapped NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? Yes X No     

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a wetland?	Yes <u>    </u>	No <u>X</u>
Hydric Soil Present?	Yes <u>    </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>			

Remarks:

**VEGETATION**

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus balsamifera</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species
2. <u>Alnus rubra</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	That Are OBL, FACW, or FAC: <u>4</u> (A)
3. <u>    </u>				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
4. <u>    </u>				Percent of Dominant Species
Total Cover:	<u>50</u>			That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
<b>Sapling/Shrub Stratum (Plot size: 30 ft)</b>				<b>Prevalence Index worksheet:</b>
1. <u>Rubus armeniacus</u>	<u>75</u>	<u>Yes</u>	<u>FAC</u>	Total % Cover of: <u>    </u> Multiply by:
2. <u>    </u>				OBL species <u>0</u> x 1 = <u>    </u>
3. <u>    </u>				FACW species <u>25</u> x 2 = <u>50</u>
4. <u>    </u>				FAC species <u>125</u> x 3 = <u>375</u>
5. <u>    </u>				FACU species <u>0</u> x 4 = <u>    </u>
Total Cover:	<u>75</u>			UPL species <u>0</u> x 5 = <u>    </u>
<b>Herb Stratum (Plot size: 5 ft)</b>				Column Totals: <u>150</u> (A) <u>425</u> (B)
1. <u>Equisetum telmateia</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.83</u>
2. <u>    </u>				Rapid Test for Hydrophytic Vegetation
3. <u>    </u>				<u>X</u> Dominance Test is >50%
4. <u>    </u>				<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>
5. <u>    </u>				Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
6. <u>    </u>				Wetland Non-Vascular Plants <sup>1</sup>
7. <u>    </u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
8. <u>    </u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Total Cover:	<u>25</u>			<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>
<b>Woody Vine Stratum (Plot Size: 5 ft)</b>				
1. <u>    </u>				
2. <u>    </u>				
Total Cover:	<u>0</u>			
<b>% Bare Ground in Herb Stratum <u>60</u> %</b>				

Remarks:



**SOIL**

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

Depth (in.)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-19	10YR 4/2	99	10YR 4/4	1	C	M	sandy loam	more gravel with depth

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very shallow dark surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<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)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth: _____	<b>Hydric Soil Present?</b> Yes _____ No <u>X</u>
-----------------------------------------------------------------------	------------------------------------------------------

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)	<input type="checkbox"/> Water-Stained Leaves (B9) (NW coast)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Frost-Heave Hummocks (D4)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>
Surface Water Present? Yes _____ No <u>X</u> Depth (in): _____		Yes _____ No <u>X</u>
Water Table Present? Yes _____ No <u>X</u> Depth (in): _____		
Saturation Present? Yes _____ No <u>X</u> Depth (in): _____ (includes capillary fringe)		

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

Remarks: Soil is slightly moist.

Project Name: **Cedarbrook Site**  
 Date(s) of Site Visit(s): **9/6/2016**  
 Rated by: **Katharine Lee** Trained by Ecology? **Yes**  
**Kate Machata** **Yes**

Figures	Wetland	
Cowardin plant classes	Figure 1	
Hydroperiods / outlet	Figure 2	
150' boundary	Figure 3	
Contributing basin	Figure 5	
1 km radius polygon	Figure 4	
303(d) listed waters/ TMDLs	Figure 6	

Source of base aerial photo or map for figures:

**Category of Wetland Based on Function**

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

**Summary table of scores and corresponding categories**

		Slope						Riverine	
		A	B	C	E	G	H	D	F
Water Quality	Site Potential	L	L	L	L	L	L	M	M
	Landscape Potential	M	M	M	M	M	M	H	H
	Value	H	H	H	H	H	H	M	M
	Rating	6	6	6	6	6	6	7	7
Hydrologic	Site Potential	L	L	L	L	M	L	M	M
	Landscape Potential	M	M	M	M	M	M	H	H
	Value	M	M	M	M	M	M	M	M
	Rating	5	5	5	5	6	5	7	7
Habitat	Site Potential	M	L	L	M	M	L	L	M
	Landscape Potential	L	L	L	L	L	L	L	L
	Value	H	H	H	H	L	L	H	H
	Rating	6	5	5	6	4	3	5	6
<b>Total</b>		<b>17</b>	<b>16</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>14</b>	<b>19</b>	<b>20</b>
<b>Category</b>		<b>III</b>	<b>III</b>	<b>III</b>	<b>III</b>	<b>III</b>	<b>IV</b>	<b>III</b>	<b>II</b>

**Category Based on Special Characteristics**

Special Characteristics	Slope						Riverine	
	A	B	C	E	G	H	D	F
Estuarine								
High Conservation Value								
Bog								
Mature Forest								
Old Growth Forest								
Coastal Lagoon								
Interdunal								
None of the above	X	X	X	X	X	X	X	X

**Classification of Wetland Units in Western Washington**

WETLAND #	A	B	C	D	E	F	G	H
1. Are the water levels in the entire unit usually controlled by tides?								
No	X	X	X	X	X	X	X	X
Yes - Tidal Fringe								
2. The entire wetland is flat and precipitation is the only source (>90%) of water to it Groundwater and surface water are not sources of water								
No	X	X	X	X	X	X	X	X
Yes - Flats								
3. Does the entire wetland meet both of the following criteria? a. The vegetated part of the wetland is on the shores of a body of permanent open water at least 20 acres b. At least 30% of the open water areas is deeper than 6.6 ft.								
No	X	X	X	X	X	X	X	X
Yes - Lake-fringe								
4. Does the entire wetland unit meet all of the following criteria? a. On a slope b. Unidirectional flow c. No impoundment	X	X	X		X		X	X
	X	X	X		X		X	X
		X	X		X		X	X
No				X		X		
Yes - Slope		X	X		X		X	X
5. Does the entire wetland unit meet all of the following criteria? a. In valley or channel b. Flooding at least 2yrs				X		X		
				X		X		
No	X	X	X		X		X	X
Yes - Riverine				X		X		
6. Is the entire unit in a topographic depression in which water ponds or is saturated for some period?								
No	X	X	X	X	X	X	X	X
Yes - Depressional								
7. Is the entire wetland located in a very flat area with groundwater and no outlet								
No	X	X	X	X	X	X	X	X
Yes - Depressional								
8. Several Categories List Categories Category for Rating	X							
	S,D							
	S	S	S	R	S	R	S	S
Standard Buffer Without BMPs	A	B	C	D	E	F	G	H
	165	105	105	105	165	165	75	40
	219	140	140	140	219	219	100	53



HYDROLOGIC FUNCTIONS		Wetland Name							Figure#
Site Potential: Does the site have the potential to reduce flooding and erosion?		A	B	C	E	G	H	Figure#	
S 4.1	Characteristics of Plants Dense, uncut, rigid plants cover >90% of wetland = 1 All other conditions = 0 Total for S4 ( M=1; L=0) Rating of Site Potential	0	0	0	0	1	0		
		0	0	0	0	1	0		
		L	L	L	L	M	L		

**Landscape Potential: Does the landscape have the potential to support the hydrologic functions of the site?**

S 5.1	Buffer land use Is >25% of 150 ft upslope in land uses or cover that generate excess surface runoff? Yes = 1 No = 0 Total for S5 (M=1; L=0) Rating of Landscape Potential	1	1	1	1	1	1	Fig 3a-3c
		1	1	1	1	1	1	
		M	M	M	M	M	M	

**Rating of Value: Are the hydrologic functions provided by the site valuable to society?**

S 6.1	Flooding Distance to nearest areas downstream that have flooding problems Sub-basin immediately down-gradient = 2 Sub-basin further downgradient = 1 No flooding problems anywhere downgradient = 0 Site is critical part of regional flood control plan Yes = 2 No = 0 Total for S6 (H=2-4; M=1; L=0) Rating of Value Hydrologic : Score Based on Ratings	1	1	1	1	1	1	
		0	0	0	0	0	0	
		1	1	1	1	1	1	
		M	M	M	M	M	M	
		5	5	5	5	6	5	

**HABITAT FUNCTIONS**

Site Potential: Does the site have the potential to provide habitat?		Wetland Name							Figure#
Site Potential: Does the site have the potential to provide habitat?		A	B	C	E	G	H	Figure#	
H 1.1	Vegetation structure Covering >10% or >1/4 ac. - Aquatic bed - emergent plants - scrub/shrub - forested - forested with 3+ strata covering >20% area Cowardin Classes	1	1	1	2	2	0	Fig 1a-1c	
		>= 4 types = 4 3 types = 2 2 types = 1 1 type = 0							
H 1.2	Hydro-period a. Permanently flooded/ inundated b. Seasonally flooded/ inundated c. Occasionally flooded/ inundated d. Saturated only e. Permanent stream in/adjacent f. Seasonal stream in/adjacent	3	1	1	3	1	1	Fig 2a-2c	
		>=4 types = 3 3 types = 2 2 types = 1 1 type = 0 lake-fringe= 2 tidal (fresh)= 2	a, b, d, e,	c, d	d, e	b, d, e, f	b, d	c, d	



H 1.3	Plant species diversity	Number of species with at least 10 sq ft. Not counting reed canarygrass, purple loosestrife, Canada thistle, Eurasian milfoil	> 19 = 2 5-19 = 1 < 5 = 0	1	1	1	1	1	1	
H 1.4	Habitat interspersions	If 4 or more plant classes rating is always high	none = 0 low = 1 mod. = 2 high = 3	2	1	1	2	2	0	Fig 1 & 2
H 1.5	Special habitats Count number:	a. large downed woody debris (>4" dia & 6' long) b. standing snags (>4" dia) c. undercut banks (>2m) or overhanging vegetation (>1m) over stream/ditch d. stable steep banks of fine material for beaver of muskrat (>30% slope) or recent beaver activity. e. >1/4 ac thin-stemmed persistent vegetation or woody branches in areas perm. or seasonally inundated f. <25% cover by invasives in each stratum		3	0	1	1	1	0	
Total for H1 (H=15-18; M=7-14; L=0-6) Rating of Site Potential				a, b, c			b	b		
				10	4	5	9	7	2	
				M	L	L	M	M	L	

**Landscape Potential: Does the landscape have the potential to support the habitat functions of the site?**

H 2.1	Accessible habitat	Habitat in 1km polygon abutting wetland using: % undisturbed + [(%mod+low intensity)/2]. Percent of area in polygon	>1/3 = 3 20-33 = 2 10-19 = 1 <10 = 0	0	0	0	0	0	0	Fig 4
H 2.2	Undisturbed Habitat	Undisturbed habitat in 1 km polygon using: % undisturbed + [(% mod + low intensity)/2]. Percent of area in polygon	>50 % = 3 10-50 % = 2 1-3 patches = 2 >3 patches = 1 <10 % = 0	0	0	0	0	0	0	Fig 4
H 2.3	Land Use Intensity	>50% high intensity = (-2) < or = 50% high intensity = 0		-2	-2	-2	-2	-2	-2	Fig 4
Total for H2 (H=4-6; M= 1-3; L=<1) Rating of Landscape Potential				-2	-2	-2	-2	-2	-2	
				L	L	L	L	L	L	

**Rating of Value: Is the habitat provided by the site valuable to society?**

H 3.1	Habitat for species with legal status	Site meets any habitat criteria (below) = 2 Site has 1 or 2 priority habitats within 100 m = 1 Site does not meet criteria above = 0		2	2	2	2	0	0	
Total for H3 (H=2; M= 1; L=0) Rating of Value				2	2	2	2	0	0	
Habitat: Score Based on Ratings				H	H	H	H	L	L	
				6	5	5	6	4	3	

<b>TOTAL SCORE BASED ON RATINGS</b>				17	16	16	17	16	14	
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Date(s) of Site Visit(s): 9/6/2016 Trained by Ecology?  
Rated by: Katharine Lee, Kate Machata Yes

**RIVERINE WETLANDS**

WATER QUALITY FUNCTIONS		Wetland Name		Total Size (acres)		Figure#	
Site Potential: Does the site have the potential to improve water quality?							
R 1.1	Surface depressions	Depressions cover >3/4 area = 8 Depressions cover >1/2 area = 4 Depressions present but cover <1/2 area = 2 No depressions present= 0		0	2		
R 1.2	Structure of plants	Trees or shrubs >2/3 area = 8 Trees or shrubs >1/3 area = 6 Herbaceous plants (>6") >2/3 area area = 6 Herbaceous plants (>6") >1/3 area area = 3 Trees, shrubs and ungrazed herb <1/3 area= 0		6	8		
		<b>Total for R1 (H=12-16; M=6-11; L=0-5)</b>		6	10		
		<b>Rating of Site Potential</b>		M	M		

**Landscape Potential: Does the landscape have the potential to support the water quality function of the site?**

R 2.1	City or UGA	Wetland within incorporated city or UGA	Yes = 1 No = 0	1	1		
R 2.2	Contributing Basin location	Basin includes incorporated city or UGA	Yes = 1 No = 0	1	1	Fig 5	
R 2.3	Basin characteristics	At least 10% basin is field, pasture, or clearcut with 5 years	Yes = 1 No = 0	0	0		
R 2.4	150 foot buffer	>10% of 150 foot buffer is in land uses that generate pollutants	Yes = 1 No = 0	1	1	Fig 3a,3b	
R 2.5	Other pollutants	Other pollutant sources present	Yes = 1 No = 0	1	1		
		<b>Total for R2 (H=2-4; M= 1; L=0)</b>		4	4		
		<b>Rating of Landscape Potential</b>		H	H		

Rating of Value: Is the water quality improvement provided by the site valuable to society?

R 3.1	303(d) list waters within 1 mile	Wetland is along water on 303(d) list or on tributary that drains within 1 mile to 303(d) water	Yes = 1 No = 0	1	1	Fig 6
R 3.2	TMDL watershed	Stream or river has TMDL for nutrients, toxics, or pathogens	Yes = 1 No = 0	0	0	Fig 6
R 3.3	Watershed or local plan	Site identified as important to water quality (yes if water has TMDL)	Yes = 2 No = 0	0	0	Fig 6
Total for R3 (H=2-4; M=1; L=0)				1	1	
Improving Water Quality : Score Based on Ratings				M	M	
				7	7	

HYDROLOGIC FUNCTIONS		Wetland Name	D	F	Figure#
<b>Site Potential: Does the site have the potential to reduce flooding and erosion?</b>					
R 4.1	Overbank Storage: Average Width of wetland/ average width of stream	Ratio > 20 9 Ratio 10-20 6 Ratio 5- <10 4 Ratio 1-<5 2 Ratio <1 1	2	2	Fig 2a,2b
R 4.2	Plants (or LWD) that slow down flood velocity	Forest or shrub >1/3 OR emergent >2/3 area 7 Forest or shrub >1/10 OR emergent >1/3 area 4 Plants do not meet above criteria 0	4	7	
Total for R4 (H=12-16; M=6-11; L=0-5)			6	9	
Rating of Site Potential			M	M	

Landscape Potential: Does the landscape have the potential to support the hydrologic functions of the site?		Yes = 0 No = 1	1	1
R 5.1	Downcutting	Stream or river adjacent to wetland is downcut	1	1
R 5.2	Up-gradient watershed	Up-gradient watershed includes UGA or incorporated area	1	1
R 5.3	Up-gradient dam	Up-gradient river or stream is controlled by dam(s)	1	1
Total for R5 (H=3; M= 1-2; L=0)			3	3
Rating of Landscape Potential			H	H
<b>Rating of Value: Are the hydrologic functions provided by the site valuable to society?</b>				
R 6.1	Flooding occurs:	Damaging flooding in sub-basin immediately down-gradient = Surface flooding in sub-basin farther down-gradient = 2 No flooding problems anywhere downstream 1 0	1	1



R 6.2	Flood storage	Site is critical part of regional flood control plan	Yes = 2 No = 0	0	0
Total for R6 (H=2-4; M=1; L=0) Rating of Value Hydrologic : Score Based on Ratings				1	1
				M	M
				7	7

HABITAT FUNCTIONS		Wetland Name	D	F	Figure#
<b>Site Potential: Does the site have the potential to provide habitat?</b>					
H 1.1	Vegetation structure Cowardin Classes	Covering >10% or >1/4 ac: - Aquatic bed - emergent plants - scrub/shrub - forested - forested with 3+ strata covering >20% area	1	1	Fig 1a, 1b
H 1.2	Hydro-period	a. Permanently flooded/ inundated b. Seasonally flooded/ inundated c. Occasionally flooded/ inundated d. Saturated only e. Permanent stream in/adjacent f. Seasonal stream in/adjacent	2	3	Fig 2a, 2b
H 1.3	Plant species diversity	Number of species with at least 10 sq ft. Not counting reed canarygrass, purple loosestrife, Canada thistle, Eurasian milfoil	1	1	
H 1.4	Habitat interspersions	If 4 or more plant classes rating is always high	0	1	A-2
H 1.5	Special habitats Count number of special habitat features:	a. large downed woody debris (>4" dia & 6' long) b. standing snags (>4" dia) c. undercut banks (>2m) or overhanging vegetation (>1m) over stream/ditch d. stable steep banks of fine material for beaver of muskrat (>30% slope)	0	2	
Total for H1 (H=15-18; M=7-14; L=0-6) Rating of Site Potential			4	8	
			L	M	



Landscape Potential: Does the landscape have the potential to support the habitat functions of the site?			
H 2.1	Accessible habitat	Habitat in 1km polygon abutting wetland using: % undisturbed + [(%mod+low intensity)/2]. Percent of area in polygon	>1/3 = 3 20-33 = 2 10-19 = 1 <10 = 0
H 2.2	Undisturbed Habitat	Undisturbed habitat in 1 km polygon using: % undisturbed + [(% mod + low intensity)/2]. Percent of area in polygon	>50 % = 3 10-50 % 1-3 patches= 2 >3 patches= 1 <10 % = 0
H 2.3	Land Use Intensity		>50% high intensity = (-2) < or = 50% high intensity = 0
Total for H2 (H=4-6; M= 1-3; L<=1)			-2
Rating of Landscape Potential			-2
			L
			L
			Fig 4
			0
			0
			Fig 4
			Fig 4

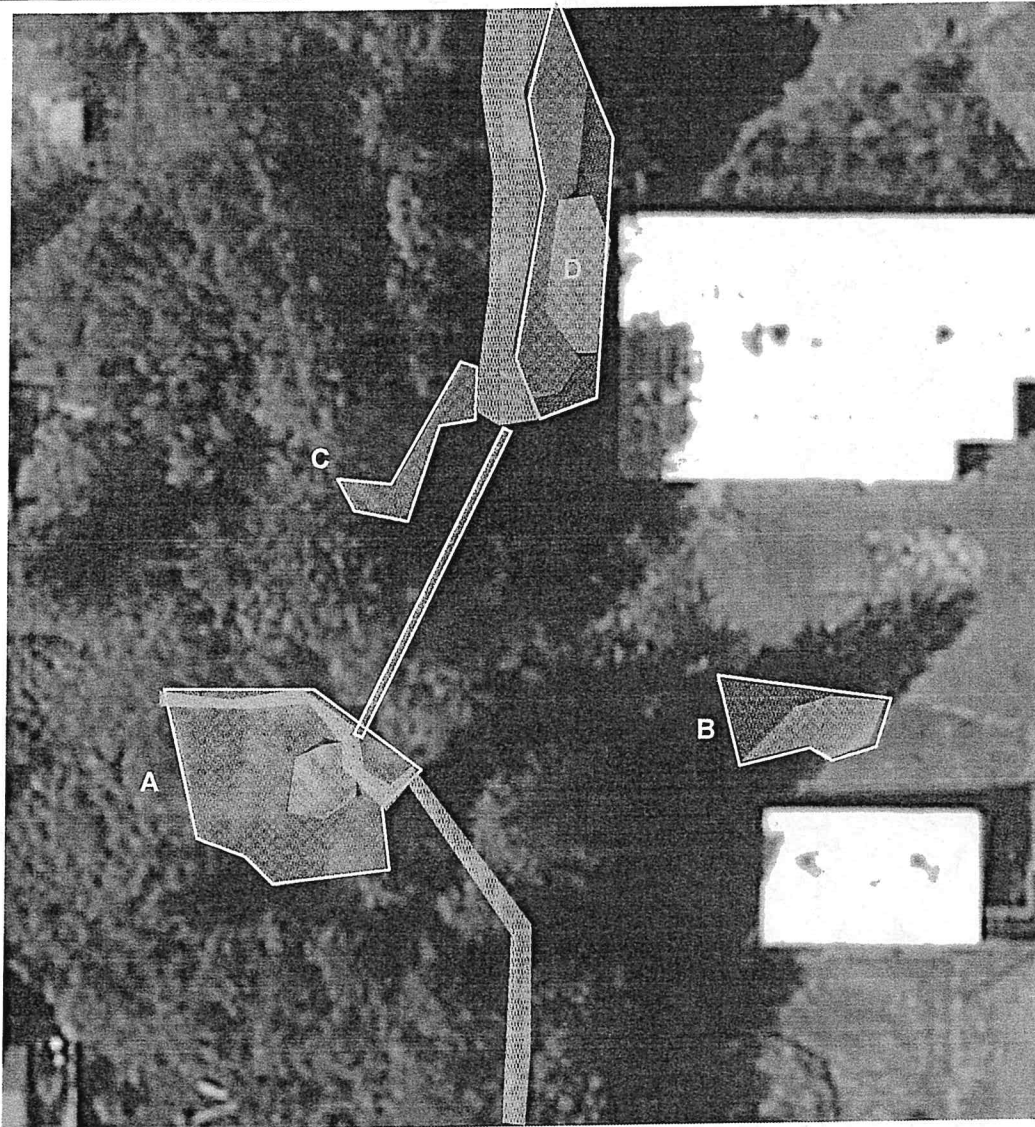
**Rating of Value: Is the habitat provided by the site valuable to society?**

H 3.1 Habitat for species with legal status	Site meets any habitat criteria (below) = 2	2	2
	Site has 1 or 2 priority habitats within 100 m = 1 Site does not meet criteria above = 0	2	2
<b>Total for H3 (H=2; M= 1; L=0)</b>			
<b>Rating of Value</b>			
<b>Habitat: Score Based on Ratings</b>			
		H	H
		5	6

<b>TOTAL SCORE BASED ON RATINGS</b>	19	20
<b>OVERALL WETLAND CATEGORY</b>	III	II

H.3.1	WDFW Priority Habitats	D	F
	Aspen Stands		
	Biodiversity Areas and Corridors		
	Herbaceous Balds		
	Old Growth / Mature Forests		
	Oregon White Oak	X	X
	Riparian		
	Westside Prairie		
	Instream	X	X
	Nearshore		
	Caves		
	Cliffs		
	Talus		
	Snags & Logs	X	X

Site has 3 or more of the above within 100 meters It provides habitat for threatened or endangered species It is mapped as a location for an individual WDFW Priority Species It is a wetland of high conservation value as determined by DNR It has been categorized as an important habitat in local planning	Yes	Yes
	No	No
	No	No
	No	No
	No	No



KEY:

-  Palustrine Emergent
-  Palustrine Scrub-Shrub
-  Palustrine Forested

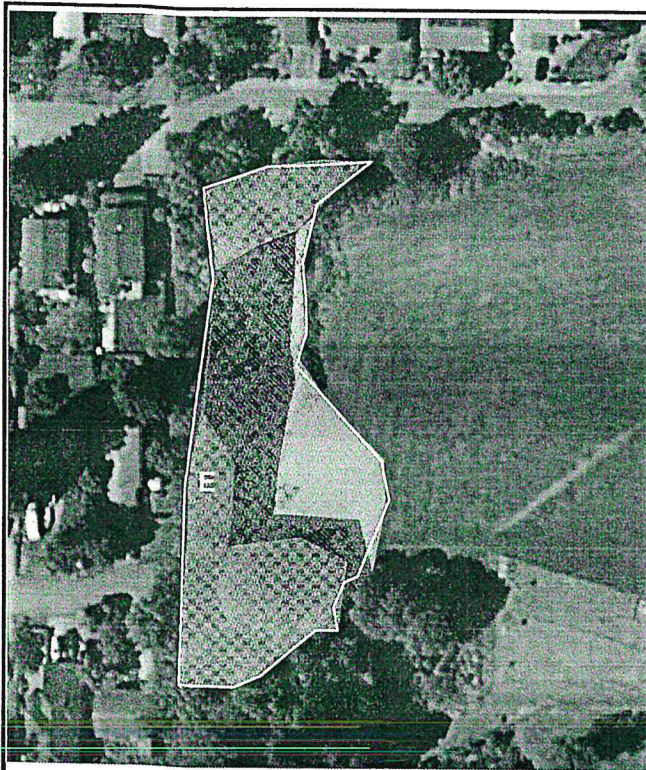


Project # 40958.011  
Date: Jan 2017

**COWARDIN – WETLANDS A-D**  
Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

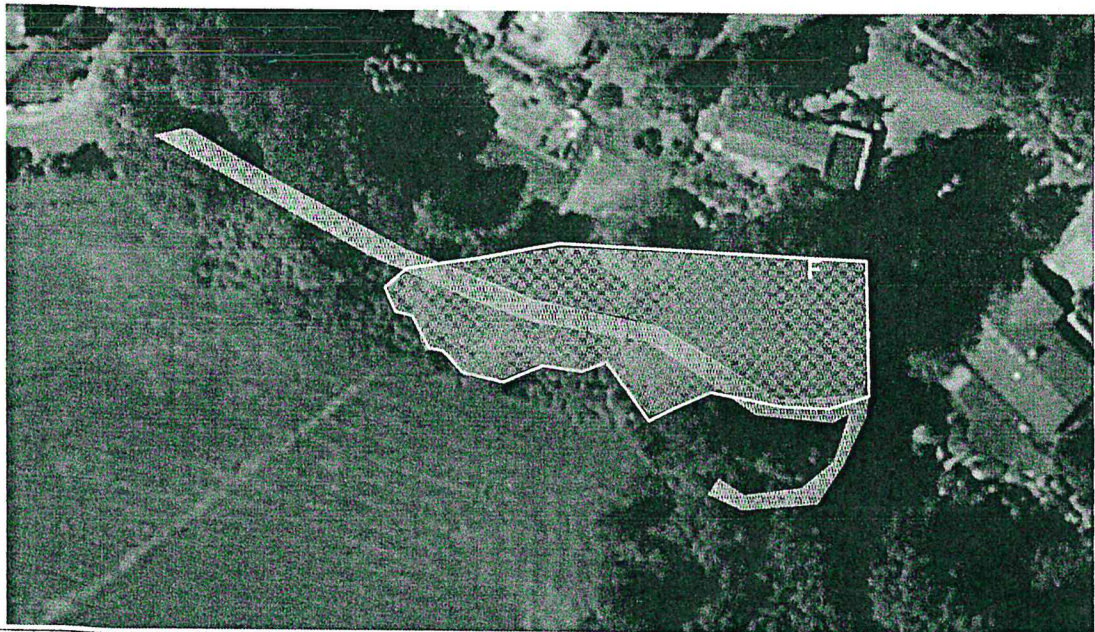
**RATING  
FIGURE  
1a**





KEY:

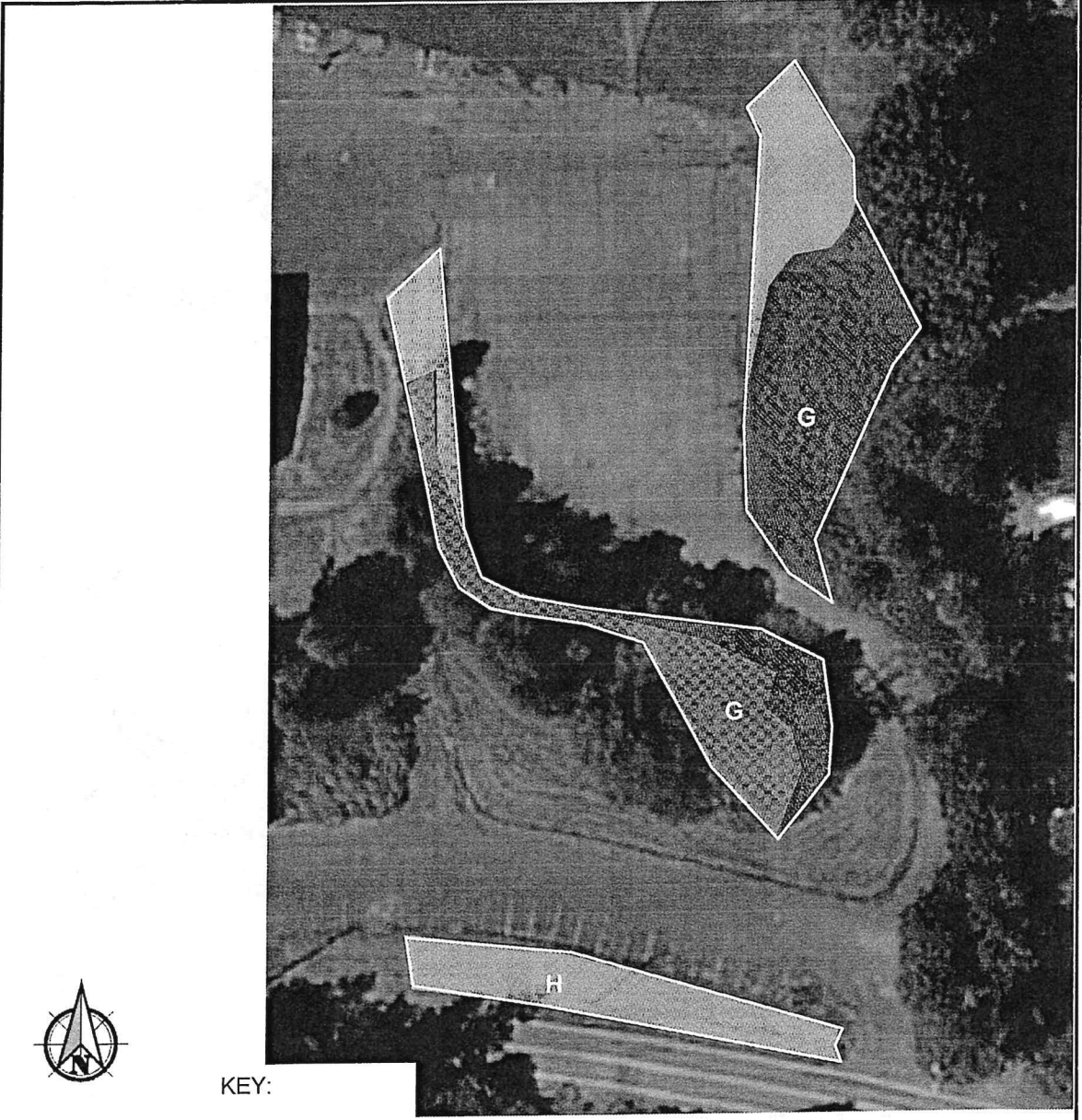
-  Palustrine Emergent
-  Palustrine Scrub-Shrub
-  Palustrine Forested




  
Project # 40958.011  
Date: Jan 2017

**COWARDIN – WETLANDS E & F**  
Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**RATING  
FIGURE  
1b**

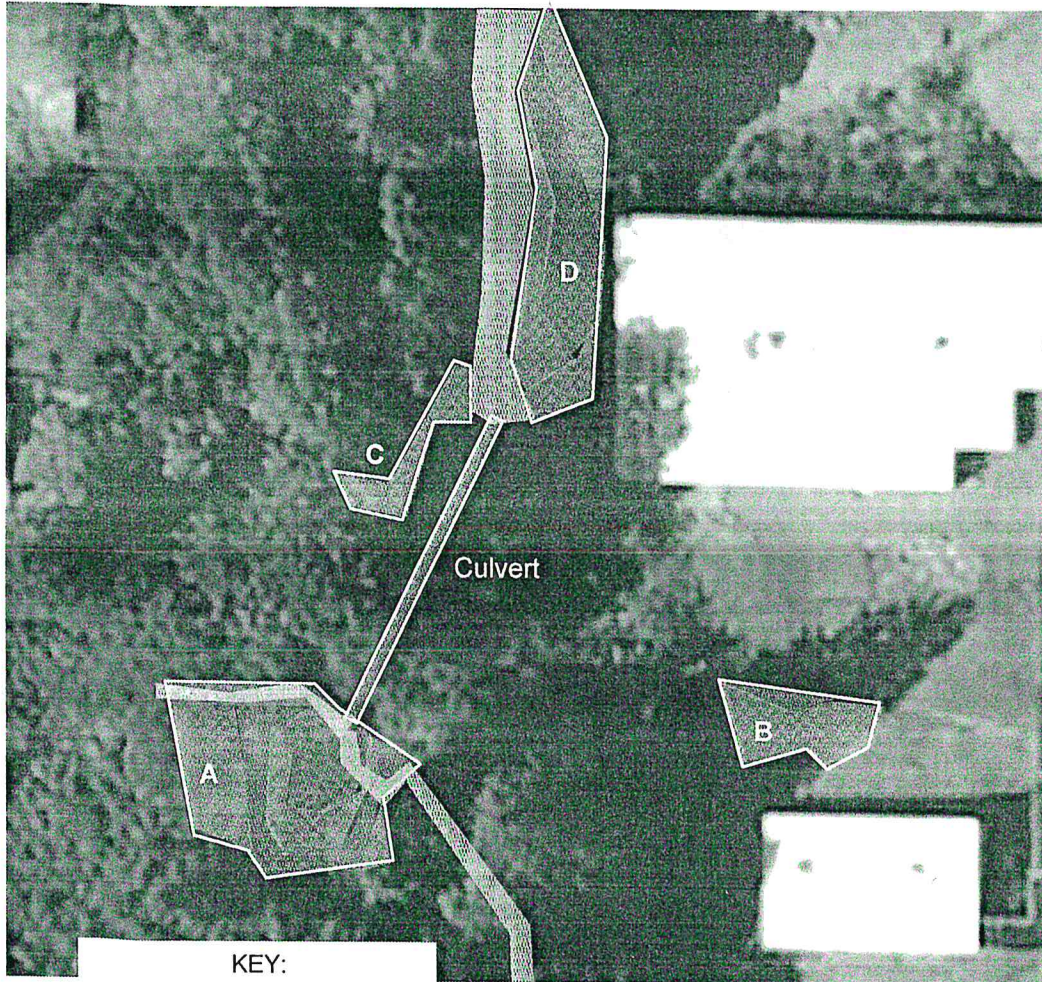


KEY:






-  Palustrine Emergent
-  Palustrine Scrub-Shrub
-  Palustrine Forested

 Project # 40958.011 Date: Jan 2017	<b>COWARDIN – WETLANDS G &amp; H</b> Cedarbrook School Site 2000 NE Perkins Way Shoreline, Washington	<b>RATING FIGURE 1c</b>
------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------	---------------------------------





KEY:

-  Permanently Inundated
-  Seasonally Inundated
-  Occasionally Inundated
-  Saturated Only
-  Perennial Stream
-  Seasonal Stream



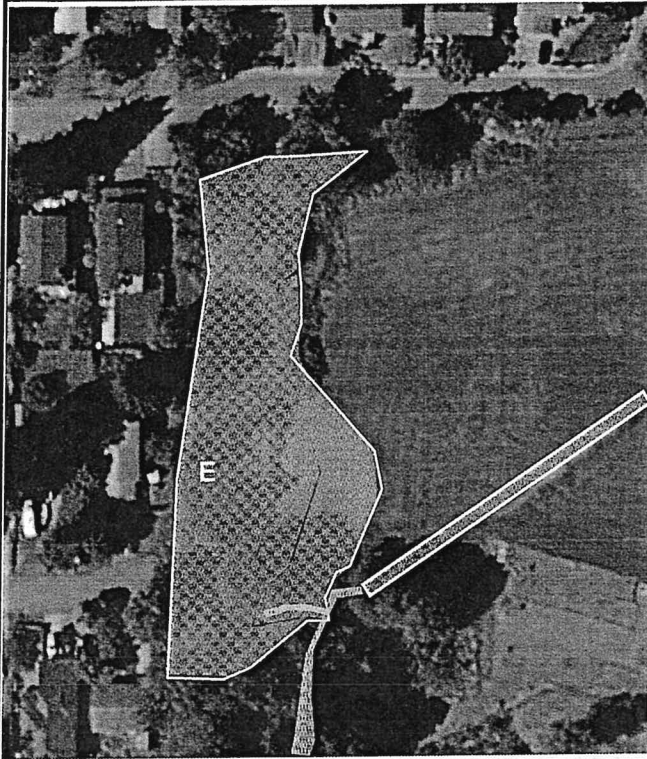
Project # 40958.011  
Date: Jan 2017






### HYDROPERIODS – WETLANDS A-D

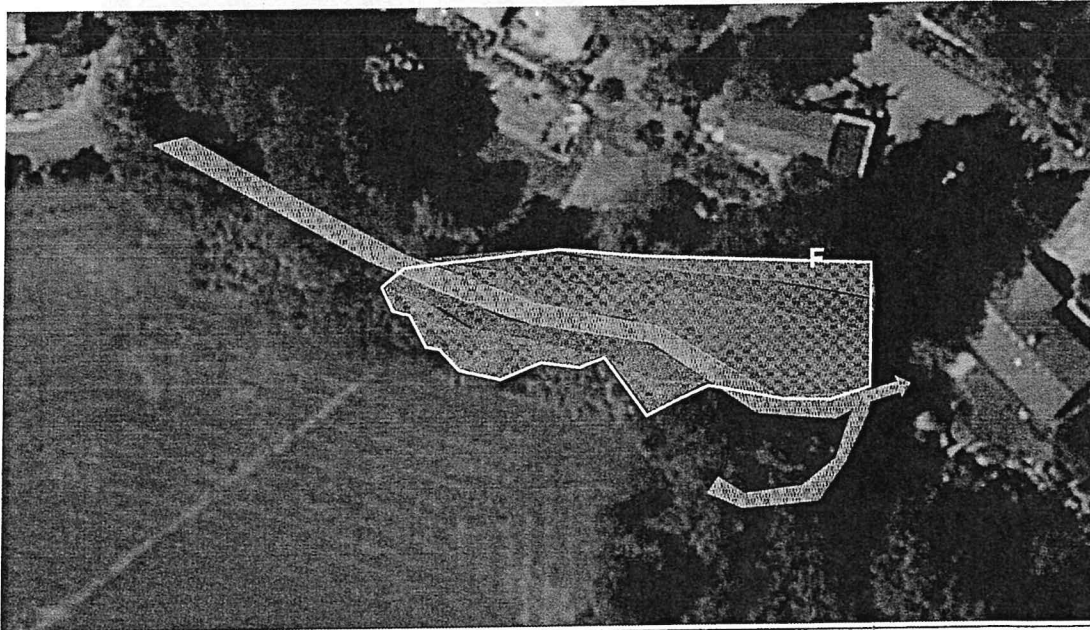
Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

RATING  
FIGURE

2a



- KEY:
-  Permanently Inundated (stream)
  -  Seasonally Inundated
  -  Occasionally Inundated
  -  Saturated Only
  -  Perennial Stream
  -  Seasonal Stream

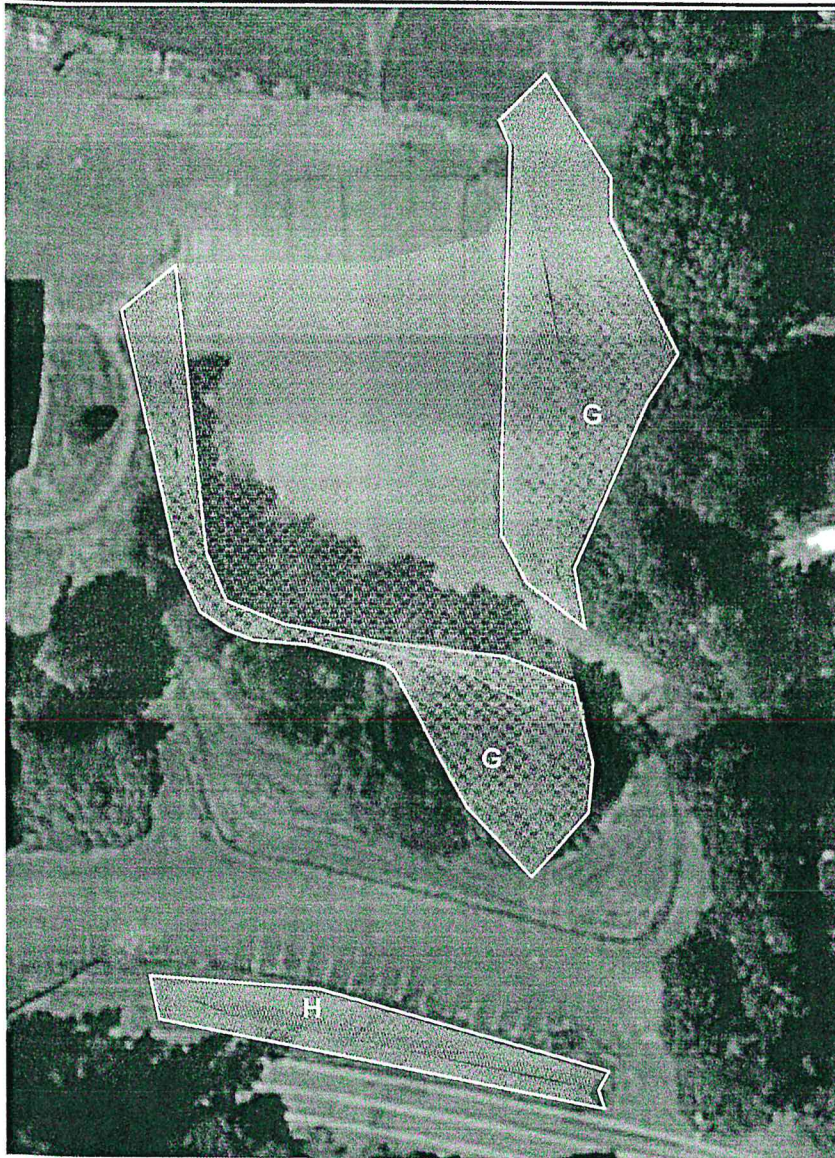


Project # 40958.011  
Date: Jan 2017




**HYDROPERIODS – WETLANDS E & F**  
Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**RATING  
FIGURE  
2b**





KEY:

-  Permanently Inundated
-  Seasonally Inundated
-  Occasionally Inundated
-  Saturated Only

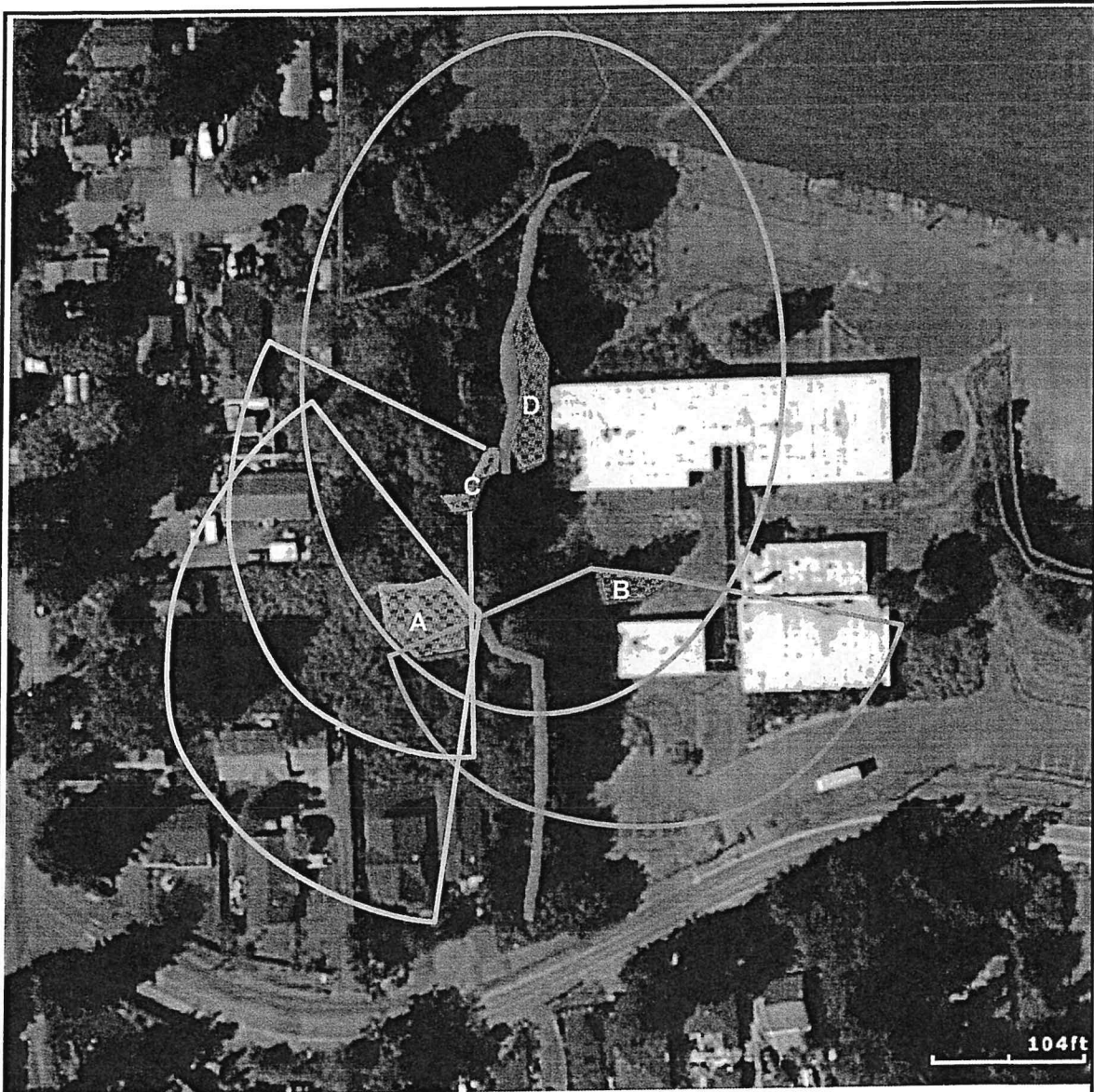







Project # 40958.011  
Date: Jan 2017

**HYDROPERIODS – WETLANDS G & H**

Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**RATING  
FIGURE  
2c**



-  150' Buffer
-  Wetland A – Slope
-  Wetland B – Slope
-  Wetland C – Slope
-  Wetland D – Riverine

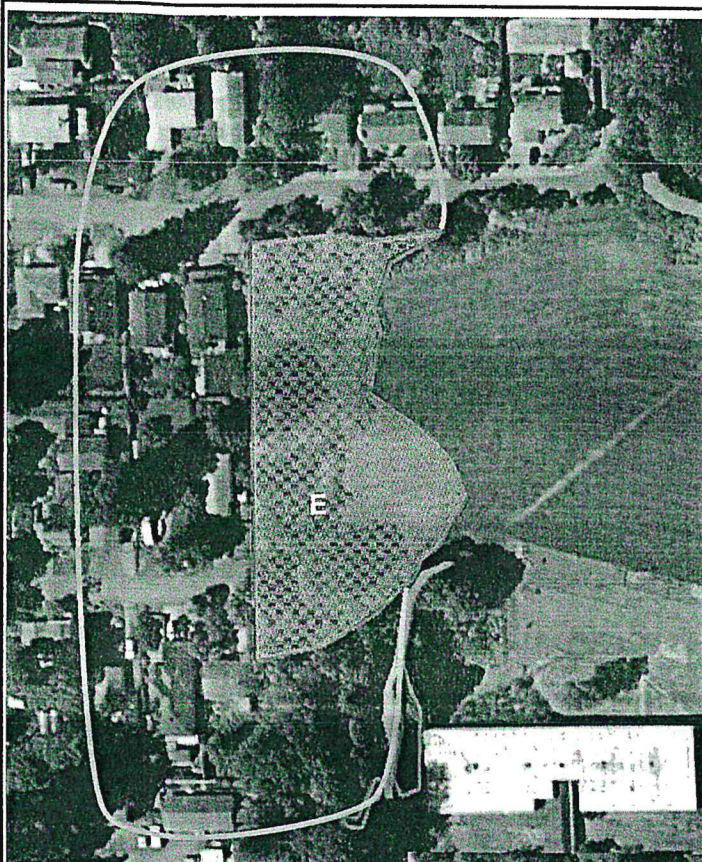


**PBS**  
 Project # 40958.011  
 Date: Jan 2017

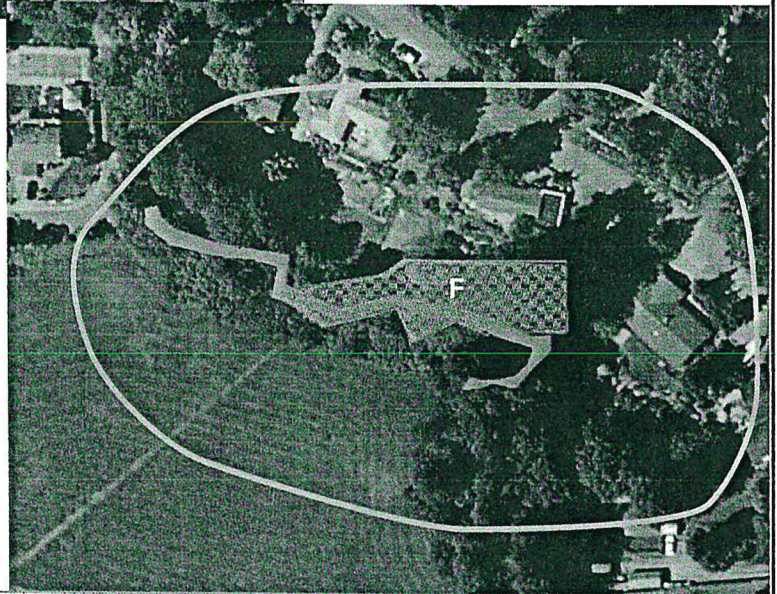
**150' BUFFER – WETLANDS A-D**  
 Cedarbrook School Site  
 2000 NE Perkins Way Shoreline, Washington

**RATING  
 FIGURE  
 3a**





150' Buffer  
Wetland E – Slope  
Wetland F – Riverine

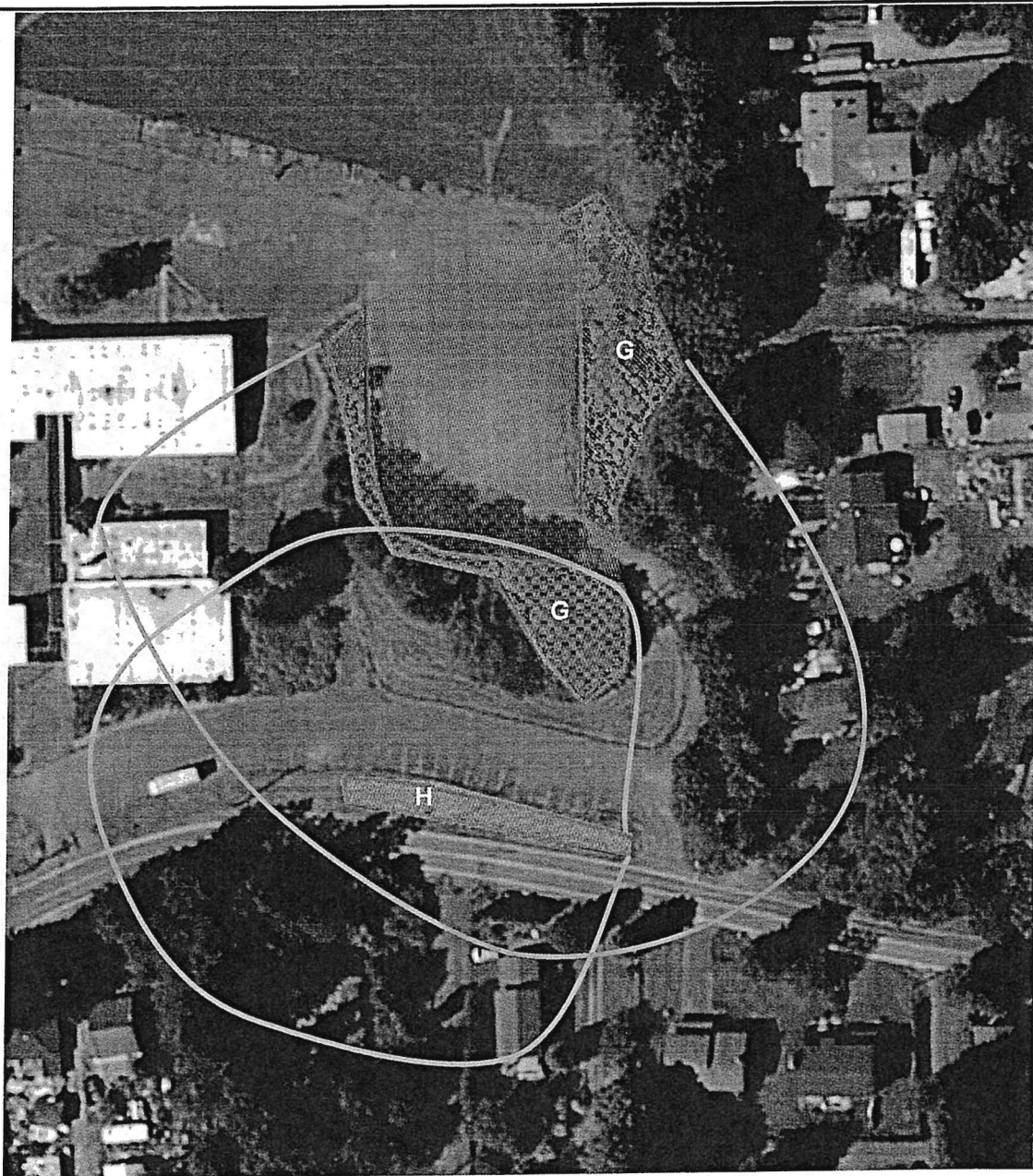


Project # 40958.011  
Date: Jan 2017

**150' BUFFER – WETLANDS E & F**  
Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**RATING  
FIGURE  
3b**





 150' Buffer  
 Wetland G - Slope  
 Wetland H - Slope



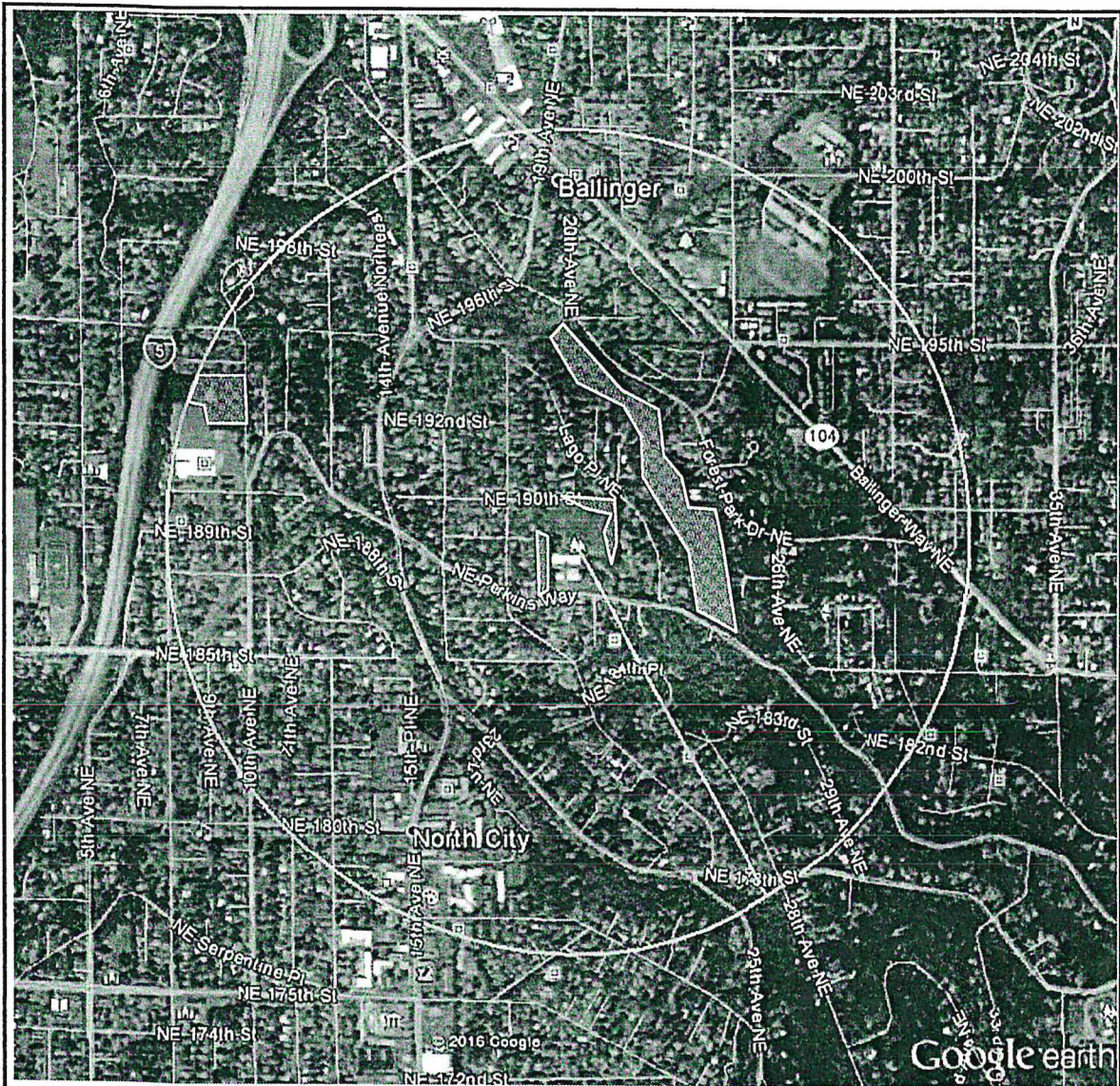
Project # 40958.011  
 Date: Jan 2017

**150' BUFFER – WETLANDS G & H**

Cedarbrook School Site  
 2000 NE Perkins Way Shoreline, Washington

**RATING**  
**FIGURE**  
**3c**





1km Radius – All wetlands

- No accessible habitat
- No relatively undisturbed habitat
- Low to moderate intensity land use < 10 percent
- Balance is high intensity



Project # 40958.011  
Date: Jan 2017

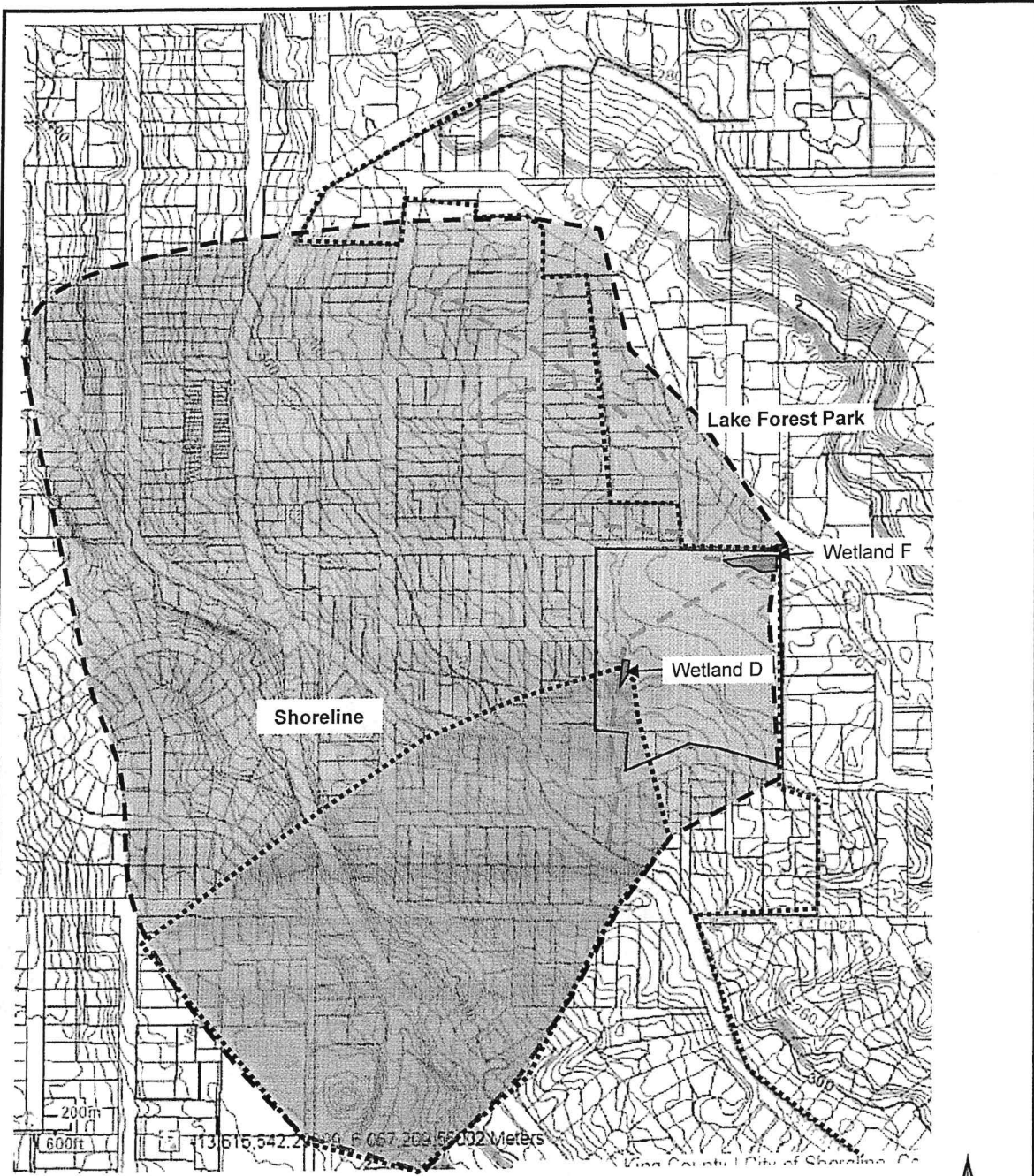
**LAND USE – 1KM RADIUS**



Cedarbrook School Site  
2000 NE Perkins Way Shoreline, Washington

**RATING  
FIGURE**

**4**





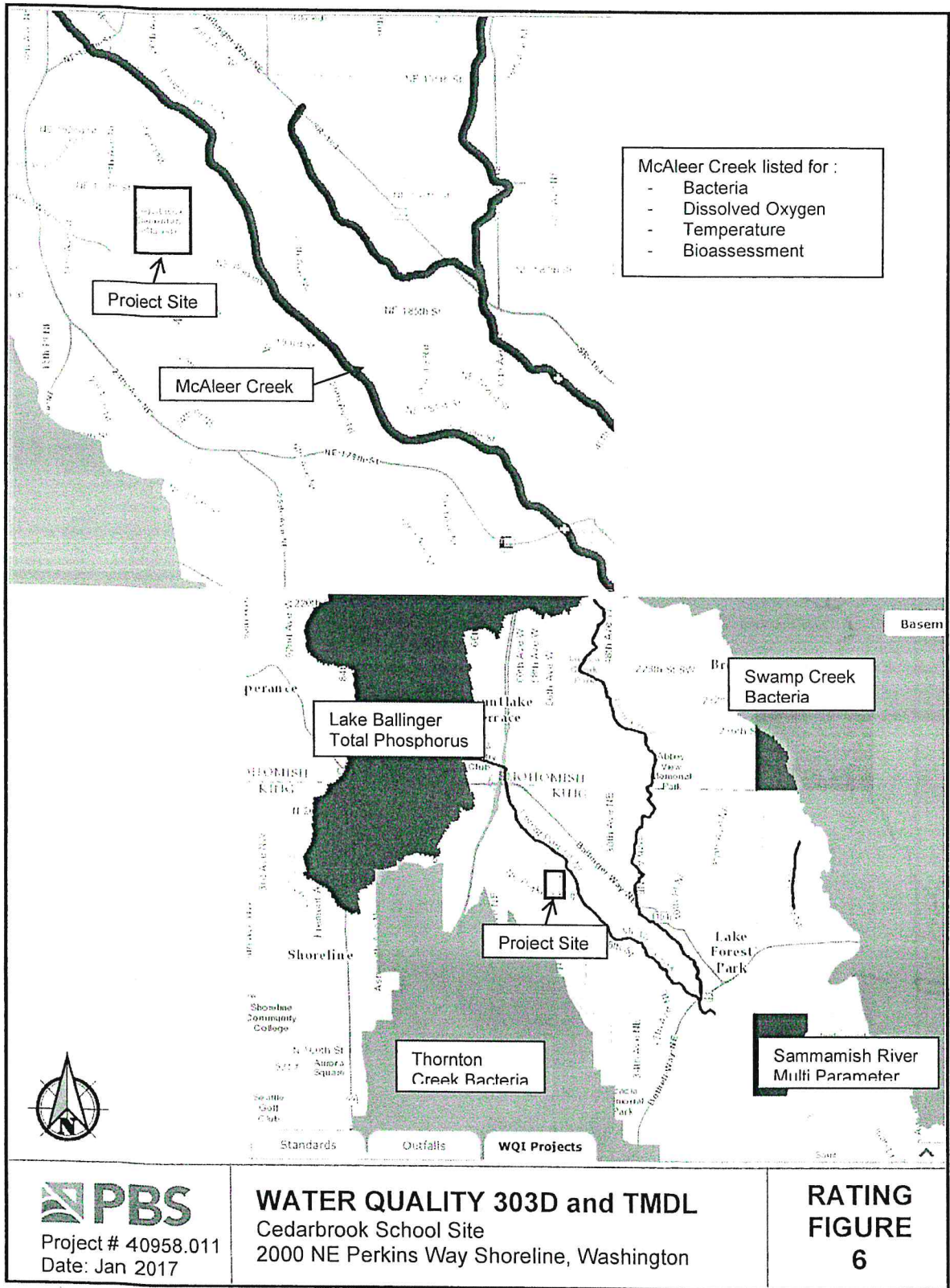
-  Wetland F Contributing Basin
-  Wetland D Contributing Basin



**PBS**  
 Project # 40958.011  
 Date: Jan 2017

**CONTRIBUTING BASIN**  
 Cedarbrook School Site  
 2000 NE Perkins Way Shoreline, Washington

**RATING**  
**FIGURE**  
**5**





## **APPENDIX D**

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### Hydrophytic Vegetation Indicator Categories

### Hydrophytic Vegetation Indicator Categories

The NWPL is a list of wetland plants and their assigned indicator statuses. An indicator status reflects the likelihood that a particular plant occurs in a wetland or upland.

Indicator Code	Indicator Status	Designation	Comment
OBL	Obligate Wetland	Hydrophyte	Plants that always occur in standing water or in saturated soils
FACW	Facultative Wetland	Hydrophyte	Plants that nearly always occur in areas of prolonged flooding or require standing water or saturated soils but may, on rare occasions, occur in non-wetlands
FAC	Facultative	Hydrophyte	Plants that occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but commonly occur in standing water or saturated soils
FACU	Facultative Upland	Nonhydrophyte	Plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils
UPL	Obligate Upland	Nonhydrophyte	Plants that almost never occur in water or saturated soils

[http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/techbio/nwpl\\_may2012\\_factsheet.pdf](http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/techbio/nwpl_may2012_factsheet.pdf)

**APPENDIX E**

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Geotechnical Review Letter



May 18, 2017

Mr. Dan Stevens  
Facilities Modernization Coordinator  
Shoreline School District  
18560 1st Avenue NE  
Shoreline, Washington 98155

Regarding: Critical Areas Report – Geologic Hazards  
Cedarbrook Elementary School  
2000 NE Perkins Way  
Shoreline, Washington 98155  
PBS Project No. 40958.011, Phase 0001, Task 004

Dear Mr. Stevens:

PBS Engineering and Environmental Inc. (PBS) is pleased to present this critical areas report to address geologic hazards at the Cedarbrook Elementary School site in Shoreline, Washington. The site location is shown on the Vicinity Map, Figure 1. The extent of the proposed project and site features are shown on the Site Plan, Figure 2.

### **PROJECT UNDERSTANDING**

PBS was engaged by the Shoreline School District to develop a plan for demolition of the existing Cedarbrook Elementary School. In general, this will include demolition of three buildings and appurtenant pavement, sidewalks, and utilities. The three buildings will be referred to by number (as indicated on Figure 2) throughout this report. Limited site grading is planned to flatten site slopes, particularly where embedded building walls associated with the buildings are located on the south sides of Buildings 1 and 2.

This report address three geologic hazards as required by the Shoreline Municipal Code (SMC): landslide areas, seismic hazard areas, and erosion hazard areas. Landslide hazard areas are determined primarily based on the inclination of site slopes, where slopes are steeper than 15 percent (6.7H:1V [horizontal to vertical]) with a vertical elevation change of at least 10 feet. The severity of the hazard is a function of several factors including the presence of slope inclination, soil type, groundwater seepage, and previous landslide activity. Seismic hazards, including liquefaction, lateral spreading, and earthquake shaking, are primarily a function of soil type and consistency/density and groundwater conditions. Erosion hazards are strictly based on soil type (as referred to by the SMC) and the subsequent susceptibility to erosion.

The purpose of PBS' services was to complete a site reconnaissance and review available geologic and hazard maps, well logs, and literature to determine if geologic hazards as identified in the SMC exist at the site, the degree of the hazard if it exists, and whether the proposed project will impact these hazards, negatively effecting the site and/or surrounding areas.

### **SITE RECONNAISSANCE**

Ryan White, PE, GE, a licensed geotechnical engineer from PBS, completed a reconnaissance of the site on April 27, 2017. The purpose of the reconnaissance was to observe existing site topography, groundwater conditions, vegetation, exposed soil types, building foundation conditions, and the condition of site slopes.



### **Site Topography**

In general, based on field measurements using a hand level and tape measure, the site topography and slope inclinations are consistent with that shown on Figures 2 and 3. Within the proposed work area (identified on Figure 2 as a thick dashed line encircling the buildings) site slopes of approximately 30 percent (3.4H:1V) to 40 percent (2.5H:1V) are present to the north and south of Building 3. Both of these slopes are on the order of 4 to 5 feet tall (toe to crest).

Outside of the proposed work area, slopes of steeper than 40 percent are present above the rockery located east of Buildings 1 and 2, north of the eastern parking lot, along the stream that runs north-south at the southwest corner of the school property, and behind the two residences that border the school property to the southwest. These areas are heavily vegetated, but slopes within these areas appear to be on the order of 65 percent (1.5H:1V) and steeper. The slope at the rockery appears to have been cut to accommodate construction of a parking lot, while the steep slopes along the west side of the stream and behind the residences to the southwest may be the result of fill having been placed to construct the homes. Some downcutting of the stream is also likely due to stormwater discharges to the stream.

Observation of the ground surface above these slopes did not reveal obvious signs of recent slope instability, such as cracks, scarps, or exposed soil. The parking area and access drive pavement has deteriorated over time, but the presence of systematic, parallel cracks that could be an indicator of slope instability below these areas were not observed.

### **Site Soils**

Review of geologic maps (Minard, 1983; Figure 4) of the area indicates the site is underlain by advanced outwash. Advanced outwash is classified as predominantly sand with variable amounts of silt and gravel. Advanced outwash is typically overlain by till, which is mapped as being present near the site. Vashon till is generally present above elevations of 30 meters (100 feet) and consists of a mixture of clay, silt, sand, gravel, cobbles, and boulders.

Exposed near-surface soils present at and around the site generally appear to consist of silt with variable amounts of clay and sand. Large basalt boulders are present in the drainages on the southwestern portion of the property. These are not likely native to the area and were probably imported.

Review of well logs collected from the State of Washington Department of Ecology for sites in the area indicate soils consist of clay, silt, sand, and gravel.

### **Groundwater**

One area of seepage was noted within the work area during the site reconnaissance. Slow seepage was observed coming from the north-facing slope between Building 3 and the paved area between Buildings 1 and 3. The slow seepage is consistent with the mapped wetlands in that area.

Outside the work area, slow seepage was observed along the western portion of the northeastern paved area, generally south of the fire hydrant shown in Figure 2. Seepage from the slope is flowing east across the paved area.

### **HAZARD EVALUATION**

Due to the absence of indicators of slope instability, the delineation of hazards was completed considering published geologic and hazard maps, the site topography measured in the field and developed for the site survey (refer Figure 2), geologic mapping, and visual observation during the reconnaissance.

### **Landslide Hazards**

The SMC classifies landslide hazards as either moderate to high risk or very high risk. Moderate to high risk is defined as slopes of 15 to 40 percent underlain by clay, silt, sand, gravel, or till that do not meet the criteria for very high risk areas, or any slopes that are 40 percent or steeper and 10 to 20 feet in height that do not meet the criteria for very high risk areas. Very high risk is defined as slopes that are steeper than 15 percent with zones of emergent water, areas of landslide activity, and all slopes of 40 percent and steeper that are more than 20 feet tall. Slope inclination at the site, provided by the City of Shoreline, is shown on Figure 3. The project site is located outside the landslide hazard areas as determined by the City of Shoreline (refer, Figure 5)

Within the proposed work area, there are existing slopes that are between 15 and 40 percent. However, these slopes are less than 10 feet in height (as defined in the SMC) and not considered a hazard.

Outside the work area, slopes near the southwest corner and the slope located at the rockery located east of the buildings would be considered moderate to high risk due to their inclination (greater than 40 percent) and heights of between 10 and 20 feet. There is a slope wetland in the northwest corner, well outside the project area that meets the definition of very high risk. Identified landslide hazard areas are shown on Figure 2.

### **Seismic Hazard**

Seismic hazards identified in the SMC include liquefaction, lateral spreading, subsidence, and strong shaking. Liquefaction is defined as a decrease of the shear resistance of loose, saturated, cohesionless soil (e.g., sand) or low-plasticity silt soils, due to the buildup of excess pore pressures generated during an earthquake. This results in a temporary transformation of the soil deposit into a viscous fluid. Liquefaction can result in ground settlement, foundation bearing capacity failure, and lateral spreading of ground. Liquefaction that occurs near or adjacent to slopes or free-faces can result in lateral spreading. Based on our review of the Liquefaction Susceptibility Map of King County, Washington (Palmer, 2004), the site is located in an area with a very low to low risk of liquefaction. Subsequently, the risk of lateral spreading is also very low. If new structures were being constructed at the site, anticipated strong shaking resulting from a code-level earthquake could likely be accommodated with code-based design procedures.

### **Erosion Hazard**

The SMC defines soils as erodible based on the US Department of Agriculture Natural Resources Conservation Services (NRCS) classification of soils at the site. NRCS mapping data is not available for this site. However, based on nearby mapping, site soils would presumably be classified as Alderwood-Kitsap (AkF) or Alderwood gravelly sandy loam (AgD), which corresponds to a severe to very severe erosion hazard. This is consistent with observation of the surrounding drainages where downcutting of the soils has occurred, creating the steep slopes present on the southwestern portion of the site.

### **SITE GRADING AND SLOPE STABILITY**

Currently proposed grading is generally limited to flattening the site slope where existing embedded building walls are present. This will involve cutting the crest of the slope back and placing a relatively small amount of fill at the toe of the engineered slope, which will be inclined at 3H:1V, or 33 percent. Grading around the east and west sides of the buildings will tie the newly constructed cut slopes into the existing slopes. In addition, the 2.5H:1V slope south of Building 3 will be flattened.

### **MITIGATION MEASURES**

Due to the soil type and presence of seepage in areas of the site, we recommend that grading be completed during relatively dry conditions. Project plans should include appropriate measures to control erosion of exposed

soil at the site including a silt fence, straw wattles, and erosion control netting/fabric as required/accepted by the City. Exposed soil should be planted and/or protected to provide long-term protection of the surficial soils at the site.

### CONCLUSIONS

Based on the definitions provided in the SMC, landslide and erosion hazards are present at the site. Site soils are composed of clay, silt, and sand that are susceptible to erosion. Due to the inclination and height of the slope above the rockery located north of the east parking lot, that area is considered a moderate to high landslide hazard, but is located outside the work area. A portion of the wetland in the northwest corner meets the definition of very high risk landslide hazard, but it is well outside the project area.

Based on observations during our reconnaissance, the existing slopes within the work area at the site have performed adequately, even though they are currently relatively unmaintained, and no obvious signs of recent or past instability were observed around Building 3 or in the vicinity of these slopes. In addition, the concrete foundation, where visible from the exterior, shows no signs of significant cracking that would be indicative of slope instability.

Based on review of site conditions and the referenced maps and plans, our current opinion is that the proposed site grading will not increase the risk of occurrence of landslides at the site or negatively impact the surrounding properties.

### CLOSING

Please feel free to contact me at 503.539.5028 or [Ryan.White@pbsusa.com](mailto:Ryan.White@pbsusa.com) with any questions or comments.

Sincerely,



5/18/2017

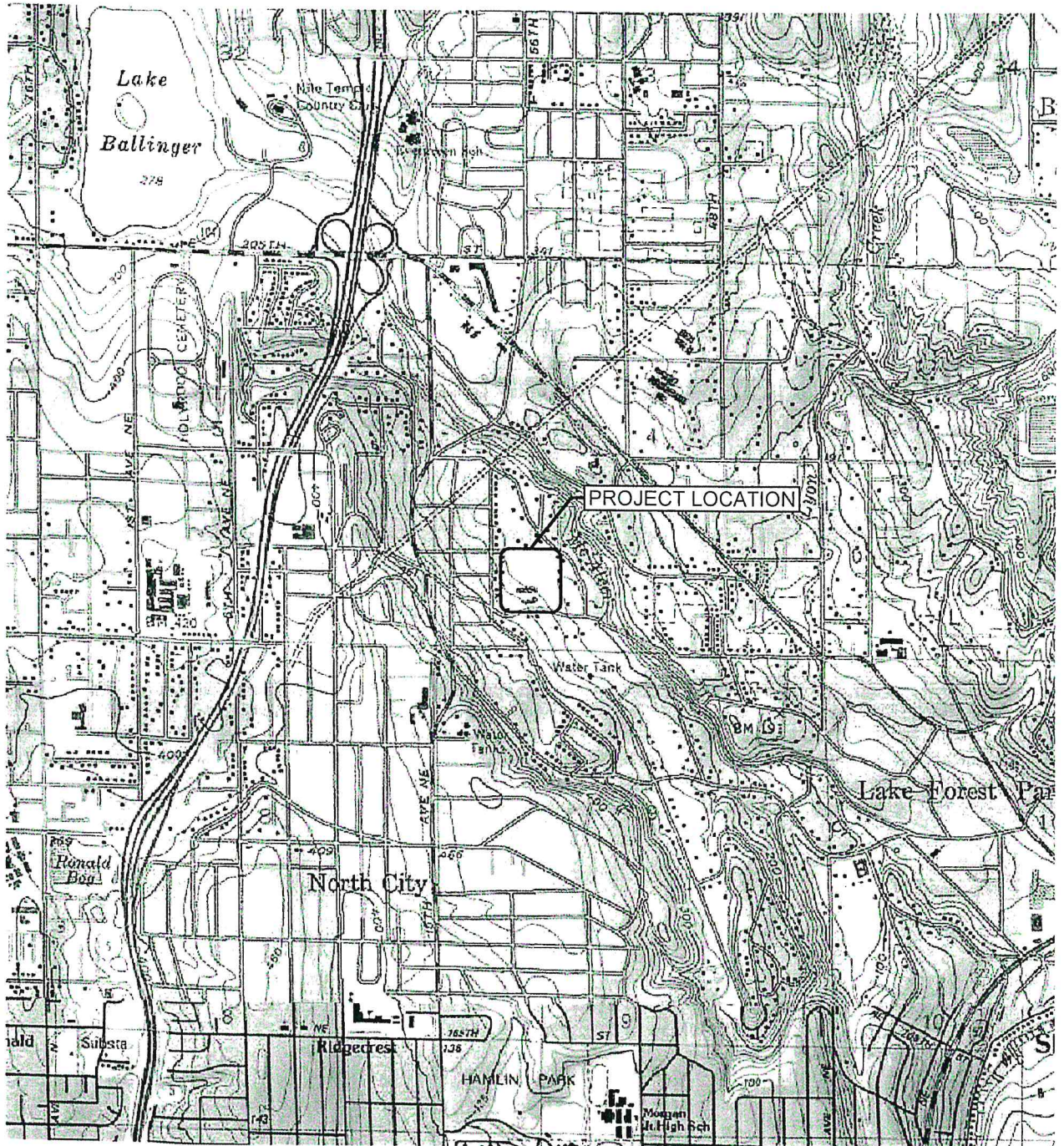
Ryan White, PE, GE (OR)  
Geotechnical Discipline Lead

### Figures

- Figure 1 – Vicinity Map
- Figure 2 – Site Plan
- Figure 3 – Slope Inclinations Plan
- Figure 4 – Geology Map
- Figure 5 – Landslide Hazard Map

RW:SB:rg





SOURCE: USGS EDMONDS EAST, WA QUADRANGLE 1981.



WASHINGTON



SCALE: 1" = 2,000'



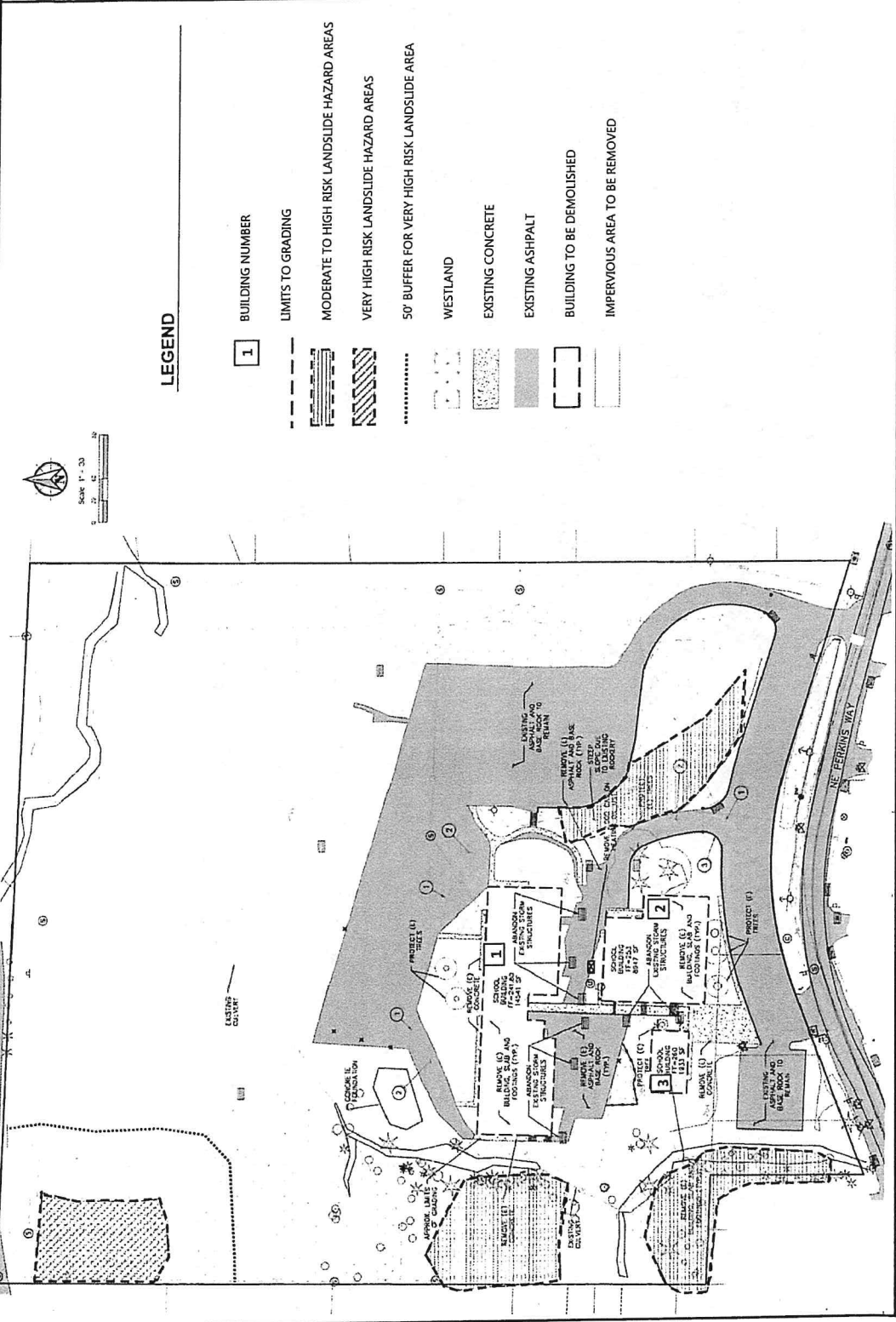
**VICINITY MAP**  
CEDARBROOK ELEMENTARY SCHOOL  
SHORELINE, WASHINGTON

MAY 2017  
40958.011

FIGURE

1

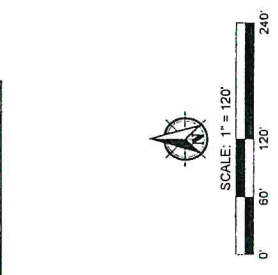
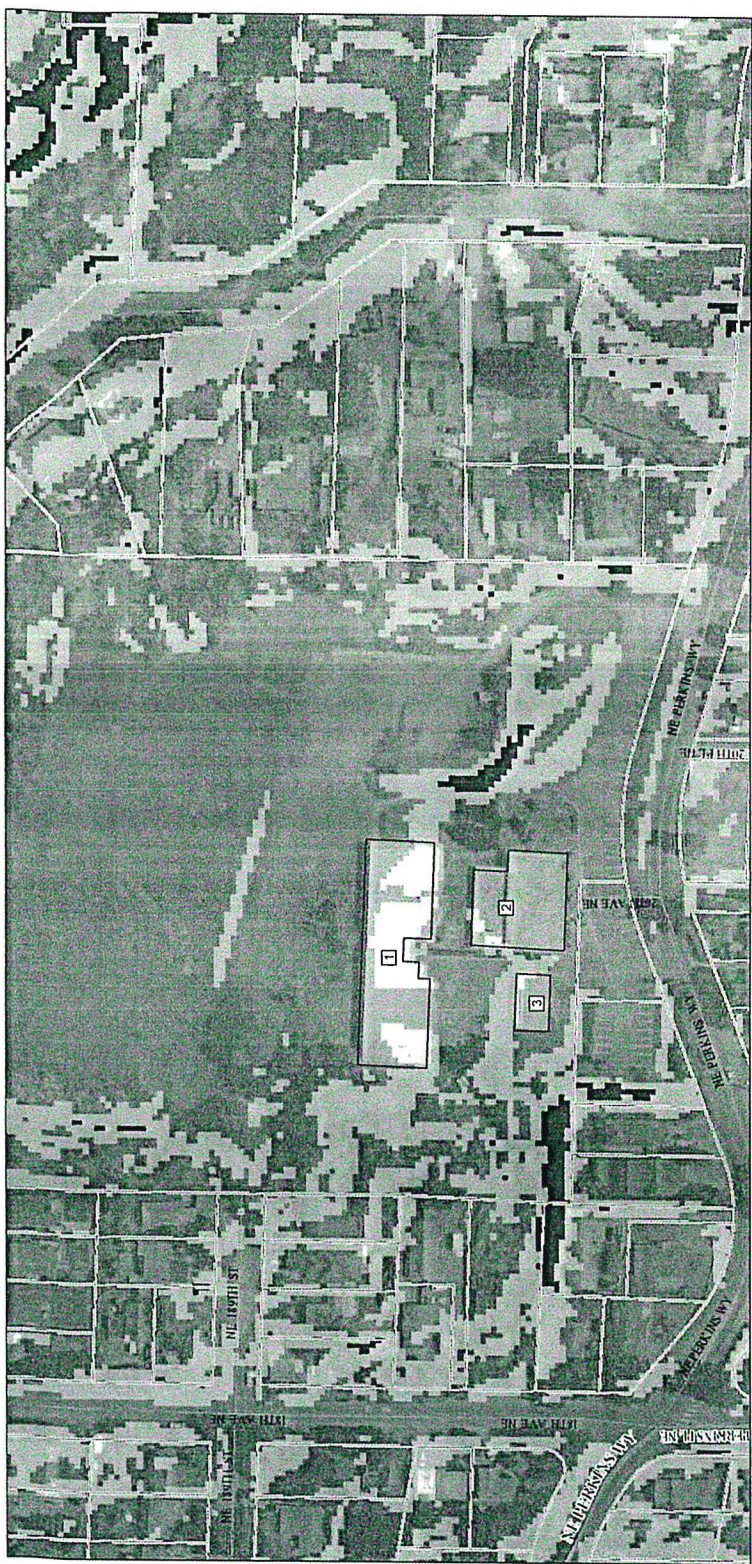




**LEGEND**

- 1** BUILDING NUMBER
- LIMITS TO GRADING
- MODERATE TO HIGH RISK LANDSLIDE HAZARD AREAS
- VERY HIGH RISK LANDSLIDE HAZARD AREAS
- 50' BUFFER FOR VERY HIGH RISK LANDSLIDE AREA
- WESTLAND
- EXISTING CONCRETE
- EXISTING ASPHALT
- BUILDING TO BE DEMOLISHED
- IMPERVIOUS AREA TO BE REMOVED

PROJECT	40858.011
DATE	MAY 2017
FIGURE	3

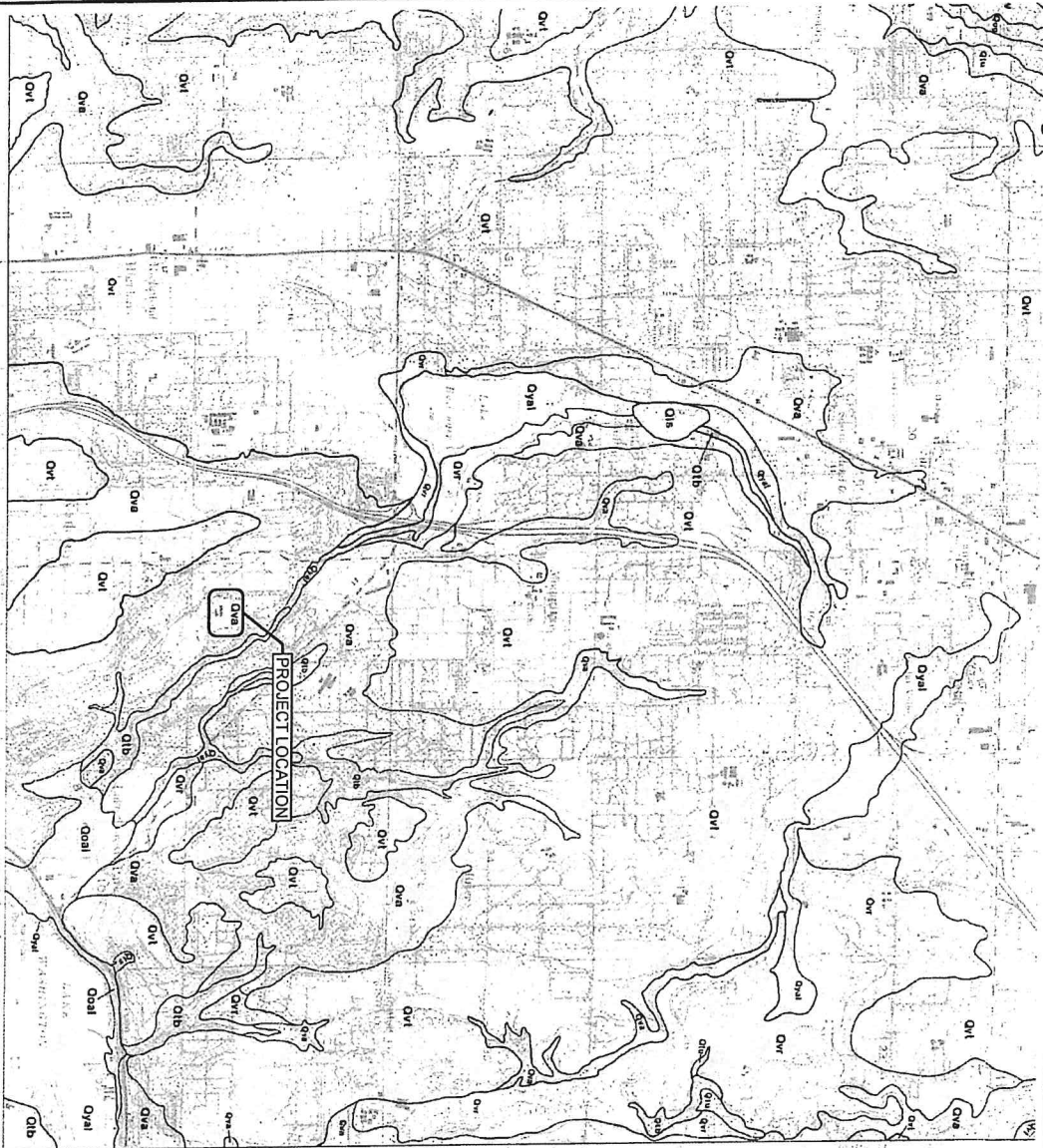


- Local Primary
- Local Secondary
- Outside Shoreline
- Interstate
- Principal Arterial
- Minor Arterial
- Collector Arterial
- TAX PARCEL
- 0 - 15
- 15.1 - 40
- > 40
- BUILDING NUMBER

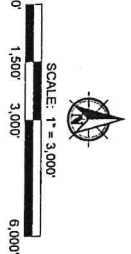
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Contour map is 1:10,000



**DISCUSSION OF HAZARDS**

The purpose of this report is to identify and evaluate potential geotechnical hazards associated with the proposed site. The site is located in an area of moderate seismicity and is underlain by soft, compressible soils. The primary hazards identified are:

- Liquefaction:** The site is underlain by loose, saturated sands and silts, which are susceptible to liquefaction during seismic events. This could result in ground settlement and lateral spreading, potentially affecting the proposed building and infrastructure.
- Groundwater:** The site is underlain by a shallow aquifer. Groundwater levels are generally high, and there is a potential for groundwater-induced soil softening and instability.
- Settlement:** The soft, compressible soils are likely to experience significant settlement under the proposed building loads. This could result in differential settlement, leading to structural damage and uneven floor levels.
- Seismicity:** The site is located in an area of moderate seismicity. Earthquake shaking could result in ground motion, which could affect the proposed building and infrastructure.

The following table summarizes the identified hazards and the recommended mitigation measures:

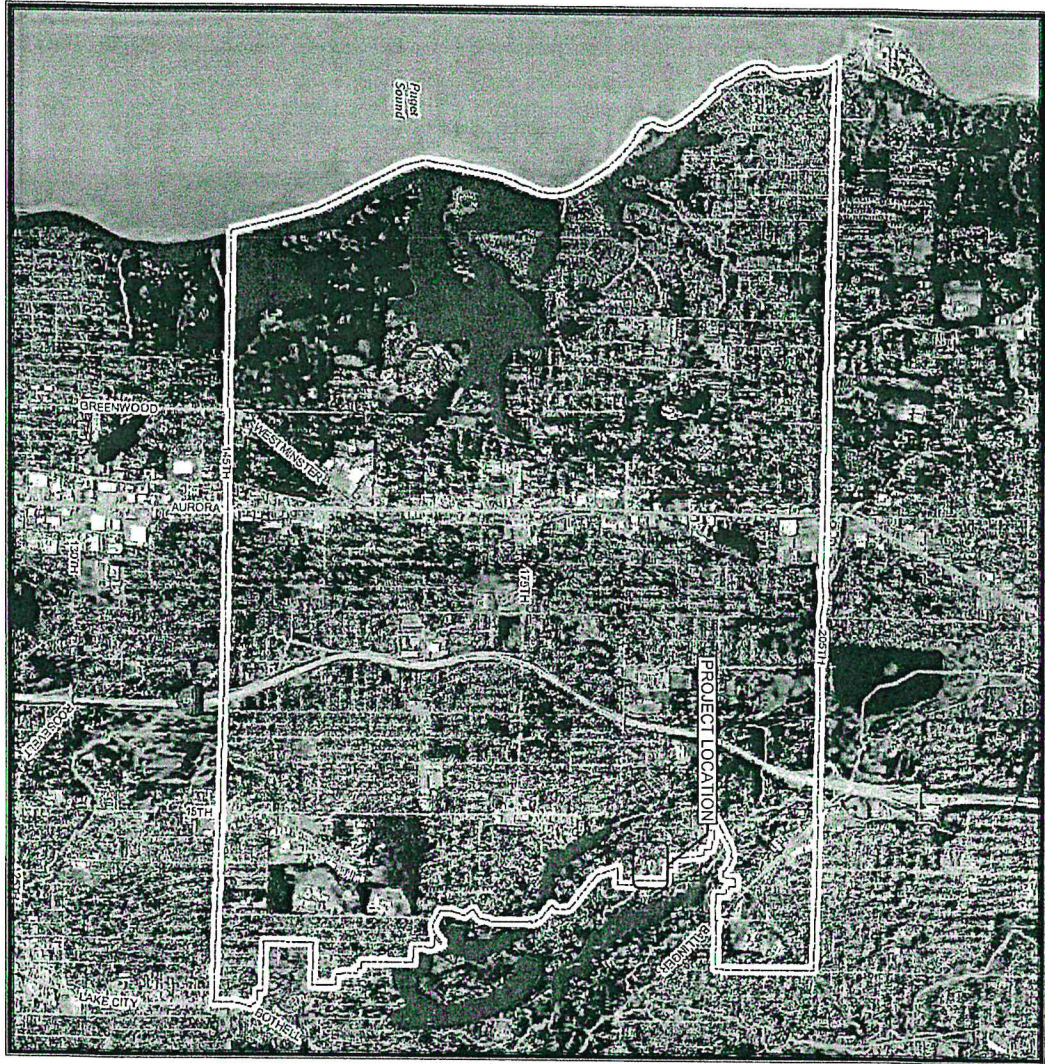
Hazard	Impact	Recommended Mitigation
Liquefaction	Ground settlement and lateral spreading	Soil densification, ground anchors, and foundation design modifications
Groundwater	Soil softening and instability	Groundwater monitoring and dewatering during construction
Settlement	Differential settlement and structural damage	Foundation design modifications and soil improvement techniques
Seismicity	Ground motion and structural damage	Seismic design and structural reinforcement

It is recommended that the proposed building and infrastructure be designed to resist the identified hazards and that the recommended mitigation measures be implemented. Further investigation and analysis may be required to fully understand the potential risks and to develop a detailed mitigation plan.

<p><b>GEOLOGY MAP</b>  <b>CEDARBROOK ELEMENTARY SCHOOL</b>                  SHORLINE, WASHINGTON</p>	<p><b>PBS Engineering and Environmental Inc.</b>                  2517 Eastlake Ave East, Ste 100                  Seattle, WA 98102                  206.233.9639                  pbsusa.com</p>
<p><b>PROJECT</b> 40958.011  <b>DATE</b> MAY 2017  <b>FIGURE</b> 4</p>	



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# CITY OF SHORELINE Landslide Hazard Areas

## All Hazard Areas

The landslide hazard areas shown have been merged from these assessments for use for planning purposes.

VA, DNR Landslide Areas data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. The current mapped landslides in the state of Washington, compiled chiefly from pre-existing landslide databases created in different divisions of the Washington State Department of Natural Resources to meet a variety of purposes.

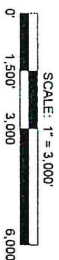
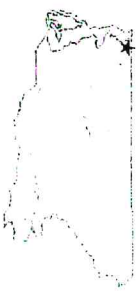
King County Slide Areas - Landslide areas are those subject to severe landslide risk identified in the Sensitive Areas Ordinance as:

- A. Any area with a combination of:
  1. Slopes greater than 15%
  2. Impermeable soils (especially silt and clay) frequently interbedded with granular soils (predominantly sand and gravel)
  3. Springs or groundwater seepage.
- B. Any area that has shown movement during the Holocene epoch (from 10,000 years ago to present), or that is underlain by mass waste debris of that epoch.
- C. Any area potentially unstable as a result of rapid stream incision, stream bank erosion or undercutting by levee action that shows evidence of, or is at risk from, snow/avalanches.
- D. Any area located on an alluvial fan, presently subject to or potentially subject to inundation by debris flows or deposition of stream-suspended deposits.

### Shape/Slope Analysis

1. Slopes greater than 40%. Slope determined using a DEM generated from 2002 LIDAR data. Slope data provided by King County DNR.
2. Areas of Old (alluvial fans), Old (discrete landslides), and Gully (colluvium) and the cumulative debris from small rockfall fans/flows that accumulate on and at the base of unstable slopes, such as benches in surface geology data provided by King County DNR.

Base Map Data Sources:



	<p style="font-size: small;">PBS Engineering and Environmental Inc. 2517 Eastlake Ave. East, Ste 100 Seattle, WA 98102 206.233.9639 <a href="http://pbsusa.com">pbsusa.com</a></p>	<p><b>LANDSLIDE HAZARD MAP</b> <b>CEDARBROOK ELEMENTARY SCHOOL</b> <b>SHORLINE, WASHINGTON</b></p>						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; font-size: x-small;">PROJECT</td> <td>40958.011</td> </tr> <tr> <td style="font-size: x-small;">DATE</td> <td>MAY 2017</td> </tr> <tr> <td style="font-size: x-small;">FIGURE</td> <td style="text-align: center; font-size: large;"><b>5</b></td> </tr> </table>	PROJECT	40958.011	DATE	MAY 2017	FIGURE	<b>5</b>	
PROJECT	40958.011							
DATE	MAY 2017							
FIGURE	<b>5</b>							