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C. Gary Schulz

Wetland/Forest Ecologist

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December 1, 2017

RECEIVED

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KING COUNTY D.P.E.R.

Mr. John Priebe Raging River Mining, LLC

Re: Technical Response for the Raging River Quarry Expansion (Parcel # 222407-9033): Clearing & Grading Permit Application # GRDE15-0166 King County, WA.

Dear Mr. Priebe:

Per your request this letter is written as response to current County review comments for "Raging River Quarry Expansion" (Review of Ecological Critical Areas and Shorelines - 4/11/17 Memo from Laura Casey). The intent of the response letter is to address the County's 4/11/17 Memo comments and provide technical information to support the findings of the 2016 wetland report (Wetland & Stream Reconnaissance for the Raging River Quarry Expansion: (Parcel # 2224079033) King County, WA, 8/27/16 Schulz).

The critical areas comments from the 4/11/17 Memo were not numbered but are listed below and followed by responses. The County comments have been numbered in this response letter and retain their original order for reference and citation.

1) "There is a stream crossing the southern portion of the site....I did not see any deep pools that could support trout during the dry season in the area I observed. This is not addressed in the critical areas reports. The stream slope is mapped as greater than 16% as it drops to the Raging River. Therefore, the stream meets the presumption that it does not provide salmonid fish habitat. The stream qualifies as a Type N aquatic area. The standard buffer on a Type N stream is 65 feet on either side of the ordinary high mark of the stream channel. However, where the stream buffer falls on a steep slope or mapped landslide hazard as on this property, the aquatic area buffer extends to the top of the steep slope or hazard area".

Response: On 5/9/17 an additional stream reconnaissance was conducted starting at about the northeast corner of the Ditch property (Parcel No. 2124079088). Similar physical and hydrologic conditions were observed as during the initial 2016 investigations. The stream channel was dry near the north boundary of the Expansion Parcel. Stream flow was observed to daylight near Wetland Transect point T-3-2.

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The winter and spring seasons of 2017 had above normal rainfall. Deep pool areas containing water within the stream channel were not observed. It is very unlikely that resident trout could survive in the stream due to the very seasonal hydrology, lack of refugia, and steep channel gradients.

Acknowledge that there are steep slope areas adjacent to the subject stream. The top of 40% steep and/or landslide hazard slopes has been approximately mapped using topographic resources that are available such as iMap and Lidar. The accurate locations will be surveyed and accurately mapped during the Quarry Expansion phase of mining to coincide with extended stream buffer.

2) "I observed a few small riverine wetlands along the stream. It is likely the buffer from the stream and steep slope would encompass any potential wetland buffer. I also observed a wetland southwest of the stream in one location. No mining is proposed south of the stream so it is not necessary to delineate and rate those wetlands".

Response: "Riverine" wetlands are described as being in an active floodplain of a river, and have important hydrologic links to the water dynamics of the river or stream. "The distinguishing characteristic of riverine wetlands in Washington is that they are frequently flooded by overbank flow from the stream or river. The floodwater is a major environmental factor that structures the ecosystem in these wetlands" (page 27, WA State Wetland Rating System for Western WA - Ecology 2004). Wetland Data Plot 8 sampled an area upstream of the Property on 4/19/16 that was flat and about 15 feet from the active channel. Non-hydric soils were observed with no wetland hydrology and the stream channel was dry. The majority of stream area observed has distinct banks due to channel incision. No areas of overbank flooding were observed.

The 4/11/17 County Memo does not include any scientific data or approximate mapping of observed wetland locations. Therefore as stated in the 1st response on page 1 an additional stream and wetland reconnaissance was conducted on 5/9/17 within the stream corridor. Wetland soil pits were excavated in two areas that may have developed wetland conditions. Both of these areas were flagged and labeled. The first location is off-site and upstream of the Property. This location is the confluence of a small tributary stream that flows into the subject stream from the southwest side. Two wetland soil pits were excavated at the confluence. Both pits were non-hydric soil to a depth of 18 inches and dry at a time of year when wetland hydrology is a reliable criteria. The second location is on the north side of the stream channel near Transect T-3-1. The soil is non-hydric but water was seeping into the pit at 16 inches deep.

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All riparian areas reviewed were determined to be non-wetland areas. Groundwater seepage rather than overbank flooding would likely be the support for wetland hydrology. No groundwater seepage zones were observed along the stream corridor.

3) "I also observed wetland conditions along Transect T-1 at data point 2 identified in the Schulz report. There is a ponded area surrounded with saturated soils that appear to be hydric, and hydrophytic vegetation growing in the area".

Response: The Data Plot 2 location along Transect T-1 was re-investigated on 4/28/17. A second wetland data plot (#2A) was installed and flagged near the Data Plot 2 that was installed during the 2016 investigation. All wetland data plots (2016 & 2017) from this location are attached to this letter. The vegetation cover is nearly the same and dominated by hydrophytic species – salmonberry and lady fern. However, both soil pits exhibited non-hydric soil due to lighter soil color above a depth of 12 inches (10YR2/2) and below 12 inches (10YR5/3). The soil data as recorded does not meet the criteria of having a "depleted matrix" typical of a hydric soil.

Acknowledge that there was a ponded area adjacent to the Data Plot 2 location. This small area of 100 to 200 square feet in size is an old excavated pit from previous quarry research related to bedrock depth and the mine. Vegetation was not observed growing in the inundated pit. An attempt to excavate a soil pit in about 4 inches of standing water during the 4/28/17 investigation found the soil profile to be similar as the adjacent soil pits for Data Plot 2. This data plot point is numbered 2B.

Due to the timing related to the completion of this response letter a second reinvestigation site visit was conducted 10/4/17. The primary purpose of this site visit was to observe the soils during a dryer period when inundation and over-saturation is absent and a more intact soil profile can be viewed. Two additional wetland data plots were installed (#2C and #2D). Data plot #2C was installed in the center of the excavated depression and #2D was installed downslope of the depression. The observed soil in the depression found mixed soil chroma values (colors) with gravel and wood debris. This is typical of a disturbed soil. Data plot #2D exhibited soil color and profile similar to the two data plots upslope of the depression area (#2 and #2A). The results of the second site visit did not observe hydric soil criteria including a "depleted matrix". The depression is reportedly manmade and the investigations confirm it is a disturbed area within a natural swale. Several photographs of this location are attached to this letter.

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4) "Neither report addresses the wildlife corridor along the Raging River, or any possible wildlife habitat conservation areas on site".

Response: The stated "Purpose" sections in both reports were to determine wetland and/or stream habitats on the subject parcels. However, the County's 2016 Comprehensive Plan has mapped Wildlife Habitat Network & Public Ownership. This mapping shows the 300-foot wide Raging River Wildlife Corridor and it is outside of the active mining operation. The Wildlife Corridor (150 feet on each side of the River) is contained with the 200-foot Shoreline Management Zone.

The Schulz reports did not include identifying possible wildlife habitat conservation areas. Although none of the wildlife species the County is required to protect were observed on the site the reports were not intended to conduct wildlife studies.

5) "Impacts to fish and wildlife from increased dust and particulates, and blasting noise have not been addressed in the critical areas report".

Response: The Schulz reports focused on wetland and buffer determinations and reconnaissance level investigation. The intent of mining plans is to avoid direct impacts to critical areas as regulated by the County and specific to the mining operation. There is no assessment of potential impacts other than to identify and use the standards found in the County's Critical Areas code.

Potential dust and particulates caused by the mining operation and blasting noise levels are regulated by State agencies (PSCAA, WADNR, WADOE). Periodic inspections and reports are required by regulatory agencies. Reportedly the monitoring of air quality and evaluation of blasting noise has been on-going and is focused on potential impacts to humans.

In summary the County comments that were considered to be primary and requiring responses are cited and listed in the same order as in the review memo for GRDE15-0166. The intent is not to eliminate or overlook any of the comments but to work towards resolving them. Additional field investigations and review of wetland information found determinations to be nearly the same as provided in the August 27, 2016 wetland and stream report. Please contact me if there are questions or a need for more information.

Sincerely.

C. Gary Schulz

Wetland/Forest Ecologist

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

Application Owner
Landform (hillialops, terrace, etc.): Intrace Local relief (concave, convex, none): none Slope (%): Q
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Soil Map Unit Name: Alderwood & Kistaon (ARE) And climatic / hydrologic conditions on the step lybrial for this time of year? Yes No (If no, explain in Remarks.)
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SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.
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Herb Stratum (Plot size: 1/100 th acre) 1. Athyrium felix-femina 40 yes FACW Column Totals:
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11 50% =, 20% = 50 = Total Cover Moody Vine Stratum (Plot size:) 1 1 1 1 1 1 1 1 1
50% =, 20% = 50 = Total Cover Moody Vine Stratum (Plot size:) 1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
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2 Hydrophytic Vegetation Yes ⊠ No □
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Remarks:

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<u>14</u>	10YR5/3	1	00						sandy loam	<u>dry</u>					
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Vetland Hydromary Indicated Surface High Water Manager	ology Indicator ors (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) Soil Cracks (B6 on Visible on Ae of Vegetated Cor tions: Present? resent? sent? ary fringe)	f one red rial Ima racave St Yes Yes Yes	gery (E	37) (B8) No No No		Water-Stained Lea (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosph Presence of Redu Recent Iron Reduc Stunted or Stresse Other (Explain in F	2, 4A, and 4 tes (B13) Odor (C1) neres along L ced Iron (C4) ction in Tilled es Plants (D1 Remarks)):	Soils (C6)) (LRR A)	Wa (Mi) Dra Dry Sa C3) Ge Sh Ra FA Ra	ater-Stained Le LRA 1, 2, 4A, a ainage Patterns y-Season Wate turation Visible comorphic Posi allow Aquitard .C-Neutral Test iised Ant Moun ost-Heave Hurr	aves (BS and 4B) s (B10) er Table (e on Aeria tion (D2) (D3) t (D5) ds (D6) (amocks ((C2) al Imag) (LRR A	ery (C9		
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Sampling Point: 2A-2017

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

Project Site: Raging River Quarry Expansion	ı		City/Cour	nty: /King	Sampling Date:	4/28/17	
Applicant/Owner: John Priebe	•			State: WA	Sampling Point:	2B-2017	
Investigator(s): Gary Schulz				Section, Township, Rang			
Landform (hillslope, terrace, etc.): terrace		Loca	al relief (cond	cave, convex, none): none		e (%): <u>0</u>	
Subregion (LRR): A	Lat:			Long:	Datum:		
Soil Map Unit Name: Alderwood & Kitsap (AkF)				NWI class	sification:		
Are climatic / hydrologic conditions on the site typical for	or this time of	year? Y	es 🛛	No [] (If no, explain in	Remarks.)		
Are Vegetation ☐, Soil ☐, or Hydrology	☐, signific	cantly disturbed	l? Are	'Normal Circumstances" present?	Yes	⊠ No	
Are Vegetation ☐, Soil ☐, or Hydrology	☐, natura	lly problematic	? (If ne	eeded, explain any answers in Re	marks.)		
SUMMARY OF FINDINGS - Attach site map s	howing sar	npling point	locations,	transects, important featur	es, etc.		
Hydrophytic Vegetation Present?	Yes	No 🗆					
Hydric Soil Present?	Yes	No 🗵	Is the Samp within a We		Yes	☐ No	
Wetland Hydrology Present?	Yes 🗵	No □					
Remarks: Near sample point 2A along Transect T-1	in a dry swale	e. This plot is le	ocated within	the ponded depression just sout	n of Flag # T-1-2.		
VEGETATION - Use scientific names of plant							
Tree Stratum (Plot size: 1/100 th acre)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1	70 GOVCI	n/a*		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:	1		(B)
50% =, 20% =		= Total Cove	r	Percent of Dominant Species	100		(A (D)
Sapling/Shrub Stratum (Plot size: 1/100 th acre)				That Are OBL, FACW, or FAC:	<u>100</u>		(A/B)
1. Rubus spectabilis	<u>65</u>	<u>yes</u>	FAC	Prevalence Index worksheet:			
2		<u>n/a*</u>	Ξ	Total % Cover of:	Multip	ly by:	
3				OBL species	x1 =		
4				FACW species	x2 =		
5				FAC species	x3 =		
50% =, 20% =	<u>65</u>	= Total Cove	r	FACU species	x4 =		
Herb Stratum (Plot size: 1/100 th acre)				UPL species	x5 =	-	
1. Athyrium felix-femina	<u>10</u>	<u>no</u>	FACW	Column Totals:	(A)		(B)
2		<u>n/a*</u>	Ξ	Prevalence	Index = B/A =		
3		<u>n/a*</u>	5	Hydrophytic Vegetation Indic	ators:		
4				☐ 1 - Rapid Test for Hydrop	hytic Vegetation		
5				□ 2 - Dominance Test is >5	0%		
6			Carolina de Caroli	☐ 3 - Prevalence Index is ≤	3.0 ¹		
7				4 - Morphological Adapta	tions ¹ (Provide suppo	rting	
8			1	data in Remarks or on		_	
9				5 - Wetland Non-Vascula	¹ Plants ¹		
10			(**************************************	☐ Problematic Hydrophytic	Vegetation¹ (Explain)		
11							
50% =, 20% =	<u>10</u>	= Total Cove	r	¹ Indicators of hydric soil and we be present, unless disturbed or		Ĺ	
Woody Vine Stratum (Plot size:)				process, armose alexanded of	problemate.		
1		-					
2		-	_	Hydrophytic	5		_
50% =, 20% =		= Total Cove	r	Vegetation Ye Present?	es 🛛	No	
% Bare Ground in Herb Stratum							
Remarks: No groundcover vegetation growing	ng in the pond	ded depression				***************************************	

SOIL

Depth	Matr					Redox Feat			_						
(inches)	Color (moist)	9	6	Color (moist)	%	Type ¹	Loc ²	Texture		1	Remark	(S		
<u>18</u>	10YR2/2	1	00		_				sandy loam	saturated					
20	10YR5/3	9	95	7.5YF	R5/6	<u>5</u>	<u>C</u>	<u>M</u>	sandy loam	<u>saturated</u>	Į.				
-		-			_										
	-			-	_		-			-					
-				-	_				-						
					_		***************************************			****					
		-		-	_					-					
		_			_	-	-								
Гуре: С= С	oncentration, D=[Depletion	, RM=F	Reduced M	atrix, CS	=Covered or Co	ated Sand	Grains. ² L	ocation: PL=Po	ore Lining, M=	Matrix		7		
lydric Soil	Indicators: (App	licable to	all LF	RRs, unles	s otherv	vise noted.)			Indicat	ors for Proble	ematic l	Hydric	Soils ³ :		
Histos	ol (A1)				Sand	dy Redox (S5)				2 cm Muck (A	10)				
] Histic I	Epipedon (A2)				Strip	ped Matrix (S6)				Red Parent M	laterial (TF2)			
Black I	Histic (A3)				Loar	my Mucky Miner	al (F1) (exc	ept MLRA 1)		Very Shallow	Dark Su	ırface (T	F12)		
] Hydrog	gen Sulfide (A4)				Loar	my Gleyed Matri	x (F2)			Other (Explain	n in Rem	narks)			
Deplet	ed Below Dark Si	urface (A	11)		Depl	leted Matrix (F3))								
Thick [Dark Surface (A1:	2)			Red	ox Dark Surface	(F6)								
Sandy	Mucky Mineral (S	S1)			Depl	leted Dark Surfa	ice (F7)			tors of hydroph					
Sandy	Gleyed Matrix (S	4)			Red	ox Depressions	(F8)			and hydrology ss disturbed o			nt,		
estrictive I	_ayer (if present):				Annual	T				, p. 05.0			**********	
уре:	-														
epth (inche	es):							Hydric Soils	Present?		Yes		No		\boxtimes
	This beaution to					h of inundation									
emarks:	This location in	the ponde	ed area	a had a 4- i	nch dept	n or munication.	The state of the s							1	
HYDROLO	GY		ed area	a had a 4- i	nch dept	n or municiation.									
HYDROLO Vetland Hyd	GY drology Indicato	rs:													
HYDROLO Vetland Hyd	GY drology Indicato cators (minimum o	rs:		check all t	hat apply)				ry Indicators (;			red)		
HYDROLO Vetland Hyd Primary India	GY drology Indicato cators (minimum of ce Water (A1)	rs:			hat apply Wate	r) er-Stained Leave	es (B9)		☐ Wa	ter-Stained Le	eaves (B	39)	red)		
HYDROLO Vetland Hyd Primary India Surfac High V	GY drology Indicato cators (minimum of the Water (A1) Water Table (A2)	rs:		check all t	hat apply Wate (exc	r) er-Stained Leav ept MLRA 1, 2,	es (B9)	3)	☐ Wa	ter-Stained Le	eaves (B and 4B)	39)	red)		
IYDROLO Vetland Hyd rimary Indic Surfac High V	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3)	rs:		check all t	hat apply Wate (exc Salt	r) er-Stained Leave ept MLRA 1, 2, Crust (B11)	es (B9) 4A, and 4E	3)	☐ Wa	iter-Stained Le LRA 1, 2, 4A, ainage Pattern	eaves (B and 4B) as (B10)	39)	red)		
NYDROLO Vetland Hyd rimary Indic Surfac High V Satura Water	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) ation (A3) Marks (B1)	rs: of one rec		check all t	hat apply Wate (exc Salt Aque	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate	es (B9) 4A, and 4 E s (B13)	3)	Wa	ter-Stained Le	eaves (B and 4B) as (B10)	39)	red)		
HYDROLO Vetland Hyd rimary Indic Surfac High V Satura Water Sedim	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) attion (A3) Marks (B1) tent Deposits (B2)	rs: of one rec		check all t	hat apply Wate (exc Salt Aque Hydr	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Oc	es (B9) 4A, and 4E s (B13) dor (C1)		☐ Wa (MI ☐ Dra ☐ Dry ☐ Sat	ter-Stained Le LRA 1, 2, 4A, ainage Pattern /-Season Wate turation Visible	eaves (B and 4B) as (B10) er Table e on Aeri	39) (C2) rial Imag		9)	
IYDROLO Wetland Hyd rimary Indic Surfac High V Satura Water Sedim	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3) Marks (B1) thent Deposits (B2) deposits (B3)	rs: of one rec		check all t	hat apply Wate (exc Salt Aqua Hydr	er-Stained Leav ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe	es (B9) 4A, and 4E s (B13) dor (C1) res along Li		Wa (MI Dra Dry Sat Ge	ater-Stained Le LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi	eaves (B and 4B) as (B10) er Table e on Aeri	39) (C2) rial Imag		3)	
Netland Hydrimary India Surface High V Satura Water Sedim Algal I	GY drology Indicato cators (minimum of ce Water (A1) Nater Table (A2) ation (A3) Marks (B1) ent Deposits (B2) deposits (B3) Mat or Crust (B4)	rs: of one rec		check all t	hat apply Wate (exc Salt Aqua Hydr	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Oc	es (B9) 4A, and 4E s (B13) dor (C1) res along Li		Wa (MI Dra Dry Sat Ge	ter-Stained Le LRA 1, 2, 4A, ainage Pattern /-Season Wate turation Visible	eaves (B and 4B) as (B10) er Table e on Aeri	39) (C2) rial Imag		3)	
Netland Hydrimary India Surface High V Satura Water Sedim Algal I	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3) Marks (B1) thent Deposits (B2) deposits (B3)	rs: of one rec		check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres	er-Stained Leav ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4)	iving Roots (C3	Wa	ater-Stained Le LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2	39) (C2) rial Imag		3)	
HYDROLO Wetland Hyd Primary Indic Surfac High V Satura Water Sedim Drift D Iron D	GY drology Indicato cators (minimum of ce Water (A1) Nater Table (A2) ation (A3) Marks (B1) ent Deposits (B2) deposits (B3) Mat or Crust (B4)	rs: of one red		check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres	er-Stained Leav ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe eence of Reduce	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled	iving Roots (C3	Wa	ater-Stained Lecker-Stained Lecker A., 2, 4A, ainage Pattern Ar-Season Water turation Visible omorphic Posiallow Aquitard	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3)	(C2) rial Imag	gery (Cs	3)	
HYDROLO Vetland Hyd Primary Indic Surfac High V Satura Water Sedim Algal I Iron D Surfac	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) ation (A3) Marks (B1) thent Deposits (B2) theposits (B3) Mat or Crust (B4) the posits (B5)	rs: of one rec	quired;	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Rece Stun	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe eence of Reduce ent Iron Reduction	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3	Wa	tter-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tes	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) at (D5) ads (D6)	(C2) rial Imag 2)	gery (Cs	3)	
HYDROLO Wetland Hyd Primary Indic Surfac High V Satura Water Sedim Algal I Iron D Surfac	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Mat or Crust (B4) teposits (B5) the Soil Cracks (B6)	rs: of one rec	quired;	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Rece Stun	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe eence of Reduce ent Iron Reductiveted or Stresses	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3	Wa	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tes ised Ant Moun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) at (D5) ads (D6)	(C2) rial Imag 2)	gery (Cs	3)	
HYDROLO Wetland Hyd Primary Indic Surfac High V Satura Vater Sedim Algal I Iron D Surfac Inunda	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) ation (A3) Marks (B1) tent Deposits (B3) Mat or Crust (B4) teposits (B5) te Soil Cracks (B6 ation Visible on Actely Vegetated Co	rs: of one rec	quired;	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Rece Stun	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe eence of Reduce ent Iron Reductiveted or Stresses	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3	Wa	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tes ised Ant Moun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) at (D5) ads (D6)	(C2) rial Imag 2)	gery (Cs	3)	
HYDROLO Vetland Hyd Primary Indic Surfac High V Satura Vater Sedim Iron D Surfac Inunda	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) ation (A3) Marks (B1) Ment Deposits (B2) deposits (B3) Wat or Crust (B4) deposits (B5) the Soil Cracks (B6 ation Visible on Accept Vegetated Covations:	rs: of one rec	quired;	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe eence of Reduce ent Iron Reductiveted or Stresses	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) emarks)	iving Roots (C3	Wa	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tes ised Ant Moun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) at (D5) ads (D6)	(C2) rial Imag 2)	gery (Cs	3)	
HYDROLO Wetland Hyd Primary Indic High V Satura Water Sedim Iron D Surfac Inunda Sparse Gurface Water	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Mat or Crust (B4) teposits (B5) te Soil Cracks (B6) ation Visible on Atiely Vegetated Covations: ter Present?	rs: of one reconstructions o	quired; gery (B	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Or lized Rhizosphe sence of Reduce ent Iron Reduction ted or Stresses er (Explain in Re	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) emarks)	iving Roots (C3	Wa	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tes ised Ant Moun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) at (D5) ads (D6)	(C2) rial Imag 2)	gery (Cs	3)	
HYDROLO Wetland Hyde Primary Indic High V Satura Water Sedim Iron D Iron D Inunda Sparse Field Observ Surface Water Water Table Saturation Primary Indices	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Wat or Crust (B4) teposits (B5) te Soil Cracks (B6 ation Visible on Action Visib	rs: of one reconstruction i) iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	quired; gery (B urface (check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Od lized Rhizosphe ence of Reduce ent Iron Reduction ted or Stresses er (Explain in Re	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) emarks) 4 0	Soils (C6)	Wa	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tesi ised Ant Moun pst-Heave Hun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) ot (D5) nds (D6) nmocks	(C2) rial Imag 2)	gery (Cs	No No	
HYDROLO Wetland Hyde Primary Indic Surfac High V Satura Water Sedim Iron D Surfac Inunda Sparse Field Observ Surface Water Vater Table Saturation Princludes cap	GY drology Indicato cators (minimum of the Water (A1) Vater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Wat or Crust (B4) teposits (B5) te Soil Cracks (B6 ation Visible on Action Visib	rs: of one reconstruction of the second of	gery (B	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Oc lized Rhizosphe sence of Reduce ent Iron Reduction ted or Stresses er (Explain in Re Depth (inches): Depth (inches):	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) marks) 4 0 0	iving Roots (C3 Soils (C6) (LRR A)	War (MI) Dra Dry Satistics Shatistics FAI From	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tesi ised Ant Moun pst-Heave Hun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) ot (D5) nds (D6) nmocks	(C2) ial Imag (C2) (LRR A	A)		
Primary India Surface High V Satura Sedim Drift D Algal I Inno D Surface Inunda Sparse Field Observ Surface Water Water Table Saturation Pr Includes cap	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Mat or Crust (B4) teposits (B5) te Soil Cracks (B6 ation Visible on Action Visib	rs: of one reconstruction of the second of	gery (B	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Oc lized Rhizosphe sence of Reduce ent Iron Reduction ted or Stresses er (Explain in Re Depth (inches): Depth (inches):	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) marks) 4 0 0	iving Roots (C3 Soils (C6) (LRR A)	War (MI) Dra Dry Satistics Shatistics FAI From	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tesi ised Ant Moun pst-Heave Hun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) ot (D5) nds (D6) nmocks	(C2) ial Imag (C2) (LRR A	A)		[
HYDROLO Vetland Hyd Primary Indic Surfac High V Satura Vater Sedim Iron D Surfac Inunda Sparse Field Observ Surface Water Vater Table Saturation Princludes cap	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Mat or Crust (B4) teposits (B5) te Soil Cracks (B6 ation Visible on Action Visib	rs: of one reconstruction of the second of	gery (B	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Oc lized Rhizosphe sence of Reduce ent Iron Reduction ted or Stresses er (Explain in Re Depth (inches): Depth (inches):	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) marks) 4 0 0	iving Roots (C3 Soils (C6) (LRR A)	War (MI) Dra Dry Satistics Shatistics FAI From	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tesi ised Ant Moun pst-Heave Hun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) ot (D5) nds (D6) nmocks	(C2) ial Imag (C2) (LRR A	A)		
IYDROLO Vetland Hydrimary Indic Surface High V Satura Vater Sedim Iron D Inunda Inunda Sparse Vater Table aturation Pencludes cap lescribe Rec	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Mat or Crust (B4) teposits (B5) te Soil Cracks (B6 ation Visible on Action Visib	rs: of one reconstruction of the second of	gery (B	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Oc lized Rhizosphe sence of Reduce ent Iron Reduction ted or Stresses er (Explain in Re Depth (inches): Depth (inches):	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) marks) 4 0 0	iving Roots (C3 Soils (C6) (LRR A)	War (MI) Dra Dry Satistics Shatistics FAI From	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tesi ised Ant Moun pst-Heave Hun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) ot (D5) nds (D6) nmocks	(C2) ial Imag (C2) (LRR A	A)		
YDROLO /etland Hydrimary Indice Surface High V Satura Water Sedim Drift D Algal I Iron D Surface Inundae Sparse /eter Table aturation Perceudes cap- escribe Receivers	GY drology Indicato cators (minimum of the Water (A1) Nater Table (A2) ation (A3) Marks (B1) tent Deposits (B2) teposits (B3) Mat or Crust (B4) teposits (B5) te Soil Cracks (B6 ation Visible on Action Visib	rs: of one reconstruction of the second of	gery (B	check all t	hat apply Wate (exc Salt Aqua Hydr Oxid Pres Recc Stun Othe	er-Stained Leave ept MLRA 1, 2, Crust (B11) atic Invertebrate rogen Sulfide Oc lized Rhizosphe sence of Reduce ent Iron Reduction ted or Stresses er (Explain in Re Depth (inches): Depth (inches):	es (B9) 4A, and 4E s (B13) dor (C1) res along Li ed Iron (C4) on in Tilled Plants (D1) marks) 4 0 0	iving Roots (C3 Soils (C6) (LRR A)	War (MI) Dra Dry Satistics Shatistics FAI From	ater-Stained Lec LRA 1, 2, 4A, ainage Pattern y-Season Wate turation Visible omorphic Posi allow Aquitard C-Neutral Tesi ised Ant Moun pst-Heave Hun	eaves (B and 4B) as (B10) er Table e on Aeri ition (D2 I (D3) ot (D5) nds (D6) nmocks	(C2) ial Imag (C2) (LRR A	A)		

Sampling Point: 2B-2017

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

Project Site: Raging River Quarry Expansion			City/Cour	nty:/King Sampling Da	ate:	10/4/17	
Applicant/Owner: John Priebe				State: WA Sampling Po		2C-2017	
Investigator(s): Gary Schulz				Section, Township, Range: 22, 24N,			
Landform (hillslope, terrace, etc.): terrace		Loca	I relief (conc	cave, convex, none): none	Slope (%): 0	
Subregion (LRR): A	Lat:		,		Datum:		
Soil Map Unit Name: Alderwood & Kitsap (AkF)				NWI classification:			
Are climatic / hydrologic conditions on the site typical for	r this time of	year? Ye	es 🛛				
Are Vegetation □, Soil □, or Hydrology		antly disturbed		'Normal Circumstances" present?	Yes D	⊠ No	
Are Vegetation □, Soil □, or Hydrology	170	lly problematic?		eeded, explain any answers in Remarks.)			_
_,,		, ,	,	,			
SUMMARY OF FINDINGS - Attach site map s	howing sar	npling point	locations,	transects, important features, etc.			
Hydrophytic Vegetation Present?	Yes 🗆			•			
Hydric Soil Present?	Yes		Is the Sam		Yes [☐ No	
Wetland Hydrology Present?	Yes 🗆		within a We	riand?		_	_
			and within	the ponded depression just south of Flag # T-	1.0		
Themans. Thear sample point 2A along transect 1-1	iii a uiy swale	. This plot is it	cated within	The policed depression just south of Flag # 1-	- 1-2.		
VEGETATION – Use scientific names of plant	'e				philipped and the second		
Tree Stratum (Plot size: 1/100 th acre)	Absolute	Dominant	Indicator	Dominance Test Worksheet:			
MANAGE STATE OF STATE	% Cover	Species?	<u>Status</u>	Dominance rest worksheet.			
1	-	<u>n/a*</u>	=	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u>		(A)
2		-	-	markie OBL, r AGW, or r AG.			
3	S-1-1-1-1		Vantania and spilling	Total Number of Dominant Species Across All Strata:	<u>2</u>		(B)
4		——	-	Opecies Across Air Strata.			
50% =, 20% =		= Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u>		(A/B)
Sapling/Shrub Stratum (Plot size: 1/100 th acre)	40		E4.0				
1. Rubus spectabilis	<u>40</u>	<u>yes</u>	FAC	Prevalence Index worksheet:			
2		<u>n/a*</u>	=	Total % Cover of:	Multiply b	oy:	
3				OBL species	x1 =		
4				FACW species	x2 =		
5				FAC species	x3 =		
50% =, 20% =	<u>40</u>	= Total Cover	•	FACU species	x4 =		
Herb Stratum (Plot size: 1/100 th acre)				UPL species	x5 =		
1. Athyrium felix-femina	I	<u>no</u>	<u>FACW</u>	Column Totals:(A)	0	(B)
2. Polystichum munitum	<u>20</u>	<u>yes</u>	<u>FACU</u>	Prevalence Index = B/A =	=		
3	-	<u>n/a*</u>	=	Hydrophytic Vegetation Indicators:			
4	V			☐ 1 – Rapid Test for Hydrophytic Vegeta	ıtion		
5				☑ 2 - Dominance Test is >50%			
6	3 		-	☐ 3 - Prevalence Index is ≤3.0 ¹			
7	-			4 Morphological Adaptations 1 (Provide	le supportir	ıa	
8	,	-		data in Remarks or on a separate s		.5	
9			-	5 - Wetland Non-Vascular Plants ¹			
10				Problematic Hydrophytic Vegetation ¹ (Evolain)		
11				- Problemation y drophytic vegetation (LXPIGITI		
50% =, 20% =	20	= Total Cover		¹ Indicators of hydric soil and wetland hydrolo	ogy must		
Woody Vine Stratum (Plot size:)				be present, unless disturbed or problematic.			
1							
2			-	Hydrophytic			
50% =, 20% =		= Total Cover		Vegetation Yes)	No	
		, star cover		Present?			
% Bare Ground in Herb Stratum	and the Alternative						
Remarks: No groundcover vegetation growing	ig in the pond	ea aepression.					

SOIL										Sampling	Point: 2C	-2017			
Profile Des	scription: (Describ	e to the	e depth	need	ed to d	ocument the indicator or con	firm the abs	ence o	of indicators						
Depth	Matr	ix				Redox Features									
(inches)	Color (moist)		%	Co	olor (mo	ist) % Type ¹	Loc ²	2	Texture			Remarks	S		
<u>18</u>	10YR2/2		80					_ '	sandy loam	moist					
	10YR5/3		20						sandy loam	mixed	soil matrix	with woo	od piece	es	
		_													
								_							
								_							
								-							
¹ Type: C= 0	Concentration, D=D	epletion	n, RM=F	Reduce	ed Matr	ix, CS=Covered or Coated San	d Grains.	² Loc	ation: PL=Po	ore Lining, I	/l=Matrix				
	I Indicators: (Appl									ors for Pro		Hydric S	ioils³:		
	sol (A1)					Sandy Redox (S5)				2 cm Muck		•			
☐ Histic	Epipedon (A2)					Stripped Matrix (S6)				Red Parent		TF2)			
	(Histic (A3)					Loamy Mucky Mineral (F1) (e.	xcept MLRA	(1)	-	Very Shallo			F12)		
	ogen Sulfide (A4)					Loamy Gleyed Matrix (F2)		,	_	Other (Expl			,		
	eted Below Dark Su	urface (A	A11)			Depleted Matrix (F3)			_	o a.i.o. (2,4p.	a	ila ila			
	Dark Surface (A12		,			Redox Dark Surface (F6)									
_	y Mucky Mineral (S					Depleted Dark Surface (F7)			3Indicat	ors of hydro	ophytic ve	getation a	and		
_	y Gleyed Matrix (S					Redox Depressions (F8)			wetl	and hydrolo	gy must b	e presen			
	Layer (if present					Trodox Boproceiono (1 o)	[·		unie	ss disturbe	a or proble	ematic.			
Type:	mayor (ii proconc	,.													
Depth (inch							Hydric So	nile Pre	eent?		Yes		No		\boxtimes
Remarks:	This soil appear	od mivo	d from r	noot or	convotio	on and included wood and grave	ol Donloted	anil an	nditiona not	oboon and					
HYDROL	OGY ydrology Indicato	rs:	8 do - 10 A												
	licators (minimum o		equired:	check	all that	annly)			Seconda	ry Indicator	e (2 or mo	re requir	ad)		
	ace Water (A1)	or one re	squireu,	OHOOK		Water-Stained Leaves (B9)							eu)		
100000 100000	Water Table (A2)					. ,	AD)			ter-Stained					
_						(except MLRA 1, 2, 4A, and	40)			LRA 1, 2, 4		-			
	ration (A3)					Salt Crust (B11)			-	ainage Patte					
	er Marks (B1)					Aquatic Invertebrates (B13)			<u></u>	-Season W			(0.0)		
	ment Deposits (B2))				Hydrogen Sulfide Odor (C1)		(00)	<u></u>	turation Visi		-	ery (C9))	
	Deposits (B3)					Oxidized Rhizospheres along	_	s (C3)		omorphic P		2)			
	Mat or Crust (B4)					Presence of Reduced Iron (C				allow Aquita					
	Deposits (B5)					Recent Iron Reduction in Tille				C-Neutral T	2 (2)				
_	ace Soil Cracks (B6					Stunted or Stresses Plants (D	1) (LRR A)		-	ised Ant Mo)		
	dation Visible on A			950		Other (Explain in Remarks)			☐ Fro	st-Heave H	ummocks	(D7)			
	sely Vegetated Co	ncave S	Surface ((B8)											
Field Obse															
	ater Present?	Yes		No	\boxtimes	Depth (inches):									
Water Table		Yes		No	\boxtimes	Depth (inches):									
Saturation I		Yes		No	\boxtimes	Depth (inches):		Wetl	and Hydrolo	gy Presen	t?	Yes		No	\boxtimes
	apillary fringe)	am dall	ge mon	itorina	woll a	erial photos, previous inspection	no) if availal	nlo:							
Describe IX	ecolded Data (Sile	am gau	ge, mon	ntoring	well, a	eriai priotos, previous irispectio	ris), ii avallal	ole.							
Remarks:	Assumed by no	n-hydrid	c soil.	100											

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

Project Site:	Raging River	Quarry Expansion					City/Coun	nty:	/K	<u>(ing</u>		Sampling	Date:	4/2	8/17	
Applicant/Owner:	John Priebe									State	: <u>WA</u>	Sampling	Point:	2D-	2017	
Investigator(s):	Gary Schulz								Section	on, Town	nship, Rang	je: <u>22, 2</u> 4	4N, 7E,			
Landform (hillslope, te	rrace, etc.):	terrace				Loca	l relief (conc	ave,	convex, n	none):	none		Slop	e (%):	0	
Subregion (LRR):	<u>A</u>		Lat:					1	Long:				Datum:			
Soil Map Unit Name:	Alderwood 8	Kitsap (AkF)									NWI class	sification:				
Are climatic / hydrolog	ic conditions or	the site typical for	this time	of year	ar?	Y	es 🛛		No 🗆	(If no	o, explain ir	Remarks	s.)			
Are Vegetation ,	Soil □,	or Hydrology	□, sig	nificar	ntly dis	sturbed	? Are "	Nor	mal Circun	nstances	s" present?		Yes		No	
Are Vegetation ,	Soil □,	or Hydrology	☐, nat	turally	proble	ematic?	? (If ne	eede	d, explain	any ans	wers in Re	marks.)				
SUMMARY OF FIN		ach site map sh	1/2		70.70		locations,	tra	nsects, i	importa	ant featui	res, etc.				
Hydrophytic Vegetation	n Present?		Yes		No		Is the Samp	nled	Area							
Hydric Soil Present?	1000		Yes		No	\boxtimes	within a We						Yes		No	
Wetland Hydrology Pro			Yes		No									-		
Remarks: Transect	T-1 near Flag a	# T-1-2 in dry swale	. This p	lot is c	n the	south:	side and dow	vnslo	ope of the	depress	ion.					
VECETATION									×							
VEGETATION - Us			Absolut	е Г	Domin	ant	Indicator	Γ_								
<u>Tree Stratum</u> (Plot size	e: <u>1/100° acre</u>)		% Cove		Specie		Status	Do	ominance	Test W	orksheet:					
1				<u>r</u>	<u>1/a*</u>		=		umber of D				1			(A)
2				-				l in	iat Are OB	SL, FAC	N, or FAC:		_			. ,
3				-			-		tal Numbe				<u>1</u>			(B)
4				-				l ot	ecies Acr	oss All S	otrata.		_			
50% =, 20% = _		ooth .		=	= Tota	l Cove	r	Pe	ercent of D	ominant	t Species N, or FAC:		100			(A/B)
Sapling/Shrub Stratum	<u>n</u> (Plot size: <u>1/1</u>	00° acre)	00				=10	-				Annual Control of the				
Rubus spectabilis			<u>60</u>		<u>res</u>		FAC	Pr			orksheet:					
2. <u>Acer circinatum</u>			<u>5</u>	<u>r</u>	10		FAC	١.,			Cover of:		2017	oly by:		
3				-				1	BL species				x1 =	-		
4				-			. —	1	ACW speci				x2 =			
5				-				1	C species				x3 =	-		
50% =, 20% = _	100		<u>65</u>	-	- Tota	l Cove	ſ		ACU specie				x4 =	-		
Herb Stratum (Plot siz			_						PL species		-		x5 =	-	_	
1. <u>Athyrium felix-fem.</u>			I	<u>r</u>	10		<u>FACW</u>	Co	olumn Tota			(A)		-	(E	3)
2. <u>Tolmeia menziesii</u>			I	<u>r</u>	<u>10</u>		<u>FAC</u>				revalence		'A =			
3. <u>Polystichum munit</u>	<u>tum</u>		<u>15</u>	<u>r</u>	10		<u>FACU</u>	H			ation Indic					
4				-			1			-	for Hydrop		etation			
5				-					2 - Doi	minance	Test is >5	0%				
6				-					3 - Pre	evalence	Index is <	3.0 ¹				
7				-			-		4 - Mo	rphologi	cal Adapta	tions ¹ (Pro	vide suppo	orting		
8				-				100000	uau		narks or on		e sneet)			
9				-					5 - We	etland No	on-Vascula	r Plants¹				
10				-	_				Proble	matic H	ydrophytic '	Vegetation	n¹ (Explain)			
11				-				110	ndicators o	of bydric	soil and we	atland byd	rology mus			
50% =, 20% = _			<u>15</u>	=	= Tota	l Cove	r	be	present,	unless d	isturbed or	problema	tic.	·		
Woody Vine Stratum (Plot size:	_)						_				-				
1				-			-			_						
2				-				1	/drophytic egetation	C	Ye	96	\boxtimes	No		
50% =, 20% =				=	= Tota	l Cove	r		esent?					110		_
% Bare Ground in Her	rb Stratum															
Remarks:		-														

SOIL

				e depth	th needed to document the indicator or con Redox Features		onfirm the absence of inc			ors.)						1		
	epth			0/		lor (ma			Loc ²	2	Texture				Remark			ī
(inche		Color (moist)	_	%		lor (mo	1St) %	Type ¹		_	sandy lo	_	dnı		Remark	S		-
1	<u>6</u> 16	10YR3/2 10YR5/3		100 100	-					_	sandy lo		<u>dry</u> dr <u>y</u>					
-	10	1011(0/0	-	100	-				-	_	ouridy to	<u>um</u>	ury					
-			_		-		-		_	_	***************************************							
_		* December 1999	_		-		-	*		_	-	- '						
_		-	_		1-					_								
¹ Type	: C= Cor	 ncentration, D=D	Depletion	n, RM=f	Reduce	ed Matri	ix, CS=Covered	or Coated San	d Grains.	² Loc	cation: PL=	Pore L	ining, M=	=Matrix				
Hydri	c Soil In	dicators: (App	licable	to all Li	RRs, u	nless o	otherwise noted	.)			Indi	cators	for Prob	lematic	Hydric S	Soils ³ :		
	Histosol	(A1)					Sandy Redox (S5)				2 cm	n Muck (A	A10)				
	Histic Ep	oipedon (A2)					Stripped Matrix	(S6)				Red	Parent N	/laterial (TF2)			
	Black Hi	stic (A3)					Loamy Mucky	Mineral (F1) (e	xcept MLRA	A 1)		Very	Shallow	Dark Su	ırface (T	F12)		
	Hydroge	n Sulfide (A4)					Loamy Gleyed	Matrix (F2)				Othe	er (Explai	in in Rem	narks)			
	Depleted	d Below Dark Si	urface (/	A11)			Depleted Matrix	x (F3)										
	Thick Da	ark Surface (A1	2)				Redox Dark Su	ırface (F6)										
	Sandy M	Mucky Mineral (S	51)				Depleted Dark	Surface (F7)						hytic veg				
	Sandy G	Bleyed Matrix (S	(4)				Redox Depress	sions (F8)						y must be or proble		it,		
Restr	ictive La	yer (if present):															
Type:																		
Depth	(inches)):		0 0					Hydric Sc	oils Pr	esent?			Yes		No	Y.	\boxtimes
Rema	arks:																	
HVD	ROLOG	·V																
		ology Indicato	rs:															
		tors (minimum		equired:	check	all that	apply)				Secor	ndary In	dicators	(2 or mo	re requir	red)		
		Water (A1)					Water-Stained	Leaves (B9)			1			eaves (E				
		ater Table (A2)				_	(except MLRA		4B)					, and 4B				
	Saturati						Salt Crust (B11							ns (B10)				
		Marks (B1)					Aquatic Inverte							ter Table				
		nt Deposits (B2)				Hydrogen Sulfi	0 00 100 000 100						le on Aeı		erv (C	9)	
		posits (B3)	,				Oxidized Rhizo	1 1	Living Roots	s (C3)				sition (D2	-		,	
		at or Crust (B4)					Presence of Re			, ,			v Aquitar		,			
		posits (B5)					Recent Iron Re						eutral Te					
		Soil Cracks (B	6)				Stunted or Stre							ınds (D6)	(LRR A	4)		
		ion Visible on A		agery (E	37)		Other (Explain		, ,					mmocks				
		y Vegetated Co						,							. ,			
	Observa				, ,													
		Present?	Yes		No		Depth (inc	hes):										
	r Table F		Yes		No		Depth (inc											
1711-1200-1001	ation Pre									100			D		V.			C 3
		lary fringe)	Yes		No		Depth (inc	hes):	•	vveti	land Hydr	ology I	Present	<i>'</i>	Yes		No	⊠
Descr	ribe Reco	orded Data (stre	eam gau	ige, moi	nitoring	well, a	erial photos, pre	vious inspectio	ns), if availa	ble:								
Rema	arks:																	

Sampling Point: 2D-2017



Wetland Data Plot 2B was located within an old excavated exploration pit.

Wetland Data Plot 2A was excavated in an undisturbed area adjacent to Data Plot 2B as a reference soil profile.





Reference Data Plot 2A has chroma / value 10YR 5/3 sandy loam below 8 inches deep. The bright color is not indicative of depleted soil associated with wetland (hydric) soils. No wetland hydrology indicators are present.

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4/28/17 Raging River Carry Expansion Area Photographs. Jear Transect Point T-1-2



Wetland Data Plot 2B was excavated within the depression in approximately 4 inches of standing water. Salmonberry shrubs and lady fern growing around the outer edges of the depression. The depression intercepts shallow groundwater and surface water runoff.

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Wetland Data Plot 2B had a soil profile similar to reference Plot 2A but was disturbed years ago. The 10YR 5/3 chroma / value is present at a depth of 18 inches. The data plots all have a dark brown (10YR2/2) color in the upper layer and the lighter brown 10YR5/3 color at depths to 18 inches. The observed soils are not depleted.





Wetland Data Plot 2B has the same chroma / value color of 10YR 5/3 as observed in the undisturbed area of Wetland Data Plot 2A.