WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 30-Aug-15

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW15_T338_04**

Investigator(s): SLI, SCB | Landform (hillside, terrace, hummocks etc.): Footslope

Local relief (concave, convex, none): | Slope: 3.5 % / 2.0 ° | Elevation:

Subregion : Interior Alaska Mountains | Lat.: | Long.: | Datum: WGS84

Soil Map Unit Name: | **NWI classification: PSS1B**

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 [x] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●) No ( )	**Is the Sampled Area within a Wetland?** **Yes (●) No ( )**
Hydric Soil Present?	Yes (●) No ( )	
Wetland Hydrology Present?	Yes (●) No ( )	

Remarks:

VEGETATION - Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	1	[ ]	FACW
2.	0	[ ]	
3.	0	[ ]	
4.	0	[ ]	
5.	0	[ ]	
Total Cover:	1		

Sapling/Shrub Stratum — 50% of Total Cover: 0.5 — 20% of Total Cover: 0.2

1. Betula nana	40	[x]	FAC
2. Vaccinium uliginosum	30	[x]	FAC
3. Rhododendron tomentosum	20	[ ]	FACW
4. Vaccinium vitis-idaea	5	[ ]	FAC
5. Picea mariana	5	[ ]	FACW
6. Empetrum nigrum	5	[ ]	FAC
7.	0	[ ]	
8.	0	[ ]	
9.	0	[ ]	
10.	0	[ ]	
Total Cover:	105		

Herb Stratum — 50% of Total Cover: 52.5 — 20% of Total Cover: 21

1. Carex bigelowii	10	[x]	FAC
2. Rubus chamaemorus	5	[x]	FACW
3. Calamagrostis canadensis	1	[ ]	FAC
4.	0	[ ]	
5.	0	[ ]	
6.	0	[ ]	
7.	0	[ ]	
8.	0	[ ]	
9.	0	[ ]	
10.	0	[ ]	
Total Cover:	16		

50% of Total Cover: 8 — 20% of Total Cover: 3.2

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x 1 =	0
FACW Species	31	x 2 =	62
FAC Species	91	x 3 =	273
FACU Species	0	x 4 =	0
UPL Species	0	x 5 =	0
Column Totals:	122 (A)		335 (B)

Prevalence Index = B/A = 2.746

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is > 50%
- [x] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 30

Hydrophytic Vegetation Present? **Yes (●) No ( )**

Remarks: low open birch-ericaceous with scattered dwarf - medium picmar. similar to plot SW15_T338_01.

SOIL

Sampling Point: SW15_T338_04

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2									Peat	
2-10									Mucky Peat	
10-12									Muck	
12-16	5Y	4/1							Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix [2] Location: PL=Pore Lining. RC=Root Channel. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: silty clay loam, seasonal frost

Depth (inches): 12, 24

Hydric Soil Present? Yes ◉ No ○

Remarks:

2nd pit dug at this plot. 1st pit had shallow organic layer underlain by thixotropic clay and was abandoned.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 4

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Remarks:

silty clay loam at 12 in, seasonal frost at 24