WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 10-Jul-13

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW13_T135_04**

Investigator(s): JER | Landform (hillside, terrace, hummocks etc.): Undulating

Local relief (concave, convex, none): | Slope: % / 0.9 ° | Elevation: 103

Subregion : Southcentral Alaska | Lat.: 62.888107657 | Long.: -148.897506356 | Datum: NAD83

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 ☐ 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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? **Yes ◉ No ○**

Remarks: slope above lake, soil covered rock, water in rocky depressions, water table somewhat higher than typical but signs of normal high water table

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
Total Cover:	0		

Sapling/Shrub Stratum — 50% of Total Cover: 0 — 20% of Total Cover: 0

1.	Vaccinium uliginosum	25	☑	FAC
2.	Empetrum nigrum	30	☑	FAC
3.	Salix fuscescens	15	☐	FACW
4.	Vaccinium vitis-idaea	5	☐	FAC
5.	Salix pulchra	5	☐	FACW
6.	Betula nana	2	☐	FAC
7.	Cassiope tetragona	2	☐	FACU
8.	Spiraea stevenii	2	☐	FACU
9.	Andromeda polifolia	2	☐	FACW
10.	Loiseleuria procumbens	2	☐	FACU
	Total Cover:	90		

Herb Stratum — 50% of Total Cover: 45 — 20% of Total Cover: 18

1.	Viola palustris	1	☐	FACW
2.	Arnica lessingii	1	☐	UPL
3.	Anemone narcissiflora	2	☐	FACU
4.	Carex bigelowii	12	☑	FAC
5.	Artemisia norvegica	3	☑	FACU
6.	Rubus chamaemorus	3	☑	FACW
7.	Arctagrostis latifolia	1	☐	FACW
8.	Pedicularis capitata	1	☐	FACU
9.	Anthoxanthum monticola ssp. alpinum	3	☑	UPL
10.	Festuca altaica	2	☐	FAC
	Total Cover:	29		

50% of Total Cover: 14.5 — 20% of Total Cover: 5.8

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x 1 =	0
FACW Species	27	x 2 =	54
FAC Species	76	x 3 =	228
FACU Species	15	x 4 =	60
UPL Species	1	x 5 =	5
Column Totals:	119 (A)		347 (B)

Prevalence Index = B/A = 2.916

Hydrophytic Vegetation Indicators:

☑ Dominance Test is > 50%

☑ 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 0.1

Total Cover of Bryophytes 35

Hydrophytic Vegetation Present? **Yes ◉ No ○**

Remarks: picgla 0.1, arcalp 2, gengla 1, lichf 30, masric 3, standing water 5, hylspl

SOIL

Sampling Point: SW13_T135_04

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2			100						Fibric Organics	
2-7			100						Hemic Organics	w some silt and sand.
7-13	10YR	3/4	100						Sand	org inclsn and gravels throughout.
13-17	10YR	3/3	100						Sand	w some gravel

[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: rock

Depth (inches): 24

Hydric Soil Present? Yes ◉ No ○

Remarks:

seems like area should be saturated and wet even during dryer times. looks like there is cryoturbation, the organics have a wavy layering to them. marginal organic depth for histic epipedon, but underlying mineral soils have chroma >2. rock (??) at 24in may be restrictive. Based on sandy substrates and high elevation below uvegetated rock and scree assume insuficient organic carbon.

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): 7
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 3

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

small potholes throughout site. looks like they may be about 1-2 inches flooded.