WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 24-Aug-15

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW15_T317_05**

Investigator(s): GVF | Landform (hillside, terrace, hummocks etc.): Swale

Local relief (concave, convex, none): hummocky | Slope: 8.7 % / 5.0 ° | Elevation:

Subregion : Cook Inlet 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 ☐ 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: sparse woodland w/ large-ish picgla. strong microtopography with small incised creek, patchy small flooded pits. soil pit in moist interhummock. tricky plot for wetlands determination.

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

	Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.	Picea glauca	10	☑	FACU
2.		0	☐	
3.		0	☐	
4.		0	☐	
5.		0	☐	
	Total Cover:	10		

Sapling/Shrub Stratum — 50% of Total Cover: 5 — 20% of Total Cover: 2

1.	Salix barclayi	25	☑	FAC
2.	Vaccinium uliginosum	12	☑	FAC
3.	Empetrum nigrum	8	☐	FAC
4.	Betula nana	5	☐	FAC
5.	Dasiphora fruticosa ssp. floribunda	4	☐	FAC
6.	Spiraea stevenii	3	☐	FACU
7.	Salix pulchra	3	☐	FACW
8.	Picea mariana	2	☐	FACW
9.	Picea glauca	2	☐	FACU
10.	Salix reticulata	2	☐	FAC
	Total Cover:	66		

Herb Stratum — 50% of Total Cover: 33 — 20% of Total Cover: 13.2

1.	Cornus canadensis	12	☑	FACU
2.	Sanguisorba canadensis	8	☑	FACW
3.	Calamagrostis canadensis	3	☐	FAC
4.	Polemonium acutiflorum	3	☐	FAC
5.	Geranium erianthum	3	☐	FACU
6.	Carex utriculata	2	☐	OBL
7.	Thalictrum sparsiflorum	1	☐	FACU
8.	Swertia perennis	0.1	☐	FACW
9.	Equisetum palustre	0.1	☐	FACW
10.	Rhodiola integrifolia	0.1	☐	FAC
	Total Cover:	32.3		

50% of Total Cover: 16.15 — 20% of Total Cover: 6.46

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	2	x 1 =	2
FACW Species	13.2	x 2 =	26.40
FAC Species	62.1	x 3 =	186.3
FACU Species	31	x 4 =	124
UPL Species	0	x 5 =	0
Column Totals:	108.3 (A)		338.7 (B)

Prevalence Index = B/A = 3.127

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 15

Total Cover of Bryophytes 55

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

Remarks: bare ground is mostly litter, trace water. mosses mostly feathermosses and sphagnum.

SOIL

Sampling Point: SW15_T317_05

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	
2-5									Mucky Peat	
5-6									Muck	with mineral content
6-17	10YR	3/2	95	5YR	3/4	5	C	PL	Loam	subangular cobbles throughout

[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:
Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soils based on landscape position (swale), multiple primary and secondary wetland hydrology indicators, and hydrophytic vegetation. It is possible that oxygenated water is flowng through this swale, thus redox features related to iron translocation would be absent and alpha, alpha-dipyridol would not detect reduced iron (no color change with alpha, alpha-dipyridol strips).

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): 12
Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 11

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

D2--swale. D4--hummocks. patchy small flooded depressions throughout, but don't believe enough to meet intent of Surface Water (A1).