WETLAND DETERMINATION DATA FORM - Alaska Region

Project/	/Site: Susitna-Watana Hydr	oelectric Project		Borough/City:	Matanusk	ka-Susitna Borough Sampling Date:	18-Aug-15			
Applica	nt/Owner: Alaska Energy Au	uthority				Sampling Point: S	SW15_T319_06			
nvestig	gator(s): BAB			Landform (hi	llside, terrac	ce, hummocks etc.): Terrace				
ocal re	elief (concave, convex, none):	planar gentle slope	e	Slope: 5.0) % / 2.9	9 ° Elevation:				
Subrea	ion: Cook Inlet Mountains		Lat.:			Long.:	Datum: WGS84			
_	p Unit Name:		Lut							
				0 V	s ● No ○	NWI classification: Uplan	ıa			
Are Vo	natic/hydrologic conditions on t egetation , Soil egetation , Soil MARY OF FINDINGS - Ai	, or Hydrology	significant	tly disturbed? problematic?	Are "N (If nee	(If no, explain in Remarks.) Normal Circumstances" present? Yes eded, explain any answers in Remarks. s, transects, important features.	•			
	Hydrophytic Vegetation Preser	nt? Yes • No	0							
	Hydric Soil Present?	Yes O No	•	Is the Sampled Area						
	Wetland Hydrology Present?	Yes O No		within a Wetland? Yes ○ No ●						
Rema	,	103 0 140		ļ						
/EGE	TATION - Use scientific	names of plants.	List all sp	ecies in the	plot.	Dominance Test worksheet:				
Troc	e Stratum		Absolute % Cove		Indicator Status	Number of Dominant Species				
	Picea mariana		10	✓	FACW	That are OBL, FACW, or FAC:	5(A)			
	Datula kanaisa			✓	FACU	Total Number of Dominant	(B)			
3.			$- \frac{3}{0}$	ñ	TACO	Species Across All Strata:	6(B)			
4.						Percent of dominant Species That Are OBL, FACW, or FAC:	83.3% (A/B)			
5.						Businelan as Turden market sate				
		Total Cove	er: <u>15</u>	_		Prevalence Index worksheet: Total % Cover of: Multiply	v hv:			
Sapl	ing/Shrub Stratum	50% of Total Cover:	7.5 209	% of Total Cove	r: <u>3</u>	OBL Species 0 x 1 =				
1	Diago mariana		40	✓	FACW	FACW Species 50 x 2 =				
	Picea mariana Vaccinium uliginosum			V	FAC	FAC Species 56 x 3 =				
	Rhododendron groenlandicun				FAC	FACU Species 11 x 4 =				
	Vaccinium vitio idaca			П	FAC	UPL Species 0 x 5 =				
	Connetrum nierum				FAC	Column Totals: 117 (A)				
	Spiraea stevenii				FACU	Column Totals: 117 (A)	(B)			
7.	•					Prevalence Index = B/A =	2.667			
8.			0			Hydrophytic Vegetation Indicators:				
9.			0			✓ Dominance Test is > 50%				
			0			✓ Prevalence Index is ≤3.0				
	o Stratum	Total Cove 50% of Total Cover:		_ % of Total Cove	er: <u>18</u>	Morphological Adaptations (Provide Remarks or on a separate sheet)	e supporting data in			
1.	Equisetum sylvaticum		5	. ~	FAC	Problematic Hydrophytic Vegetation	` ' '			
2.	Cornus suecica		5	. •	FAC	¹ Indicators of hydric soil and wetland hyd	lrology must			
٠.				. 📙	FACU	be present, unless disturbed or problema	tic.			
	Calamagrostis canadensis			. 📙	FAC	Plot size (radius, or length x width)	_10m			
			•			% Cover of Wetland Bryophytes				
						(Where applicable)				
						% Bare Ground	_20			
						Total Cover of Bryophytes	_73			
			$ \frac{0}{0}$							
10.		Total Cove				Hydrophytic Vegetation				
		50% of Total Cover:		- % of Total Cove	r: 2.4	Present? Yes • No)			
Rema	arks:					<u>.</u>				

US Army Corps of Engineers Alaska Version 2.0

SOIL Sampling Point: SW15_T319_06

Color (moles) October	(inches) Color (moist 0-6 6-9 9-10 2.5Y 10-13 5YR 13-15 10YR 15-19 2.5Y Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)	100 2.5/2 100 5/6 80 4/2 100					Fibric organics Hemic organics Silt Loam	Oi Oe E
9-10 2.5Y 100	6-9 9-10 2.5Y 10-13 5YR 2 13-15 10YR 15-19 2.5Y **Type: C=Concentration. D=D Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)	1.5/2 100 5/6 80 4/2 100	2.5Y 4/2	20			Hemic organics Silt Loam	Oe E
9-10 2.5Y 100 STR Loan Ban Sint Journ Ban Sint Jou	9-10 2.5Y 10-13 5YR 2 13-15 10YR 15-19 2.5Y 17ype: C=Concentration. D=D Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)	1.5/2 100 5/6 80 4/2 100	2.5Y 4/2	20			Silt Loam	E
10-13 SYR 2.5/2 100 Sandy Loam Bein Sit Loam Bein Syr 19-15 107R 5/6 80 2.5Y 4/2 20 D M Sit Loam Be seasonal frost Loamy Sond C 15-19 2.5Y 4/2 100 Loamy Sond C 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore	10-13	1.5/2 100 5/6 80 4/2 100	2.5Y 4/2	20	D			
10-13 SYR 2.5/2 100 Sandy Loam Bein Sit Loam Bein Syr 19-15 107R 5/6 80 2.5Y 4/2 20 D M Sit Loam Be seasonal frost Loamy Sond C 15-19 2.5Y 4/2 100 Loamy Sond C 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel, M=Matrix 1-Type: C=Concentration, D=Depiction, RM=Reduced Matrix 2 Location: PL=Pore	10-13	1.5/2 100 5/6 80 4/2 100	2.5Y 4/2	20	D		Sandy Loam	
13-15 10/17 5/6 80 2.57 4/2 100 10 10 10 10 10 10 10 10 10 10 10 10	13-15 10YR 15-19 2.5Y Type: C=Concentration. D=D Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)	5/6 80 4/2 100	2.5Y 4/2	20	D		Suriay Edum	
15-19 2.5V 4/2 100 Loamy Send C Loamy Send C	15-19 2.5Y Type: C=Concentration. D=D Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)	4/2 100	2.5Y 4/2		<u> </u>	M	Cit I	
Type: C=Concentration. D=Depletion. RM=Reduced Matrix	Type: C=Concentration. D=D Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)						SIIT LOAM	Bw seasonal frost
Hydric Soil Indicators: Histosol or Histel (A1)	Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)	epletion. RM=Reduce					Loamy Sand	С
Hydric Soil Indicators: Histosol or Histel (A1)	Hydric Soil Indicators: Histosol or Histel (A1) Histic Epipedon (A2) Hydrogen Sulfide (A4) Thick Dark Surface (A12)	epletion. RM=Reduc	2					
Hydrogen Sulfide (A4)	Hydrogen Sulfide (A4) Thick Dark Surface (A12)		Indicators for Pr	oblematic l	Hydric So		Alaska Gleyed Without H	ue 5Y or Redder
Thick Dark Surface (A12) alaska Gleyed (A13) and an appropriate landscape position must be present Alaska Redox (A14) 4 Give details of color change in Remarks Alaska Gleyed Pores (A15) 4 Give details of color change in Remarks Restrictive Layer (if present):	Thick Dark Surface (A12)		Alaska Alpine s	wales (TA5)			, , ,	
Alaska Gleyed (A13) Alaska Gleyed (Present) Alaska Gleyed Pores (A15) Alaska	_ ` '		Alaska Redox V	Vith 2.5Y Hu	ie	L	Other (Explain in Remark	rs)
Alaska Gleyed Pones (A15) Restrictive Layer (if present): Type: Depth (inches): Remarks: No hydric soil indicators observed HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) High Water Table (A2) Saturation (A3) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Drift Deposits (B3) Drift Deposits (B4) Drift Deposits (B5) Drift Deposits (B5) Drift Deposits (B6) Drift D								ydrology,
Restrictive Layer (if present): Type: Depth (inches): Remarks: No hydric soil indicators observed HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (anv one is sufficient) Surface Water (A1) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Mart Deposits (B15) Sediment Deposits (B2) Dry-Season Water Table (C2) Drift Deposits (B3) Algal Mat or Crust (B4) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Water (Path) Sediment Deposits (B15) Dry-Season Water Table (C2) Dry-Season Water Table (C2) Sutuntion (A3) Sutrace Soil Cracks (B6) Surface Water Present? Surface Water Present? Ves No Depth (inches): Surface Water Present? Ves No Depth (inches): Saturation Present? Ves No Depth (inches): Saturation Present? Ves No Depth (inches): Saturation Present? Ves No Depth (inches): Sedimant Hydrology Present? Yes No Depth (inches): Saturation Present? Ves No Depth (inches): Saturation Present? Ves No Pepth (inches): Saturation Present? Ves No	_ ` ` '		4 Give details of co	olor change i	in Remark	(S		
Type: Depth (inches): Remarks: No hydric soli indicators observed Hydric Soil Present? Yes								
Depth (Inches): Remarks: No hydric soil indicators observed HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (nav one is sufficient) Surface Water (A1) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Sutface Water (A1) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Salt Deposits (B2) Sediment Deposits (B2) Dry-Season Water Table (C2) Salt Deposits (B3) Surface Water (A1) Sparsely Vegetated Concave Surface (B8) Sufface Water (A1) Sparsely Vegetated Concave Surface (B8) Sufface Soil Cracks (B6) Surface Soil Cr								
HYDROLOGY Wetland Hydrology Indicators:	* *						Hydric Soil Present	? Yes O No O
HYDROLOGY Wetland Hydrology Indicators:	Deput (menes):							
Wetland Hydrology Indicators: Primary Indicators (any one is sufficient)								
Primary Indicators (any one is sufficient) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) Surface Water Table (A2) Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Sati Deposits (B1) Prisence of Reduced Iron (C4) Sati Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Surface Soil Cracks (B6) Field Observations: Surface Water Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	HYDROLOGY							
□ Surface Water (A1) □ Inundation Visible on Aerial Imagery (B7) □ Drainage Patterns (B10) □ High Water Table (A2) □ Sparsely Vegetated Concave Surface (B8) □ Oxidized Rhizospheres along Living Roots (C3) □ Saturation (A3) □ Marl Deposits (B15) □ Presence of Reduced Iron (C4) □ Salt Deposits (C5) □ Sediment Deposits (B2) □ Dry-Season Water Table (C2) □ Stunted or Stressed Plants (D1) □ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Algal Mat or Crust (B4) □ Surface Soil Cracks (B6) □ Present? Yes □ No ● Depth (inches): Field Observations: Surface Water Present? Yes □ No ● Depth (inches): Water Table Present? Yes □ No ● Depth (inches): Saturation Present? Yes □ No ● Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	Wetland Hydrology Indicato	rs:					Secondary Indi	cators (two or more are required)
High Water Table (A2)	Primary Indicators (any one is	sufficient)					Water Stair	ned Leaves (B9)
Saturation (A3)	Surface Water (A1)		Inundation V	isible on Aer	rial Imagei	ry (B7)	☐ Drainage P	atterns (B10)
Water Marks (B1)	High Water Table (A2)		Sparsely Veg	etated Conc	ave Surfac	ce (B8)	Oxidized R	hizospheres along Living Roots (C3)
Sediment Deposits (B2)	. ,	Marl Deposits	s (B15)				. ,	
□ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) □ FAC-neutral Test (D5) □ Surface Water Present? Yes □ No ● Depth (inches): Water Table Present? Yes □ No ● Depth (inches): Saturation Present? Yes □ No ● Depth (inches): Saturation Present? Yes □ No ● Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	☐ Water Marks (B1)	Hydrogen Su	lfide Odor (C	C1)		☐ Salt Depos	its (C5)	
Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Surface Soil Cracks (B6) Field Observations: Surface Water Present? Water Table Present? Yes No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Shallow Aquitard (D3) ☐ Microtopographic Relief (D4) ☐ FAC-neutral Test (D5) Wetland Hydrology Present? Yes No Depth (inches): No Depth (inches): No Depth (inches):	Sediment Deposits (B2)	Dry-Season V	Vater Table	(C2)		☐ Stunted or	Stressed Plants (D1)	
☐ Iron Deposits (B5) ☐ Microtopographic Relief (D4) ☐ Surface Soil Cracks (B6) ☐ FAC-neutral Test (D5) ☐ Field Observations: Surface Water Present? Yes ○ No ② Depth (inches): Water Table Present? Yes ○ No ② Depth (inches): Saturation Present? Yes ○ No ② Depth (inches): Saturation Present? Yes ○ No ② Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	☐ Drift Deposits (B3)		Other (Explai	n in Remark	s)		Geomorphi	c Position (D2)
Surface Soil Cracks (B6) Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	Algal Mat or Crust (B4)						Shallow Aq	uitard (D3)
Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	☐ Iron Deposits (B5)						Microtopog	raphic Relief (D4)
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	Surface Soil Cracks (B6)						✓ FAC-neutra	l Test (D5)
Water Table Present? Yes No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:								
Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	Surface Water Present?	Yes ○ No ●	Depth (inche	s):				
Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	Water Table Present?	Yes O No 💿	Depth (inche	s):		Wetla	nd Hydrology Presen	t? Yes ○ No •
Remarks:		Yes O No •		•				
		ı gauge, monitor wel	ll, aerial photos, prev	vious inspect	tion) if ava	ailable:		
	Describe Recorded Data (strean							
only one secondary wedard nydrology indicator observed	,							
	Remarks:							
	Remarks:	Irology indicator obs	erved					

U.S. Army Corps of Engineers Alaska Version 2.0