## WETLAND DETERMINATION DATA FORM - Alaska Region

Project	/Site: Susitna-Watana Hydroelectric Project		Borou	gh/City:	Matanusk	a-Susitna Borough Sampling Date: 30-Jul-13
Applica	int/Owner: Alaska Energy Authority					Sampling Point: SW13_T156_07
Investi	gator(s): BAB		Lanc	form (hills	side, terrac	e, hummocks etc.): Bench
-	elief (concave, convex, none): hummocky		_		% / 1.0	
	ion : Interior Alaska Mountains	l at	— . . 63.39	 88169009		Long.: -148.363558492 Datum: WGS84
_		- Lat.	03.20	30109009	0	
	p Unit Name:				No ○	NWI classification: Upland
Are V Are V	natic/hydrologic conditions on the site typical for the degetation , Soil , or Hydrology egetation , Soil , or Hydrology  MARY OF FINDINGS - Attach site map s	significa naturally	ntly dist problei	urbed? matic?	Are "N (If nee	(If no, explain in Remarks.)  formal Circumstances" present? Yes ● No ○  ided, explain any answers in Remarks.)  s, transects, important features, etc.
	( ) p ,	o () o ()		Is	the Sam	pled Area
	· · · · · · · · · · · · · · · · · · ·				thin a W	-
	Wetland Hydrology Present? Yes O N	o				
	arks: Willows on bench with stream on one side a	. List all s	pecies		<u>'</u>	Dominance Test worksheet:
Tre	e Stratum	Absolu % Cov		ominant pecies?	Indicator Status	Number of Dominant Species
1.	<u> </u>		<u>u.                                    </u>		<u> </u>	That are OBL, FACW, or FAC:3 (A)
2.			)			Total Number of Dominant
3.			<u>,                                    </u>			Species Across All Strata:3(B)
4.			<u></u>	Ī		Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)
5.			)			
	Total Co	ver:0		<del></del>		Prevalence Index worksheet:  Total % Cover of: Multiply by:
Sap	ling/Shrub Stratum 50% of Total Cover:	0 2	— 0% of To	tal Cover:	0	0.01.0
				_		OBL Species 0 x1 = 0 FACW Species 135 x2 = 270
	Salix pulchra		_		FACW	
	Salix richardsonii		0	<b>✓</b>	FACW	FAC Species 66 x 3 = 198 FACU Species 8 x 4 = 32
3.	Vaccinium uliginosum		0		FAC FAC	UPL Species 1 x 5 = 5
4. 5.	Salix reticulata  Ledum decumbens		3		FACW	
6.	Empetrum nigrum		_		FAC	Column Totals: <u>210</u> (A) <u>505</u> (B)
7.	Ledum decumbens		3		FACW	Prevalence Index = B/A = 2.405
8.			<u></u>		TACV	Hydrophytic Vocatation Indicators
9.			)	ī		Hydrophytic Vegetation Indicators:  ✓ Dominance Test is > 50%
10.			<u></u>	$\overline{\Box}$		✓ Prevalence Index is ≤ 3.0
	Total Co b Stratum 50% of Total Cover:	ver: 121	_	otal Cover	24.2	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
1.	Festuca altaica	1	0		FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2.	Sanguisorba canadensis		;		FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3.	Sedum rosea		;		FAC	be present, unless disturbed or problematic.
4.	Rubus chamaemorus		5	✓	FACW	Plot cize (radius or longth y width)
5.	Swertia perennis	4			FACW	Plot size (radius, or length x width) 10m  Cover of Wetland Bryophytes
6.	Chamerion angustifolium		_		FACU	(Where applicable)
7.	Artemisia norvegica				FACU	% Bare Ground
8.	Antennaria friesiana		_		UPL	Total Cover of Bryophytes 5
9.	Senecio lugens		_		FAC	
10.	Mertensia paniculata		!		FACU	Hydrophytic
	<b>Total Co</b> 50% of Total Cover:			otal Cover:	17.8	Vegetation Present?  Yes ● No ○
Rem		44.5 2		otal Cover:	17.8	

US Army Corps of Engineers Alaska Version 2.0

SOIL Sampling Point: SW13 T156 07

	ion: (Describe to	the depth nee	eded to docum	nent the inc	licator or conf	firm the ab	sence of indic	ators)		
Depth		Matrix			Red	ox Featu			-	
(inches)	Color (mo	ist)	<u>%</u>	Color (m	oist)	<u>%</u>	Type <sup>1</sup>	<u>Loc</u> 2	Texture	Remarks
0-3			100						Fibric Organics	
3-9	2.5Y	3/2	90	2.5Y	3/2	10	C	PL	Sandy Loam	
9-18	10YR	3/2	100						Sandy Loam	w subrounded gravel and cobbles
						-				
								-	The state of the s	
¹ Type: C=Cor	ncentration. D=	Depletion.	RM=Reduce	ed Matrix	<sup>2</sup> Location:	PL=Pore	e Lining. RC	=Root Cha	nnel. M=Matrix	
Hydric Soil I	ndicators:			Indicat	ors for Pro	blematio	Hydric So	oils: <sup>3</sup>		
Histosol or	r Histel (A1)			Alasl	ka Color Cha	ange (TA	ł) <sup>4</sup>		Alaska Gleyed Without H	ue 5Y or Redder
Histic Epip	edon (A2)				ka Alpine sv	•	•		Underlying Layer	
_ ′ ′	Sulfide (A4)			Alasi	ka Redox W	ith 2.5Y F	lue		Other (Explain in Remark	rs)
	Surface (A12)			3 One ir	ndicator of h	vydronhyt	ic vegetatio	n one prin	nary indicator of wetland h	wdrology
Alaska Gle					appropriate					lydrology,
☐ Alaska Rec	. ,			4 Give o	letails of co	lor change	e in Remark	S		
	eyed Pores (A15	5)					J 1			
Restrictive Laye	er (if present):									
Type:									Hydric Soil Present	? Yes ○ No •
Depth (inch	nes):									
Remarks:										
no hydric soils i	indicators obse	rved								
HYDROLO	GY									
HYDROLO Wetland Hydi		tors:							Secondary Indi	cators (two or more are required)
	rology Indica									cators (two or more are required) ned Leaves (B9)
Wetland Hydi	rology Indica tors (any one i				undation Vis	sible on A	erial Image	ry (B7)	Water Stai	
Primary Indica	rology Indica tors (any one i				undation Vis		-		Water Stai  Drainage F	ned Leaves (B9)
Wetland Hydi Primary Indica Surface W	rology Indica tors (any one i /ater (A1) er Table (A2)			☐ Sp		tated Cor	-		☐ Water Stai☐ Drainage F☐ Oxidized R	ned Leaves (B9) Patterns (B10)
Wetland Hydromann Primary Indicated Surface William High Water	rology Indica tors (any one i /ater (A1) er Table (A2) n (A3)			☐ Sp ☐ Ma	arsely Vege	tated Cor (B15)	cave Surfac		☐ Water Stai☐ Drainage F☐ Oxidized R	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4)
Wetland Hydromann Indica Primary Indica Surface W High Wate Saturation Water Mar	rology Indicators (any one is later (A1) er Table (A2) er (A3) rks (B1) Deposits (B2)			Sp Ma	arsely Vege arl Deposits	tated Cor (B15) îde Odor	cave Surfac		Water Stai Drainage F Oxidized R Presence of Salt Depos Stunted or	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) its (C5) Stressed Plants (D1)
Wetland Hyding Primary Indicas  Surface Will High Wates  Saturation Water Main Sediment Drift Depo	rology Indicators (any one is later (A1) er Table (A2) en (A3) rks (B1) Deposits (B2) osits (B3)			Sp Ma Hy Dr	arsely Vege arl Deposits drogen Sulf	tated Cor (B15) ide Odor ater Tabl	cave Surfact (C1) e (C2)		Water Stai Drainage F Oxidized R Presence o Salt Depos Stunted or Geomorph	hed Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2)
Wetland Hydi Primary Indica Surface W High Wate Saturation Water Mai Sediment Drift Depo	rology Indicators (any one is later (A1) er Table (A2) er (A3) erks (B1) Deposits (B2) ersits (B3) or Crust (B4)			Sp Ma Hy Dr	arsely Vege arl Deposits drogen Sulf y-Season W	tated Cor (B15) ide Odor ater Tabl	cave Surfact (C1) e (C2)		Water Stai Drainage F Oxidized R Presence of Salt Depos Stunted or Geomorph Shallow Ac	hed Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) its (C5) Stressed Plants (D1) ic Position (D2) quitard (D3)
Wetland Hydin Primary Indicat Surface W High Wate Saturation Water Man Sediment Drift Depo Algal Mat Iron Depo	rology Indica tors (any one i /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4)			Sp Ma Hy Dr	arsely Vege arl Deposits drogen Sulf y-Season W	tated Cor (B15) ide Odor ater Tabl	cave Surfact (C1) e (C2)		Water Stai Drainage F Oxidized R Presence of Salt Depos Stunted or Geomorph Shallow Ac Microtopog	ried Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) its (C5) Stressed Plants (D1) ic Position (D2) guitard (D3) graphic Relief (D4)
Primary Indicated Surface Washington High Water Mair Sediment Drift Depotes Algal Mater Surface Surface Surface Surface Surface Surface Surface Surface Surface Drift Depotes Surface	rology Indica tors (any one i /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) oil Cracks (B6)			Sp Ma Hy Dr	arsely Vege arl Deposits drogen Sulf y-Season W	tated Cor (B15) ide Odor ater Tabl	cave Surfact (C1) e (C2)		Water Stai Drainage F Oxidized R Presence of Salt Depos Stunted or Geomorph Shallow Ac	ried Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) its (C5) Stressed Plants (D1) ic Position (D2) guitard (D3) graphic Relief (D4)
Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Surface Sc Field Observa	rology Indica tors (any one is later (A1) er Table (A2) in (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) oil Cracks (B6) ations:	s sufficient)		Sp Ma	arsely Vege arl Deposits drogen Sulf y-Season W her (Explair	tated Cor (B15) ride Odor ater Tabla i in Rema	cave Surfact (C1) e (C2)		Water Stai Drainage F Oxidized R Presence of Salt Depos Stunted or Geomorph Shallow Ac Microtopog	ried Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) its (C5) Stressed Plants (D1) ic Position (D2) guitard (D3) graphic Relief (D4)
Wetland Hydi Primary Indicai Surface W High Wate Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Surface So Field Observa Surface Water	rology Indicators (any one is later (A1) er Table (A2) in (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) oil Cracks (B6) ations: r Present?	s sufficient)	No •	Sp Ma	arsely Vege arl Deposits drogen Sulf y-Season W	tated Cor (B15) ride Odor ater Tabla i in Rema	cave Surfact (C1) e (C2)	ce (B8)	Water Stai  □ Drainage F  □ Oxidized R  □ Presence of  □ Salt Depose  □ Stunted or  □ Geomorph  □ Shallow Ac  □ Microtopog  ▼ FAC-neutra	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)
Wetland Hydi Primary Indica Surface W High Wate Saturation Water Man Sediment Drift Depo Algal Mat Iron Depo Surface So Field Observa Surface Water Water Table P	rorlogy Indica tors (any one is later (A1) er Table (A2) in (A3) rks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) poil Cracks (B6) ations: r Present?	s sufficient)		Sp Ma Hy Dr Ot	arsely Vege arl Deposits drogen Sulf y-Season W her (Explair	tated Cor (B15) ide Odor later Tabla in Rema	cave Surfact (C1) e (C2)	ce (B8)	Water Stai Drainage F Oxidized R Presence of Salt Depos Stunted or Geomorph Shallow Ac Microtopog	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)
Wetland Hydi Primary Indicai Surface W High Wate Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Surface So Field Observa Surface Water	ricology Indicators (any one is later (A1) er Table (A2) in (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) oil Cracks (B6) ations: r Present? ersent?	s sufficient)	No • No •	Sp Ma Hy Dr Ot	arsely Vege arl Deposits drogen Sulf y-Season W her (Explain	tated Cor (B15) ide Odor 'ater Tabla in Rema	cave Surfact (C1) e (C2)	ce (B8)	Water Stai  □ Drainage F  □ Oxidized R  □ Presence of  □ Salt Depose  □ Stunted or  □ Geomorph  □ Shallow Ac  □ Microtopog  ▼ FAC-neutra	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)
Wetland Hyding Primary Indicated Surface William High Water Main Sediment Drift Depoting Surface Surface Water Table Proceedings of the Saturation Present Surface Proceeding Primary Indicate Proceedings of the Saturation Present Surface Water Table Proceedings of the Saturation Present Indicate Water Table Present Indicate Water Table Present Indicate Water Table Present Indicate Water Table	rology Indica tors (any one is /ater (A1) er Table (A2) in (A3) rks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) poil Cracks (B6) ations: r Present? Present? elsent? ellary fringe)	Yes Yes Yes	No • No • No •	Sp Ma Hy Dr Ot	arsely Vege arl Deposits drogen Sulf y-Season W her (Explain epth (inches	tated Cor (B15) ride Odor later Tabla in Rema	(C1) e (C2) rks)	Wetla	Water Stai  □ Drainage F  □ Oxidized R  □ Presence of  □ Salt Depose  □ Stunted or  □ Geomorph  □ Shallow Ac  □ Microtopog  ▼ FAC-neutra	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)
Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Surface Sc Field Observa Surface Water Water Table P Saturation Pre (includes capil	rology Indica tors (any one is /ater (A1) er Table (A2) in (A3) rks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) poil Cracks (B6) ations: r Present? Present? elsent? ellary fringe)	Yes Yes Yes	No • No • No •	Sp Ma Hy Dr Ot	arsely Vege arl Deposits drogen Sulf y-Season W her (Explain epth (inches	tated Cor (B15) ride Odor later Tabla in Rema	(C1) e (C2) rks)	Wetla	Water Stai  □ Drainage F  □ Oxidized R  □ Presence of  □ Salt Depose  □ Stunted or  □ Geomorph  □ Shallow Ac  □ Microtopog  ▼ FAC-neutra	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)
Wetland Hydi Primary Indica Surface W High Water Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Surface So Field Observa Surface Water Water Table P Saturation Pre (includes capil	rology Indica tors (any one i //ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) oil Cracks (B6) ations: r Present? esent? ellary fringe) ded Data (stre	Yes Yes Yes Am gauge, I	No ● No ● No ● monitor well	Sp Ma Hy Dr Ot	arsely Vege arl Deposits drogen Sulf y-Season W her (Explain epth (inches	tated Cor (B15) ride Odor later Tabla in Rema	(C1) e (C2) rks)	Wetla	Water Stai  □ Drainage F  □ Oxidized R  □ Presence of  □ Salt Depose  □ Stunted or  □ Geomorph  □ Shallow Ac  □ Microtopog  ▼ FAC-neutra	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)
Wetland Hyding Primary Indicated Surface Working High Water Mail Sediment Drift Depotor Surface Soffield Observation Preceded Surface Water Table Posaturation Preceded Remarks:	rology Indica tors (any one i //ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) oil Cracks (B6) ations: r Present? esent? ellary fringe) ded Data (stre	Yes Yes Yes Am gauge, I	No ● No ● No ● monitor well	Sp Ma Hy Dr Ot	arsely Vege arl Deposits drogen Sulf y-Season W her (Explain epth (inches	tated Cor (B15) ride Odor (ater Tabla in Rema	(C1) e (C2) rks)	Wetla	Water Stai  □ Drainage F  □ Oxidized R  □ Presence of  □ Salt Depose  □ Stunted or  □ Geomorph  □ Shallow Ac  □ Microtopog  ▼ FAC-neutra	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)
Wetland Hyding Primary Indicated Surface Working High Water Mail Sediment Drift Depotor Surface Soffield Observation Preceded Surface Water Table Posaturation Preceded Remarks:	rology Indica tors (any one i //ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) oil Cracks (B6) ations: r Present? esent? ellary fringe) ded Data (stre	Yes Yes Yes Am gauge, I	No ● No ● No ● monitor well	Sp Ma Hy Dr Ot	arsely Vege arl Deposits drogen Sulf y-Season W her (Explain epth (inches	tated Cor (B15) ride Odor (ater Tabla in Rema	(C1) e (C2) rks)	Wetla	Water Stai  □ Drainage F  □ Oxidized R  □ Presence of  □ Salt Depose  □ Stunted or  □ Geomorph  □ Shallow Ac  □ Microtopog  ▼ FAC-neutra	ned Leaves (B9) Patterns (B10) hizospheres along Living Roots (C3) of Reduced Iron (C4) hits (C5) Stressed Plants (D1) hic Position (D2) higuitard (D3) higraphic Relief (D4) high Test (D5)

U.S. Army Corps of Engineers Alaska Version 2.0