WETLAND DETERMINATION DATA FORM - Alaska Region

Substitution Sampling Point Sampling Point Substitution Sampling Point Substitution Sampling Point Substitution Substitutio	Project/	Site: Susitna-Watana Hydroelectric Project	Во	orough/City:	Denali Bo	rough Sampling Date: 06-Aug-13		
Landform (hillsde, terrace, hummocks etc.) Footslope	Applica	nt/Owner: Alaska Energy Authority						
Local relief (concave, convex, none): hummocky Slope: 6.0 % / 3.4 * Elevation: 744			l	andform (hill	side, terrac			
Solid Map Unit Name: Let.: 63.384236574	_							
New classification: PS31B								
Are vigetation Soll or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes	_		Lat	03.364236374	·			
Are Vegetation					<u> </u>			
Hydric Soil Present? Yes	Are Ve	egetation , Soil , or Hydrology egetation , Soil , or Hydrology MARY OF FINDINGS - Attach site map sho	significantly naturally pro wing sam	disturbed?	Are "N (If nee	ormal Circumstances" present? Yes No O ded, explain any answers in Remarks.)		
Wetland Hydrology Present? Yes		, , , ,		le	tha Sam	nlad Araa		
Remarks:		.,,						
Tree Stratum	,	Wetland Hydrology Present? Yes 💿 No 🤇)	within a wetiand?				
Tree Stratum			ist all spe	cies in the	plot.			
Tree Stratum		'				Dominance Test worksheet:		
Picea mariana	Tree	Stratum				Number of Dominant Species		
2. Picea glauca 3			12	~	FACW			
3. 0	2.	Picea glauca	3		FACU			
That Are OBL, FACW, or FAC:								
Total Cover: 15	4.							
Total Cover 15	5.		0			Prevalence Index worksheet:		
1. Salix barclayi		Total Cover	: 15					
1. Salix barclayi	Sapl	ing/Shrub Stratum 50% of Total Cover:	7.5 20%	of Total Cover:	3	OBL Species 0 x 1 = 0		
2. Picea mariana 7	1	Salix harclavi	15	~	FAC			
3. Betula glandulosa 7 ✓ FAC FACU Species 8 x 4 = 32 4. Picea glauca 5 FACU FACU UPL Species 0 x 5 = 0 5. Vaccinium uliginosum 5 FAC Column Totals: 99.2 (A) 274.5 (B) 6. Empetrum nigrum 5 FAC Prevalence Index = B/A = 2.767 7. Ledum decumbens 3 FAC Hydrophytic Vegetation Indicators: 9. Vaccinium vitis-idaea 3 FAC Hydrophytic Vegetation Indicators: 9. Vaccinium oxycoccos 0.1 OBL Hydrophytic Vegetation Indicators: 10. Vaccinium oxycoccos 0.1 OBL Prevalence Index is ≤3.0 1. Carex bigelowii 15 FAC Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 2. Equisetum arvense 10 FAC Problematic Hydrophytic Vegetation ¹ (Explain) 3. Rubus chamaemorus 3 FACW Problematic Hydrophytic Vegetation ¹ (Explain) 4. Petasites frigidus 1 FACW Plot size (radius, or length x width) 10m 5. Arctagrostis latifolia 0.1 FACW Worphological Adaptations ¹ (Explain) 10m 6. Tephroseris atropurpurea 0.1 <td></td> <td>Dicea mariana</td> <td>7</td> <td></td> <td></td> <td></td>		Dicea mariana	7					
Picea glauca 5		Potulo alandulosa						
5. Vaccinium uliginosum 6. Empetrum nigrum 7. Ledum decumbens 8. Salix pulchra 9. Vaccinium vitis-idaea 10. Vaccinium oxycoccos 10. Vaccinium oxycoccos 10. Carex bigelowii 11. Carex bigelowii 21. Carex bigelowii 22. Equisetum arvense 3. Rubus chamaemorus 4. Petasites frigidus 4. Petasites frigidus 5. FAC 1. Total Cover: 3. Rubus chamaemorus 4. Petasites frigidus 5. FAC 1. Carex bigelowii 6. Tephroseris atropurpurea 1. Carex bigelowii 1. Carex bigelowii 2. Equisetum Bryophytes 3. Rubus chamaemorus 4. Petasites frigidus 5. FAC 6. Tephroseris atropurpurea 6. Tephroseris atropurpurea 7. Column Totals: 99.2 (A) 274.5 (B) Prevalence Index = B/A = 2.767 Hydrophytic Vegetation Indicators: W 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. 4. Petasites frigidus 5. FAC 6. Tephroseris atropurpurea 6. Tephroseris atropurpurea 7. Salix pulchra 5. FAC 6. FAC 6. FAC 6. FAC 7. Salix pulchra 5. FAC 6. FAC 6. FAC 7. Salix pulchra 5. FAC 6. FAC 6. FAC 7. Salix pulchra 6. FAC 8. Column Totals: 99.2 (A) 274.5 (B) Prevalence Index = B/A = 2.767 Hydrophytic Vegetation Indicators: 8. FAC 9. Provide supporting data in Remarks or on a separate sheet) 11.02		Dioca glauca	_					
6. Empetrum nigrum 7. Ledum decumbens 8. Salix pulchra 9. Vaccinium vitis-idaea 10. Vaccinium oxycoccos 10. Vaccinium oxycoccos 10. Carex bigelowii 11. Carex bigelowii 12. Equisetum arvense 13. Rubus chamaemorus 14. Petasites frigidus 15. Arctagrostis latifolia 16. Tephroseris atropurpurea 17. Ledum decumbens 18. Salix pulchra 19. Vaccinium oxycoccos 10.1 □ OBL 11. OBL 11. Carex bigelowii 15. ✓ FAC 10. Vaccinium oxycoccos 11.02 15. ✓ FAC 11.02 16. Tephroseris atropurpurea 10. ✓ FAC 11.02 11.02 12. Equisetum arvense 10. ✓ FAC 12. Equisetum arvense 10. ✓ FAC 13. Rubus chamaemorus 14. Petasites frigidus 15. Arctagrostis latifolia 16. Tephroseris atropurpurea 17. □ Ol. □ FAC 18. Vadrophytic Vegetation Indicators: 11.02 12. FAC 12. Prevalence Index = B/A = 2.767 11.02 12. Prevalence Index = B/A = 2.767 12. Arctagrostis Indicators: 11.02 12. Prevalence Index = B/A = 2.767 11.02 12. Prevalence Index = B/A = 2.767 11.02 12. Ominance Test is > 50% 12. Prevalence Index = B/A = 2.767 11.02 12. Prevalence Index = B/A = 2.767 12. Ominance Test is > 50% 12. Prevalence Index = B/A = 2.767 11.02 12. Arctagrostis Indicators: 11.02 12. Prevalence Index = B/A = 2.767 11.02 12. Arctagrostis Indicators: 11.02 12. Prevalence Index = B/A = 2.767 11.02 12. Arctagrostis Indicators: 11.02 11	-	Vaccinium uliainacum			FAC	Column Totals: 99.2 (A) 274.5 (B)		
7. Ledum decumbens Salix pulchra Salix Pervalence Index = B/A = 2.767 Hydrophytic Vegetation Indicators: Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Salix pulchra Salix pulchra Salix Prevalence Index = B/A = 2.767 Mydrophytic Vegetation Indicators: Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Salix pulchra Salix pulchra Salix Pervalence Index = B/A = 2.767 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Salix pulchra	6.	Empatrum niarum			FAC			
9. Vaccinium vitis-idaea 10. Vaccinium oxycoccos Total Cover: 55.1 Herb Stratum 10. Carex bigelowii 11. Carex bigelowii 12. Equisetum arvense 13. □ FAC 14. Petasites frigidus 15. Arctagrostis latifolia 16. Tephroseris atropurpurea 17. □ 18. Oxide Supporting data in Remarks or on a separate sheet) 18. FAC 19. Dominance Test is > 50% 10. OBL 11.02 11.02 11.02 12. Morphological Adaptations 1 (Provide supporting data in Remarks or on a separate sheet) 10. FAC 11.02 12. FAC 12. FAC 13. FAC 14. Problematic Hydrophytic Vegetation 1 (Explain) 15. FAC 16. FACW 17. FACW 18. FACW 19. Size (radius, or length x width) 10. Morphological Adaptations 1 (Provide supporting data in Remarks or on a separate sheet) 10. FACW 10. FACW 11.02 11.02 12. FACW 13. FACW 14. FACW 15. FACW 15. FACW 15. FACW 16. FACW 16. FACW 17. FACW 18. FACW 19. FACW 19. FACW 19. Size (radius, or length x width) 10. Morphological Adaptations 1 (Provide supporting data in Remarks or on a separate sheet) 10. FACW 10. FACW 11.02 11.02 12. FACW 13. FACW 14. FACW 15. FACW 15. FACW 16. FACW 16. FACW 17. FACW 19. FACW 19. Size (radius, or length x width) 10. Morphological Adaptations 1 (Provide supporting data in Remarks or on a separate sheet) 10. FACW 10. FACW 11.02 10. FACW 11.02 11.02 11.02 12. FACW 13. FACW 14. FACW 15. FACW 15. FACW 15. FACW 16. FACW 17. FACW 18. FACW 19. Size (radius, or length x width) 10. Morphological Adaptations 1 (Provide supporting data in Remarks or on a separate sheet) 10. FACW	7.				FACW	Prevalence Index = B/A = 2.767		
Total Cover: 55.1 Herb Stratum 50% of Total Cover: 27.55 20% of Total Cover: 11.02 1. Carex bigelowii 15 FAC 2. Equisetum arvense 10 Vaccinium oxycose 11.02 3. Rubus chamaemorus 3 FACW 4. Petasites frigidus 1 FACW 5. Arctagrostis latifolia 0.1 FACW 6. Tephroseris atropurpurea 0.1 0	8.	Salix pulchra	3		FACW	Hydrophytic Vegetation Indicators:		
Total Cover: 55.1 Herb Stratum 50% of Total Cover: 27.55 20% of Total Cover: 11.02 Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 1. Carex bigelowii 15 ✓ FAC Problematic Hydrophytic Vegetation ¹ (Explain) 2. Equisetum arvense 10 ✓ FAC ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 3. Rubus chamaemorus 1 FACW FACW Plot size (radius, or length x width) 10m 5. Arctagrostis latifolia 0.1 FACW Plot size (radius, or length x width) 10m 6. Tephroseris atropurpurea 0.1 FAC (Where applicable) 7. 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 6. Tephroseris atropurpurea 0.1 FAC Where applicable) % Bare Ground % Bare Ground	9.	Vaccinium vitis-idaea	3		FAC	✓ Dominance Test is > 50%		
Herb Stratum 50% of Total Cover: 27.55 20% of Total Cover: 11.02 Hot photogram Adaptations (Provide supporting data in Remarks or on a separate sheet) 1. Carex bigelowii 15 ✓ FAC Problematic Hydrophytic Vegetation ¹ (Explain) 2. Equisetum arvense 10 ✓ FAC Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 3. Rubus chamaemorus 3 FACW FACW 4. Petasites frigidus 1 FACW 5. Arctagrostis latifolia 0.1 FACW 6. Tephroseris atropurpurea 0.1 FAC 7	10.	Vaccinium oxycoccos	0.1		OBL	✓ Prevalence Index is ≤3.0		
2. Equisetum arvense 3. Rubus chamaemorus 3. Petasites frigidus 4. Petasites frigidus 5. Arctagrostis latifolia 6. Tephroseris atropurpurea 7. □ 0 1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. FACW FACW FACW FACW FACW FACW FACW FAC	Herb		:11.02	Remarks or on a separate sheet)				
3. Rubus chamaemorus 3. Petasites frigidus 4. Petasites frigidus 5. Arctagrostis latifolia 6. Tephroseris atropurpurea 7. 0 0 1 FACW FACW FACW FACW FACW FACW FACW FACW	1.	Carex bigelowii	15	✓	FAC	Problematic Hydrophytic Vegetation (Explain)		
4. Petasites frigidus 5. Arctagrostis latifolia 6. Tephroseris atropurpurea 7. 0 0 FACW FACW FACW FACW FACW FACW FACW FACW	2.	Equisetum arvense	10	✓	FAC			
5. Arctagrostis latifolia 6. Tephroseris atropurpurea 7. 0 0 Plot size (radius, or length x width) FACW FAC (Where applicable) % Bare Ground 8 Bare Ground 9 Cover of Wetland Bryophytes (Where applicable) % Bare Ground 3	3.	Rubus chamaemorus	3		FACW	be present, unless disturbed or problematic.		
5. Arctagrostis latifolia 0.1 FACW % Cover of Wetland Bryophytes (Where applicable) 7. 0 Bare Ground 3	4.					Plot size (radius, or length x width) 10m		
6. Tephroseris atropurpurea 7						% Cover of Wetland Bryophytes		
	Ų .				FAC			
1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								
						Total Cover of Bryophytes 90		
10. Hydrophytic	10.							
Total Cover: 29.2 Vegetation 50% of Total Cover: 14.6 20% of Total Cover: 5.84 Present? Yes • No •				of Total Cover:	5.84	Present? Yes No		
Remarks: 1% spiste, trace pedicularis, arcrub, andpol. 5% lichen cover.	_				3.07	I		

US Army Corps of Engineers Alaska Version 2.0

SOIL Sampling Point: SW13_T148_08

Profile Descript	tion: (Describe to	the depth ne	eded to docume	ent the indicator or co	nfirm the abs	sence of indica	ators)		
Depth		Matrix		Rec	dox Featu				
(inches)	Color (mo			Color (moist)	<u>%</u>	Type ¹	_Loc_ ²	Texture	Remarks
0-6	5YR	2.5/1	100		- ——			fibric organics	
6-10	10YR		100					hemic organics	
10-17	5Y	3/1	100					Sandy Clay Loam	
					-				
	-				-				
¹Type: C=Co	ncentration. D	=Depletion.	RM=Reduced	I Matrix ² Location	n: PL=Pore	e Lining. RC	=Root Chai	nnel. M=Matrix	
Hydric Soil I	Indicators:			Indicators for Pr	oblematic	: Hydric So	oils:		
	r Histel (A1)		[Alaska Color Ch		4		Alaska Gleyed Without Hu	e 5Y or Redder
✓ Histic Epip	pedon (A2)		[Alaska Alpine s	wales (TA5	5)		Underlying Layer	
Hydrogen	Sulfide (A4)		L	Alaska Redox V	Nith 2.5Y H	lue	Ш	Other (Explain in Remarks	;)
	k Surface (A12)		3 One indicator of	hydronhyt	ic vegetatio	n one nrim	nary indicator of wetland hy	dealagy
	eyed (A13)			and an appropriat					rurology,
☐ Alaska Re	` ,			4 Give details of co	olor change	e in Remark	S		
	eyed Pores (A1								
Restrictive Lay	,								
	ive layer (froze	n)						Hydric Soil Present?	Yes • No O
Depth (incl Remarks:	hes): 20								
6-17in - 30% s									
HYDROLO	GY								
Wetland Hyd									ators (two or more are required)
	ators (any one	is sufficient))						ned Leaves (B9)
	Vater (A1)			Inundation V		_		_	atterns (B10)
✓ Fligh Wat	er Table (A2)			Sparsely Veg Marl Deposits		icave Surfac	e (B8)		nizospheres along Living Roots (C3) Reduced Iron (C4)
Water Ma	. ,			Hydrogen Su	. ,	(C1)		Salt Deposit	` '
	t Deposits (B2)			Dry-Season V					Stressed Plants (D1)
	osits (B3)			Other (Explai					Position (D2)
	or Crust (B4)					,		Shallow Aqu	` '
☐ Iron Depo	osits (B5)							Microtopogi	raphic Relief (D4)
Surface S	Soil Cracks (B6)	l						✓ FAC-neutral	Test (D5)
Field Observa	ations:	_	_						
Surface Wate	er Present?		No ●	Depth (inche	:s):				
Water Table F	Present?	Yes 🕑	No 🔾	Depth (inche	es): 11		Wetlan	nd Hydrology Present	t? Yes • No O
Saturation Pro (includes capi		Yes •	No O	Depth (inche	:s): 4				
Describe Recor	rded Data (stre	am gauge,	monitor well,	aerial photos, prev	vious inspe	ction) if ava	ilable:		
Demarks:									
Remarks:									
Remarks:									
Remarks:									

U.S. Army Corps of Engineers Alaska Version 2.0