	DOCKET NO. CP17000	Doc No: USAKE-PT-SRREG-00-
	RESOURCE REPORT NO. 2	000006-000
Alaska LNG	APPENDIX G	April 14, 2017
PROJECT	Part 19 of 19	REVISION: 0
	Public	

Part 19 of 19 of Appendix G of Resource Report No. 2

Control of the Contro							er to the real parties and the	The second of th
SOIL	STEERS THE	F. P. L. 1936		eature II		NUMBER OF STREET	SHOETH ME	Soil Pit Required (Y/N)
SOIL PROFILI	E DESCRIPTION: (De	escribe		d to docu	ıment the	indicator or co	nfirm the absence	of indicators.)
Depth	Matrix		Redox Features	1	- 1	1. 2		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Notes
Oe/A 0-3	10YR -11	2	.0.2/		10	-	Mucky Fine In	
Brul 3-15	104R 3/2	97	104R 3/6	3	(01		Mucky Sitt la	
Bt 15-24	545/2	90	104R4/4	10	Con	met RC	Clay	Dense Clay
		ř		-	-			0
			2 12 24	-				
¹Type: C=Con	centration, D=Depleti	on RN	#=Reduced Matrix C	S=Cove	red or Co	nated Sand Gra	ins ² l ocation	PL=Pore Lining, M=Matrix.
HYDRIC SOIL	THE RESERVE TO SHARE THE PARTY OF THE PARTY	District Control	- Neddeed Watrix, e	1800	The state of the s	Jacca Garia Gre		OR PROBLEMATIC HYDRIC SOILS
Histosol or His	THE RESERVE TO SERVE THE RESERVE THE RESER	300	Alaska Gleyed	(Δ13)	N	NA SPANIE	Shartahan Straff	nange (TA4) ⁴
Histic Epipedo		-	Alaska Redox			inal	Alaska Alpine S	Contract of the contract of th
The same of the sa	A	-	Alaska Gleyed				Alaska Redox w	
Black Histic (A	. /	-	Alaska Gleyed	roles (/ (0) <u>/</u>			vithout 5Y Hue or Redder Underlying
Hydrogen Sulfi	ide (A4)						Layer_ /	
Thick Dark Sur		-					Other (Explain i	70 300
One indicator disturbed or pr		ition, o	ne primary indicator	of wetla	nd hydrol	ogy, and an ap	propriate landscap	pe position must be present unless
	f color change in Note	es.	-				- 12	idensity and a second
Restrictive Lay	er (if present): Type:	- 3		Depth (in	ches):	Clay		
Hydric Soil Pr	resent (Y/N):							
Notes:	1 1817 - 2	di	tran a d	//				-
Posi	true a a	Of	4	′′				
100	11/2/201							4
HYDROLOGY	PRIMARY INDICATO	DRS (a	ny one indicator is s	ufficient))	SECONDARY	INDICATORS (2	or more required)
Surface Water	(A1) / Yes	Sui	face Soil Cracks (B6	5)_ <i>N</i>		Water-stained Leaves (B9)	N	Stunted or Stressed Plants (D1)
High Water Ta	ble (A2) <u> </u>	Inu (B7	ndation Visible on A	erial Ima		Drainage Patte	Geomorphic Position (D2)	
Saturation (A3)	/ tes	Spa	arsely Vegetated ncave Surface (B8)	N		Oxidized Rhizospheres along Living Roots (C3) Shallow Aquitard (D3)		
Water Marks (E	31)		rl Deposits (B15)	$^{\prime\prime}$		Presence of Reduced Microtopographic Alice (C4) Relief (D4)		
Sediment Depo	osits (B2)		drogen Sulfide or (C1)			Salt Deposits (C5) FAC-Neutral Test (D5)		
Drift Deposits (B3)		-Season ter Table (C2)	/		Notes:		
Algal Mat or Cr	rust (B4)/	Oth	ner (Explain in Notes)):				
Iron Deposits (B5)							
Ton Doposits (33000 53000 2	O IFA	All the transfer of the	No. of Contract		ELECTRIC STREET		
Surface Water	Present (Y/N): \/	-	Depth (in): 3	25	11	plant	AND SOURCE OF THE STREET, STRE	A STATE OF THE PARTY OF THE PAR
Water Table Pr	-		Depth (in): /2	,	W		ogy Present (Y/N)	:
Saturation Pres	sent (Y/N):		- 1		EC	48		<i>" " " " " " " " " "</i>
(includes capill	ary fringe) /		Depth (in):					74 0.7
Notes:								
	die C							

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, A	/I= Matrix
Forested-Evergreen-Needle-leaved	Scrub Shrub-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥1	20 Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M):/	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse 80%) Very High Density (80-100%)	(0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): Peripheral Cover >75% Scattere	100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant	species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none)	One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): Open Small Scattered Patches	No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Continuous Cover /
Dead Woody Material (P): Low Abundance Abundant (>50% of surface)	(0-25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large /High (small groupings, diverse and interspers	patches, concentric rings) Moderate (broken irregular rings) ed)
HGM Class (P): Slope X Flat 3	Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	
Soil Factors (P): Soil Lacking	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey K
HYDROLOGIC VARIABLES	CENTRAL PRODUCTION OF THE PROPERTY OF THE PROP
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial In	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
mice intermittent outlet i cicimiai ii	nlet/Perennial Outlet
	onally Flooded, Temporarily Flooded, SaturatedX
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S	onally Flooded, Temporarily Flooded, SaturatedX
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, Sevidence of Sedimentation (P): No Eviden Created	onally Flooded, Temporarily Flooded, Saturated Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, Sevidence of Sedimentation (P): No Eviden Created	conally Flooded, Temporarily Flooded, Saturated
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, Sevidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable Basin Topographic Gradient (M): Low	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland of Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland of Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate Only Connected Above Connected	Semiperm. Flooded
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate Only Connected Above Connected Wetland Land Use: High Intensity (i.e., a	Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Ce Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) verbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No O Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water C Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate Only Connected Above Connected Wetland Land Use: High Intensity (i.e., a) Watershed Land Use: 0-5% Rural	Semiperm. Flooded

Crew Chief QA/QC check:

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Fe	atur	e ID: WOOT 1008 Field Target: 89 Date: 5.24 W
Fo	r all	items not checked, please provide detailed explanation in the notes section of data form.
	1.	Site Description
		Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
	2.	Vegetation
		At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
	3.	Soil
		Soil profile is complete? Appropriate hydric soil indicators are marked?
	4.	Hydrology
		Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
	5.	Functions and Values
		Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
	6.	Field Logbook
		Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
	7.	Maps
		Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

SITE DESCRIPTION			Mirror 87	4	A CASSAI		
Survey Type: Centerline X Acces	ss Road (explain)	Other (expla	ain)	Field Targ	et: <u>180</u>	Map #: 123 Map Date: 5- 28-/	
Date: 5-24-16	Project Name: Alask	a LNG			Feature Id:	W106T1009	
Investigators: Jessic &	vestigators: Jessic Brownlee, Kel					Team No.: 1/106	
State: Alaska	Region: Alaska		Milepost:	1			
Latitude: 610 191 53.8	876" N	Longitude	150° 5	81 55.	1379 W	Datum: WGS84	
Logbook No.:	Logbook Page No.:	7	Picture No.:	P-WIC	COTIO	09_001 thn 004	
SITE PARAMETERS	州州市中央部门	作物的表現	和 2000年			治學學學學學學	
Subregion: Cak talet Basi	A		Landform (hill	slope, terrac	e, hummock	s, etc.): terrace	
Slope (%): 0-3			Local relief (co	oncave, con	vex, nóne):	Flat	
Pre-mapped Alaska LNG/NWI classifica	ition: U		Evidence of V	Vildlife Use:	MIR	dropping	
Are climatic/hydrologic conditions on the Yes No (if no expl		of year?	Are "No Yes/	rmal Circun	nstances" pre	sent: 1 1 // Oplain in Notes.)	
Are Vegetation, Soil, or Hyd	drology Significant	ly Disturbed?	NoK	_(If yes, exp	olain in Notes		
Are Vegetation, Soil, or Hyd	drology Naturally P	Problematic?	No_ <u> </u>	_ (If yes, ex	olain in Notes	i.)	
SUMMARY OF FINDINGS		经验证	101.00		No. of		
Hydrophytic Vegetation Present? Yes_	No	Is	the Sampled A	rea within	a Wetland?	Yes NoX	
Hydric Soil Present? Yes	NoX	We	Wetland Type:				
Wetland Hydrology Present? Yes_	No	— Ala	aska Vegetatior	n Classificati	on (Viereck):	102,1182	
Notes and Site Sketch: Please include to corridor. Tall majore mixed force. Understory is thick. Soil is dry with a led down in profile. No signs of hydre. Ory forest closer to LZ the with sediment.	of piegla with horse to well develope logg forest and observed plane	ocent the	New w/	Lots of and dea Concen	fall a down	lder. se of trees spick up lower	
LZ	observed	114	00)				

10.

W106 T1009

/EGETATION (use scientific names of plants)			
ree Stratum (Plot sizes:	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 5 (ACM)
· Alaus tencifolia 10-25'	35	Y	FAC	Total Number of Dominant Species Across All Strata: (1)
Picea gloves 60'	15	Y	FACU	% Dominant Species that are OBL, FACW, or FAC: <u>\$3</u> (A.
Betula Nevalastana 35'	15	Y	FAC	
				Prevalence Index worksheet:
Total Cover			10	Total % Cover of: Multiply by:
50% of total cover	<u>- 52,5</u> 20	% of total cov	-	OBL species: X 1 =
apling/Shrub Stratum(7_6)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: X 2 = (1) FAC species
Ribes triste	5	Y	FAC	UPL species X 5 = O
Rosa acicularis	T		FACU	Column Totals: 14 Z (A) 455 (B)
				PI=B/A=
	4			
				ž.
1				
Total Cover:	5			
50% of total cover:	2.5 20	% of total cov	er:	
GETATION (use scientific names of plants			31/4/5/1919	AND
erb Stratum (2)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
Athyrium Wclasorum	30	Y	FAC	Prevalence Index is ≤ 3.0
Cymnocarpium dyopteris	5		FAED	Morphological Adaptations ¹ (Provide supporting data in Notes)
Faulsof. M Arvenso	20	Y	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
Streptopus amplexiflorum	4		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
Calamagnostis connedenses	8		FAC	disturbed or problematic.
Heracleum Maximum	T		FACU	ELLAND MARKETAN DESIGNATION OF STREET
Mertensia paniculata	7		FACU	% Bare Ground
Dovoteris expanse	×5		FACU	% Cover of Wetland Bryophytes

**Cover of Wetland Bryophytes

Total Cover: 72

50% of total cover: 36 20% of total cover: 44

**Cover of Wetland Bryophytes

Total Cover of Bryophytes

Whydrophytic Vegetation Present (Y/N):

Notes: (If observed, list morphological adaptations below):

cou	of the state of th	eNnap	5.99.10	noun-		ula por min	S D ALL DE STORY	Soil Pit Required (Y/N)
SOIL.	STEED FOR THE STEED	CHE PARTIES	DateFeat	-			- Constitution	
SOIL PROFILE	-	escribe	to the depth needed to	docu	iment the	indicator or co	ontirm the absence	of indicators.)
Depth	Matrix	Γ.,	Redox Features		_ 1	1. 2	-	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Notes
01 0-2								Sand lange mined throughout
A 2-11	10 YR 3/1	100					Sitt loam	high in organic matter
Bul 11-19	1MYR 4/2	75	104124/4	10	Con	matrix	Silt loam	0 0
	104R 3/1	15						9
¹Type: C=Con	centration, D=Deplet	ion, RM	1=Reduced Matrix, CS=	Cove	ered or Co	ated Sand Gr	La contraction de la contracti	PL=Pore Lining, M=Matrix.
HYDRIC SOIL	INDICATORS		E-MINISTER THEFT	250	BALLY PR	A Property of	INDICATORS F	OR PROBLEMATIC HYDRIC SOILS
Histosol or Hist	tel (A1)/		Alaska Gleyed (A	(13) _	N		Alaska Color Cl	hange (TA4) ⁴
Histic Epipedor	n (A2)		Alaska Redox (A	14) _	N		Alaska Alpine S	Swales (TA5)/
Black Histic (A			Alaska Gleyed Po	_	-		Alaska Redox v	vith 2.5Y Hue
Hydrogen Sulfide (A4)								without 5Y Hue or Redder Underlying
							Layer_ N	
	face (A12)/\/	_					Other (Explain i	
One indicator disturbed or pre	of hydrophytic vegeta	ation, o	ne primary indicator of	wetla	nd hydrolo	igy, and an ap	opropriate landsca	pe position must be present unless
	f color change in Note							
Restrictive Lay	er (if present): Type:	/\/	Der	oth (ir	nches):			
Hydric Soil Pr	resent (Y/N):							
						-		
Notes:								
INDOOLOOV		000	2 11 4 2 6			FOOMBARY	INDICATORS (O	
HYDROLOGY	PRIMARY INDICAT	ORS (E	any one indicator is suff	icient	ALC: NO.	A STATE OF THE PARTY OF T	INDICATORS (2	The state of the s
Surface Water	(A1)	Sui	rface Soil Cracks (B6) _	N		Vater-stained .eaves (B9) _		Stunted or Stressed Plants (D1)
	/	Inu	dation Visible on Aerial Imagery			Drainage Patterns (B10)		
High Water Tal	ble (A2)/	(B7	Visible of Acrial Imagery			Orainage Patte	erns (B10) <i>N</i>	Geomorphic Position (D2)
Saturation (A3)) //	Spa	rsely Vegetated				ospheres along	Shallow Aquitard (D3)~
		Co	ncave Surface (B8)			iving Roots (
Water Marks (F	31)	Ma	rl Deposits (B15)			Presence of Reduced Iron (C4)		Microtopographic Relief (D4)
	-	Hv	Irogen Sulfide					/
Sediment Depo	osits (B2)/V		or (C1)		,	Salt Deposits	(C5)	FAC-Neutral Test (D5)
Drift Deposits ((B3) A	Dry	/-Season /		1	Notes:		
Britt Deposits (Wa	iter Table (C2)/	_				
Algal Mat or Cr	rust (B4)/	Oth	ner (Explain in Notes):					
		+		_				
Iron Deposits (B5)							
一 别是被称"	SAN THE COUNTY	112 14	Mary Septiment	17/25/		Market (Electron	The second	
Surface Water	Present (Y/N): N		Depth (in):					. 1
Water Table Pr	resent (Y/N):		Depth (in):		We	tland Hydrol	ogy Present (Y/N):
	~							
Saturation Pres	/	,	Depth (in):		EC			
(includes capill	ary fringe)			_	100			
Notes:			4		6-			

AQUATIC SITE ASSESSMENT DATA FORM

NEGETATION VARIABLES POR TOUR ME	= Matrix
Forested-Evergreen-Needle-leaved	cking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥1m	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0,5-2m) Short
Number of Wetland Types (M):	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (80%) Very High Density (80-100%)_	0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): Peripheral Cover >75% Scattered	100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant s	pecies) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none)	One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): Open Small Scattered Patches	No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance (CA) Abundant (>50% of surface)	0-25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large p High (small groupings, diverse and intersperse	oatches, concentric rings) Moderate (broken irregular rings)d)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
COU VARIABILES	
SOIL VARIABLES Soil Factors (P): Soil Lacking	Histosol:Fibric Histosol:Hemic Histosol: Sapric
Mineral: Gravelly Mineral: Sandy	Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	Management Artistance in a series of the second and a series of the second and a se
THE DITOLOGIC TRANSPORT	
Inlet/Outlet Class (P): No Inlet/Outlet	No Inlet/Intermittent OutletNo Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
Inlet/Outlet Class (P): No Inlet/OutletOutlet Intermittent Inlet/Intermittent Outlet Perennial Inl	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet enally Flooded, Temporarily Flooded, Saturated
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent (Inlet/Intermittent Outlet Perennial Inl Wetland Water Regime (P): Drier: Seaso Wet: Perm. Flooded, Intermittently Exposed, Sc Evidence of Sedimentation (P): No Evidence	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet enally Flooded, Temporarily Flooded, Saturated
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Class (P): Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Wetland Water Regime (P): Drier: Seaso Wet: Perm. Flooded, Intermittently Exposed, Science of Sedimentation (P): No Evidence Created	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet enably Flooded, Temporarily Flooded, Saturated emiperm. Flooded
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Class (P): Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Class (P): Drier: Seaso Wet: Perm. Flooded, Intermittently Exposed, Science of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Overbank Interval >5 yrs Outlet Outlet Class (P): No Inlet/Outlet Perennial Inlet/Intermittent Class (P): No Overbank Flooding (P): No Overbank Inlet/Outlet Inlet/Outlet Outlet Perennial Inlet/Intermittent Class (P): No Overbank Flooding (No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet Perennial Inlet/No Outlet Perenni
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Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Class (P): Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Class (P): Drier: Seaso Wet: Perm. Flooded, Intermittently Exposed, Science of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Overbank Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Circ	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No O
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Inlet/Outlet Class (P): No Inlet/Outlet Outlet	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet Perennial Inlet/No Outlet Perennial et/Perennial et/Perennial Outlet Perennial et/Perennial et/Perennial Outlet Perennial et/Perennial et/Pere
Inlet/Outlet Class (P): No Inlet/Outlet Outlet	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial et/Perennial Outlet Perennial Inlet/No Outlet Perennial et/Perennial et/Perennial Outlet Perennial et/Perennial et/Perennial Outlet Perennial et/Perennial et/Pere
Inlet/Outlet Class (P): No Inlet/Outlet Outlet	No Inlet/Intermittent Outlet
Inlet/Outlet Class (P): No Inlet/Outlet Outlet	No Inlet/Intermittent Outlet
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Class (P): Intermittent Inlet/Intermittent Class (P): Drier: Seaso Wet: Perm. Flooded, Intermittently Exposed, Scarted Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Overbark Flooding	No Inlet/Intermittent Outlet

Crew Chief QA/QC check:

Characteristics
Crew Chief QA/QC check:

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featur	re ID: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present?
	Cover calculations are complete and correct?
	All dominant species have been determined and recorded per strata? Indicator status is correct for each species?
	Dominance Test and Prevalence Index have been completed?
3	Soil
0.	
- 19	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

Four photos were taken for each Wetland Determination Data Form (2 vegetation soil pit, 1 soil plug)? Two photos were taken for each Observation Point (vegetation/site overview)?	n, 1
A STATE OF THE STA	

8. Photos

X naten	Voller	X Kaller	1 Vale	er 5-2-	7-10
Wetland Scientist (print)		Signature / Date			
V			U	g	
V		V	η,	# V(1/	11 _

SITE DESCRIPTION		u. Lake	CONTRACTOR OF THE PARTY OF THE	Ola Se Valle Sale	A Control of the Cont	
Survey Type: Centerline Acces				Field Target: 181	Map #: 122 Map Date: 5:23./6	
Date: 5-24-10	Project Name: Alask	a LNG		Feature Id:	WIGG TIOTO	
Investigators: Jessie Bro	molee, Ka	ben 1	10000 Team No.: WIO6			
State: Alaska	Region: Alaska	7	Milepost:	147.6e		
Latitude: 61° ZO1 17,951	" <i>N</i>	Longitude	150.57	"23,54"W	Datum: WGS84	
Logbook No.:	Logbook Page No.:	7	Picture No.:	P-W106 T1011	0-001 thru-004	
SITE PARAMETERS	经验的		TI MILE			
Subregion: (OGKI let Bo	Niz		Landform (hill	Islope, terrace, hummock	s, etc.): Cowland	
Slope (%): () - 3				oncave, convex, none):		
Pre-mapped Alaska LNG/NWI classifica	tion: PF01/4B 10	2,1182		Vildlife Use: Bear		
Are climatic/hydrologic conditions on the site typical for this time of year? Yes No ('i' no explain in Notes) Are "Normal Circumstances" present: Yes No (If no, explain in Notes.)						
Are Vegetation, Soil, or Hyd	Irology Significant	tly Disturbed?	No_X	_(If yes, explain in Notes		
Are Vegetation, Soil, or Hyd	Irology Naturally I	Problematic?	Nok	_(If yes, explain in Notes	s.)	
SUMMARY OF FINDINGS	West of State	建加坡的	WELL WIT	Cath Excellen	REPORTED THE STATE	
Hydrophytic Vegetation Present? Yes_	No	ls	the Sampled A	Area within a Wetland?	Yes No	
Hydric Soil Present? Yes	X No	w	Wetland Type: PFO1/4/3			
Wetland Hydrology Present? Yes_	No	Ala	Alaska Vegetation Classification (Viereck): / C3, ///3 2			
Notes and Site Sketch: Please include D	Directional & North Arrov	v, Centerline,	Length of featu	re, Distances from Cente	rline, Photo Locations, and Survey	
Mature tall Mixed understory & Best Bone ground with table a -8". Area mapped corner Creek	Nes ~ 6-10 the standing	water	Dense is seas	Hered about	possi/413	

Transaction of the second seco	Marie States	THE REAL PROPERTY.	DO ADMINISTRATOR	and the last of the Authority on the Market and the same of the sa
VEGETATION (use scientific names of plant	ts)			
Tree Stratum (Plot sizes: /oc)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:(A)
1. Betila Nepaloskana	15	Y	FAC	Total Number of Dominant Species Across All Strata: (B)
2. Picea glavea	NE 8	Y	FACO	% Dominant Species that are OBL, FACW, or FAC:(A/B)
4.		-		
	0.7			Prevalence Index worksheet:
Total Cover	11 6	0	41	Total % Cover of: Multiply by:
50% of total cover		% of total cov		OBL species:X1=
Sapling/Shrub Stratum (24)	Absolute % Cover	Dominant Species?	Indicator Status	FACW species: X2 = X2 =
	70 Oover	(Y/N)	Status	FAC species 80 x 3 = 340
1. Samburus race MOSA	7		FACU	FACU species 43 X 4 = 17-2
2. VIburnum edule	1		KACU	UPL species X 5 = Column Totals: 12.3(A) (B)
3. Betula Neonlaskana	20	Y	FAC	PI = B/A = 3-34
4. Alous tentfolia	T		FAC	
5.				
6.				
7.				
8.				
9.				
Total Cover	20			
50% of total cover	:	% of total cove	er:	

Herb Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. Dryopteris expresses 2. Streptopus amplexifolio 3. Equischum Arvense 4. Commocarpium dryopteris 5. Trientalis Expres	30- 15 3 30 2	Y	FACU FACU FACU FACU	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
5. Forh to	T			% Bare Ground
Sanguisorba St. Chamerion augustifolium Calamagiasas canadenste	- <i>I</i>		FACU	% Bale Glound % Cover of Wetland Bryophytes Total Cover of Bryophytes
0. Total Cover:	80	Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):		

			5.23 16	A STATE OF THE PARTY OF THE PAR				/ The state of the		
SOIL	Part of the state of	The same	Date Feature		The Party		A POST OF THE PARTY			
SOIL PROFIL	E DESCRIPTION: (De	escribe	to the depth needed to do	cumer	nt the i	ndicator or	confirm the absenc	e of indicators.)		
Depth	Matrix		Redox Features							
(inches)	Color (moist)	%	Color (moist) %	Ту	pe ¹	Loc ²	Texture	Notes		
0-11	1042 3/1	100						, Oi see Notes		
19	1071			71		x I		with some Mineral		
								Seria About 1111157 V		
					14%			1		
100				1	-1-					
12 V				1		-				
¹ Type: C=Cor	ncentration, D=Depleti	on, RN	1=Reduced Matrix, CS=Co	vered	or Coa	ated Sand C	Grains. ² Location	: PL=Pore Lining, M=Matrix.		
Will be to the second	INDICATORS	9.00156	Settlement Shirts	Bridge.	Sec.	No. of the last		FOR PROBLEMATIC HYDRIC SOILS3		
(C) 44 (S)	stel (A1) X	- P	Alaska Gleyed (A13)	PROPERTY.	$^{\prime}$	practice and a	IN HARMAN	Change (TA4) ⁴ /		
	on (A2)	40	Alaska Redox (A14)		7		Alaska Alpine			
Black Histic (A		1/2	Alaska Gleyed Pores		\ \ \	1	Alaska Redox			
			Alaska Gleyeu Foles	5 (7(1)	<u>, </u>			without 5Y Hue or Redder Underlying		
Hydrogen Sulf	fide (A4)						Layer/			
Thick Dark Su	rface (A12)/	_					Other (Explain	in Notes)		
One indicator disturbed or p		ation, o	ne primary indicator of wet	land h	ydrolo	gy, and an	appropriate landsc	ape position must be present unless		
	of color change in Note	es.								
Restrictive La	yer (if present): Type:	N	Depth	(inche	s):	-				
		-		9						
	resent (Y/N):	-	- 1	-						
Notes: 801/	off extremely	high	in woody debri	3.1	note	her test	pit was	ty in close proximate to		
verify hyp	tric soil wordi	HONS	. It had positive	. XO	(sto	ndr 190	(9")	ty in close proximate to		
C q			1 become test p.	4		U				
			any one indicator is sufficie				Y INDICATORS (2			
Surface Water	(A1) <u>y</u>	Su	rface Soil Cracks (B6)	/	- V	Vater-staine eaves (B9)	d N	Stunted or Stressed Plants (D1)		
High Water Ta	able (A2)	Inu (B7	ndation Visible on Aerial Ir	nagery	У С	Drainage Patterns (B10)		Geomorphic Position (D2)		
Saturation (A3	3)		arsely Vegetated ncave Surface (B8)				izospheres along (C3)	Shallow Aquitard (D3)		
Water Marks (B1)	ъМа	rl Deposits (B15)			resence of ron (C4)	Reduced	Microtopographic Relief (D4)		
Sediment Dep	osits (B2)		drogen Sulfide		S	Salt Deposit	FAC-Neutral Test (D5)			
Drift Deposits (B3) Dry-Season Water Table (C2)/ Notes:										
Algal Mat or Crust (B4) Other (Explain in Notes):										
Iron Deposits	(B5) M Y	4	-							
NA	400000000000000000000000000000000000000		TO SHOW THE PROPERTY	13/12	2000	DESCRIPTION	0.00	WHAT IS NOT BUILDING TO AN		
Surface Water	Present (Y/N):	9.75	Depth (in): 4 3,5"		1					
Water Table P			Depth (in):		We	tland Hydro	ology Present (Y/)	N):		
Saturation Pre			Depth (in):		EC:	EC: 103 PH 5.8				
Notes:	,			-	1	-				
- 3-02-47										
								- 18 THE C .		

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P=Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Persistent Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall)/ Sapling (<5 dbh, <6m tall)/ Short shrub (0.5-2m) Short shrub (0.5-2m) Short shrub (0.5-2m) Short shrub (<0.5m) Tall herb (≥1m) Short herb (<1m) Moss-Lichen Floating Submerged
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches_X_ Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed) X
HGM Class (P): Slope Flat
CON MADIANTES
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Outlet
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed X Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Microrelief of Wetland Surface (P): AbsentPoorly Developed (6in.)Well Developed (6-18in.)Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding _ K
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading 5.8
The state of the s
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable High Gradient (≥2%)
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable High Gradient (≥2%) ★
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable High Gradient (≥2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) X Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable High Gradient (≥2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Unknown
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

		Date: 5-24-16
For	all i	tems not checked, please provide detailed explanation in the notes section of data form.
	1.	Site Description
		Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
	2.	Vegetation
		At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
		Vegetation names are entered legibly for all strata present?
		Cover calculations are complete and correct? All dominant species have been determined and recorded per strata?
		Indicator status is correct for each species?
		Dominance Test and Prevalence Index have been completed?
	3.	Soil
70		Soil profile is complete? Appropriate hydric soil indicators are marked?
	4.	Hydrology
		Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
	5.	Functions and Values
t		Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
	6.	Field Logbook
		Notes have been recorded at each site, including general description, sketch, and
		accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
	7.	Maps
		Metland boundaries have been corrected if necessary?
		Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X Milen	Volvecx	Malen	Volger	5-27-16
Wetland Scientist (print)	Signa	ture / Date		
		U		

X Jessic Brown (coe

Field Crew Chief (print)

Signature / Date

CITE DESCRIPTION		為時間		WAS AS	和自己的	Control Language Control	
Survey Type: Centerline X Acce	ss Road (explain)	Other (expla	nin)	Field Targ	get: <u>170</u>	Map #: <u>13.5</u> Map Date: <u>5.20.</u>	
Date: 5-25-16	Project Name: Alaska	LNG			Feature Id:	WIOGTIOIL	
Investigators: Jessie By	annier Ke	erver	VOLPE	2		Team No.: W \ O G	
State: Alaska	Region: Alaska	(Milepost:	752.5	λ .		
Latitude: 61° 17' 34.26 Z	Latitude: @1° 17' 34.26 22'1 N Longit						
Logbook No.:	Logbook Page No.:	8	Picture No.:	P-WIG	OCTIO	11-001 thru 004	
SITE PARAMETERS		沙 沙沙沙	Mark Street	等级包括	一种种的		
Subregion: Cook in let Ba	sIn		Landform (hill	slope, terra	ce, hummock	s, etc.): Mound	
Slope (%): 5-8			Local relief (c				
Pre-mapped Alaska LNG/NWI classifica	ation: UICZ, 11C	2	Evidence of V	Vildlife Use:	Mosse	droppings	
Are climatic/hydrologic conditions on the Yes No (if no exp		of year?	Are "No	rmal Circui	nstances" pre	sent: V	
Are Vegetation, Soil, or Hy		y Disturbed?			plain in Notes)	
Are Vegetation, Soil, or Hy	drology Naturally Pi	roblematic?	No_X	_ (If yes, ex	plain in Notes	5.)	
SUMMARY OF FINDINGS	SERVICE AND APPLICATION	1984		186 BB			
Hydrophytic Vegetation Present? Yes_	No	ls	the Sampled A	rea within	a Wetland?	YesNoK	
Hydric Soil Present? Yes_	No	_ w	Wetland Type:				
Wetland Hydrology Present? Yes_	No 入	- AI	aska Vegetatior	Classificat	ion (Viereck):	162,1162	
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. on transact from LZ here almost all of forest was wet. This Ft is only First dry spot. Tall mature forest of Pre Cola, Pie Mar and Bet Neo with False hockellowing and Vac Ova. 20 to the NE/E is wet of concave spirisley vegetated depression in spingers and spingers and Standing water							
A P P B	* 4 / 2	(2) 1011-0P	250-1101T00TW	ordery	Worlow - Wolfer		

WETLAND DETERMINATION DATA FORM WIOGTIGHT

1. Fice Mariena 15 Y Facu 2. Bedula Necellackers 10 Y Facu 3. Fice Clare Cover 10 Y Facu 4. Prevalence Index worksheet: Total Cover 15 20% of total cover 7 Sapling/Shrub Stratum (21 Absolute Dominant V/N) I. Mariena Cover 15 Y Facu 10 Y Facu 1				A TOTAL BEAUTY	Managari and Angel a
15 Present Mariema 15 Present Mariema 15 Present Mariema 15 Present Mariema 10 Prevalence Index worksheet: Total Cover 35 Solve of total cover 1 Prevalence Index worksheet: Total Cover 35 Status Feature 12 Prevalence Index worksheet: Total Scover of Multiply by: OBL species: 15 X 2 = 30 FACU species: 15 X 2 = 30 FACU species: 15 X 3 = 148 PACU species 17 PACU species 18 PACU species 18 PACU species 19 PACU spe	Tree Stratum (Plot sizes:/⊙△)		Species?		No. of Dominant Species that are OBL, FACW, or FAC:
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Sapling/Shrub Stratum (21) Absolute Species? Status (YN) FACU Species ST X = 30 FACU Species ST X = 148 FAC				1	Prevalence Index worksheet:
## Cover Species Status		17 %)% of total cov	ver:	
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Total Cover: 64 50% of total cover: 32 20% of total cover: 2.8 EGETATION (use scientific names of plants) erb Stratum (2/1)					1
EGETATION (use scientific names of plants) erb Stratum (21) Absolute % Cover Species? Status (Y/N) Equisetum Sylvaticum 3: Y FACL Morphological Adaptations (Provide supportion Notes) Streptopus amplexifation T FACU Indicators of hydric soil and wetland hydrology must be predicted a grand folial of the provide agrand folial of t		7			
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% Cover Species? Status (Y/N) Fact Gymnocarpium Sylvaficum 3: Y FACT Gymnocarpium dryopteris 3: Y FACT Streptopus amplexifation 1 Cornus canademers Rubus pedatus TACT Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be predicted a grandia folder TACT We Bare Ground	THE RESIDENCE OF THE PROPERTY	W. 1919			
Gymnocarpivm dryopteris 3 Y FACU Notes) Streptopus amplexifolium T FACU Problematic Hydrophytic Vegetation¹ (Explain) Cornus canademers T FACU Indicators of hydric soil and wetland hydrology must be president of the problematic. Rubus pedatus T FACU Problematic. Problematic Hydrophytic Vegetation¹ (Explain) Indicators of hydric soil and wetland hydrology must be president or problematic. Problematic Provide supporting the problematic of hydric soil and wetland hydrology must be president or problematic. Problematic Provide supporting the problematic of hydric soil and wetland hydrology must be president or problematic.					
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Rubus pedatus Prola grandifolia X2 FAC rattle snake archid The disturbed or problematic. A Bare Ground	Equisetum sulvaticum Gymnocarpium dryopteris Streptopus amplexifolium	3.		FACO	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
rattle snoke credid T EAC	Equisation sylvation Cymnocarpium dryopteris Streptopus amplexitation	3.		FACU	Prevalence Index is ≤ 3.0 — Morphological Adaptations¹ (Provide supporting data in Notes)
rattle snake orchid T	Equisation sylvation Gymnocarpium dryopteris Streptopus amplexitation Cornus canadensis	3.		FACU FACU	Prevalence Index is ≤ 3.0 — Morphological Adaptations¹ (Provide supporting data in Notes) — Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
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The state of the s	Equisation sylvaticum Gymnocarpium dryopteris Streptopus amplexitation Cornus canademeis Rubus pedatus pyrola grandi folia	3 7 7		FACU FACU FAC	Prevalence Index is ≤ 3.0 — Morphological Adaptations¹ (Provide supporting data in Notes) — Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlesdisturbed or problematic.
% Cover of Water	Equisation sulvationma. Gymnocarpium dryopteris Otreptopus amplexitation Cornus canadeneis Rubus pedatus pyrola granditalia rattle saske mahid Facisatum Arvense	3 7 7		FACU FACU FAC	Prevalence Index is ≤ 3.0 — Morphological Adaptations¹ (Provide supporting data in Notes) — Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. — % Bare Ground — % Cover of Wetland Bryophytes
Total Cover: Hydrophytic Vegetation Present (Y/N):	Equisatum sylvaticum Gymnocarpium dryopteris Otreptopus amplexifolium Cornus canadeneis Rubus pedatus pyrola grandi folla ratte snoke makid	3 7 7 1		FACU FACU FAC FAC	Prevalence Index is ≤ 3.0 — Morphological Adaptations¹ (Provide supporting data in Notes) — Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. — % Bare Ground — % Cover of Wetland Bryophytes — Total Cover of Bryophytes — % Cover of Water

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Type: C-Concentration, D-Depletion, RM-Reduced Matrix, CS-Covered or Coated Sand Grains. \$\frac{2}{1}\text{catton: PL=Pote Lining, M=Matrix, \$\frac{2}{3}\text{ in LPYDRIC SOIL NDICATORS FOR PROBLEMATIC HYDRIC SOILS}}\$ Histosof or Histel (A1) \(\lambda \) Alaska Gleyed (A13) \(\lambda \) Alaska Color Change (TA4) \(\lambda \) Alaska Redox (A14) \(\lambda \) Alaska Alpine Swales (TA5) \(\lambda \) Histose pipedon (A2) \(\lambda \) Alaska Gleyed Pores (A15) \(\lambda \) Alaska Alpine Swales (TA5) \(\lambda \) Hydrogen Sulfide (A4) \(\lambda \) Alaska Gleyed Pores (A15) \(\lambda \) Alaska Gleyed without 5Y Hue or Redder Underlying Layer. Thick Dark Surface (A12) \(\lambda \) Other (Explain in Notes) Toke indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. Toke details of color change in Notes. Restrictive Layer (if present): Type: \(\lambda \) Depth (inches): \(\lambda \) Hydric Soil Present (Y/N): \(\lambda \) Notes: \(\lambda \) Surface Soil Cracks (B6) \(\lambda \) Lwater stained Leaves (B9) \(\lambda \) Prainage Patterns (B10) \(\lambda \) Geomorphic Position (D2) \(\lambda \) Saturation (A3) \(\lambda \) Sparsely Vegetated Concave Surface (B8) \(\lambda \) Uniting Roots (C3) \(\lambda \) Shallow Aquitard (D3) \(\lambda \) Sediment Deposits (B2) \(\lambda \) Hydrogen Sulfide Odor (C1) \(\lambda \) Present (Y/N): \(\lambda \) Depth (in): \			2008A		1000		1	Any grade lain	4 cong dep only & upper interfa		
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Layer			-	Alaska Gleyed Po	ores (A	(15) <u>/V</u>	-				
One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. **Civice details of color change in Notes. **Restrictive Layer (if present): Type:	Hydrogen Sulfi	ide (A4)/							,without 51 Tide of Reader Officerlying		
disturbed or problematic. **Give details of color change in Notes. **Restrictive Layer (if present): Type:	Thick Dark Sur	rface (A12)						Other (Explain	in Notes)		
Restrictive Layer (if present): Type: Depth (inches):	disturbed or pr	oblematic.		ne primary indicator of	wetlan	d hydrolog	gy, and an	appropriate landsca	pe position must be present unless		
Hydric Soil Present (Y/N): Notes: New Alpha alpha Hydrology PRIMARY INDICATORS (any one indicator is sufficient) Surface Water (A1) Surface Soil Cracks (B6) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Water Marks (B1) Water Marks (B1) Marl Deposits (B15) Drift Deposits (B2) Dry-Season Water Table (C2) Algal Mat or Crust (B4) Other (Explain in Notes): Wetland Hydrology Present (Y/N): Water Table Present (Y/N): Wetland Hydrology Present (Y/N): Saturation Present (Y/N): Wetland Hydrology Present (Y/N): Saturation Present (Y/N): Depth (in): Depth (in): Depth (in): EC: SECONDARY INDICATORS (2 or more required) Stunted or Stressed Plants (D1) Water-stained Leaves (B9) Vater-stained Stunted or Stressed Plants (D1) Sunface Vater-stained Stunted or Stressed Plants (D1) Sedmonthers (B10) Vater-stained Leaves (B9) Vater-stained Stunted or									*		
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Saturation (A3)	Surface Water	(A1)			_W	— L		h /			
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Water Marks (B1) Mari Deposits (B15) Iron (C4) Relief (D4) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) FAC-Neutral Test (D5) Dry-Season Water Table (C2) Notes: Algal Mat or Crust (B4) Other (Explain in Notes): Surface Water Present (Y/N):	Saturation (A3)	(J.				Shallow Aquitard (D3)		
Drift Deposits (B2) Odor (C1) Notes: Dry-Season	Water Marks (I	B1)	Ma	rl Deposits (B15)				Reduced			
Algal Mat or Crust (B4) Other (Explain in Notes): Iron Deposits (B5) Depth (in): Water Table (C2) Other (Explain in Notes): Wetland Hydrology Present (Y/N): Depth (in): Saturation Present (Y/N): Depth (in): Depth (in): Depth (in): Depth (in):	Sediment Depo					s	alt Deposit	FAC-Neutral Test (D5)			
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(includes capillary fringe)	Water Table Pi	resent (Y/N):	/	Depth (in):		Wet	land Hydr	ology Present (Y/N	I):		
Notes:			×	Depth (in):		EC:	EC:				
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AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Persistent Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M):
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%) High Density (60-80%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover26-75% Scattered or Peripheral Cover8/25% Scattered Or Peripheral Cover
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Histosol: Sapric Histosol:
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Pe
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Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Inl
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet
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Inlet/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Indemittent Inlet/Intermittent Outlet Perennial Outlet Perennial Outlet Perennial Outlet Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet
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Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Indemittent Inlet/Intermittent Outlet Perennial Outlet Perennial Outlet Perennial Outlet Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet
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Inlet/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet

Crew Chief QA/QC check:

Justin Browner

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Fea	iture	e ID: 100671011 Field Target: 170 Date: 5.25.16
		items not checked, please provide detailed explanation in the notes section of data form.
		Otto Description
	٦.	Site Description
		Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
	2.	Vegetation
		At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
		 ✓ Vegetation names are entered legibly for all strata present? ✓ Cover calculations are complete and correct? ✓ All dominant species have been determined and recorded per strata? ✓ Indicator status is correct for each species? ✓ Dominance Test and Prevalence Index have been completed?
	3.	Soil
		Soil profile is complete? Appropriate hydric soil indicators are marked?
	4.	Hydrology
		Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
	5.	Functions and Values
		Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
	6.	Field Logbook
		Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
	7.	Maps
		Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

x halen	Volver	x Mal	WX	Volper	5-27-16
Wetland Scientist (print)	- 1	Signature / Date			

pueBrance 5,25.16

SITE DESCRIPTION			TO KEN!	4	
Survey Type: Centerline X Acce	ss Road (explain) Other	(explain)	Field Targ	et: (69	Map #: 135 Map Date: 5-20-16
Date: 5-25-16	Project Name: Alaska LNG	4		Feature Id:	WIOGTIOIZ
Investigators: Jessie B	countee, Kale	in Volper	~		Team No.: \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
State: Alaska	Region: Alaska	Milepost:	752		
Latitude: 610 171 43.	0690" N Long	itude: 151° 03	5' 18,5	5167"W	Datum: WGS84
Logbook No.:	Logbook Page No.:	Picture No.:	P-N	11000 T	1012-001 thr 004
SITE PARAMETERS	在中国中国的基础的			2.0希察告	元则的是"克斯克斯特"。
Subregion: Cook Inlest	Basia	Landform (hil	lslope, terra	ce, hummocks	s, etc.): Lowland
Slope (%): 0-3	1	Local relief (c	oncave, con	vex, none):	Flat
Pre-mapped Alaska LNG/NWI classific	ation:	Evidence of V	Vildlife Use:	won	*
Are climatic/hydrologic conditions on th Yes No (if no exp		? Are "N Yes	ormal Circun	nstances" pre (If no, ex	sent: plain in Notes.)
Are Vegetation, Soil, or Hy	drology Significantly Distu	rbed? No	_(If yes, exp	olain in Notes	
Are Vegetation, Soil 火 _, or Hy	drologyNaturally Problem	atic? No M/	(If yes, ex	plain in Notes	i.)
SUMMARY OF FINDINGS	宝 25年15日6日	地方面是			A CONTRACT TO A SECOND
Hydrophytic Vegetation Present? Yes_	No	Is the Sampled	Area within	a Wetland?	Yes No
Hydric Soil Present? Yes_	No	Wetland Type:	PFOL	4B	
Wetland Hydrology Present? Yes_	No_ Marainal	Alaska Vegetatio	n Classificat	ion (Viereck):	102,1102
Notes and Site Sketch: Please include corridor. Site is very marginal spready concave surfaces changes through site Marginal hydrolog, so Site is mature mix	. Just outside of post of well de dictate well de	sofer standy sofer standy call and ughant rees 70' to	signs ned k dep le g while si ndicators soil inc	alder, to does within	Sight clevations water table.

WETLAND DETERMINATION DATA FORM WOGTION 2

VEGETATION (use scientific names of plants	Absolute	Dominant	Indicator	Dominance Test worksheet:	ASSESSMENT STATE
Tree Stratum (Plot sizes: \(\sqrt{0} \sqrt{0} \)	% Cover	Species?	Status	No. of Dominant Species that a	are OBL, FACW, or FAC: (A
1. Betula negalas Kana	30	7	FAC		cies Across All Strata:(B DBL, FACW, or FAC:(A/E
2. Picea Mariana	5		FACW	% Dominant Species that are C	OBL, FACIV, OF FAC: (A/E
3. Picea alawca	5		FACU	TO THE RESERVE	建筑地区地位的
4. V				Prevalence Index worksheet:	
Total Cover:				Total % Cover of:	Multiply by:
50% of total cover:	<u> </u>	% of total cov	/er: 8	OBL species:	X1=
Sapling/Shrub Stratum (てる)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FAC species 125	x2= <u>10</u> x3= <u>375</u> x4= 114
1. Alnus SP	15	7	FAC		X 5 =O
Bibes triste	1		FAC		(A) <u>SOI</u> (B)
3. Pilea glavea			FACU	PI = B/A = 3.15	
Dologanox horridus	2		FAC		
Menziesia Ferrugine	15	Y	FAC		
5. Vaccinium ovalifolium	10	Y	FAC		
*					
3.					
).					
Total Cover:_	43				

Herb Stratum (ZG)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. Equisetum sylvaticum 2. Calamarostis canadaria 3. Equise tum arvinse 4. Cochus succios	20	7	FAC FAC FAC	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Streptons amplexise 6. Dryopteris expansa. 7. Rubus ledatus	20	1	FACU FACU FACU	disturbed or problematic
8. Trientalis europaea 9. Punola gradiflara 10.	, /· T		FACU	% Cover of Wetland Bryophytes Total Cover of Bryophytes % Cover of Water
Total Cover: 50% of total cover:		% of total cov	er:15.2	Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):



			5.25.14					
SOIL.	图—2000年8月4日		Charles and the second of the second	eature ID_	8.70	學學,不是		
SOIL PROFILE	E DESCRIPTION: (D	Describe	to the depth need	ed to docum	nent the	indicator or co	onfirm the absence	of indicators.)
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
25 . Oi								
2-3.5							Sand) ⁽¹⁾
b 3.5-13		600					Silt loan	
w/ 13-18	104R 3/2	100	-			J. P.	Silt Coarn	
1218-24		45	51R 4/p	35	Con	RC M	Sitt loum	
	*	1						
							2	
The second second	centration, D=Deple	tion, RM	I=Reduced Matrix,	CS=Covere	ed or Co	ated Sand Gr		PL=Pore Lining, M=Matrix.
IYDRIC SOIL	INDICATORS		到3年的特色 医	是為經	S0 38-24		一般を表現を12-999年から1997年	FOR PROBLEMATIC HYDRIC SOILS
listosol or His	tel (A1)		Alaska Gleye		N	-	Alaska Color Cl	
listic Epipedo	n (A2)	7/12	Alaska Redo			1	Alaska Alpine S	
Black Histic (A	3)	. 770	Alaska Gleye	ed Pores (A	15)		Alaska Redox v	
lydrogen Sulfi	ide (A4)/						Alaska Gleyed	without 5Y Hue or Redder Underlying
	rface (A12)	/	- 1				Other (Explain	in Notes) 🕳
One indicator	of hydrophytic vege	tation, o	ne primary indicate	or of wetland	d hydrole	ogy, and an a		pe position must be present unless
listurbed or pr	oblematic.							46
	f color change in No rer (if present): Type			Depth (inc	hes):	_		CALL TO A STATE OF
								A CONTRACTOR OF THE PARTY OF TH
Hydric Soil Pr	resent (Y/N):			m to				***
Notes: Nr	Indive XX H	han	old USIN	s Al	L. I	believe	501 Meet	5 the intent of the
1 mater 6	f NIST EXAC	10	are to the contract	0		•		s the intent of the
VOC =====								The state of the s
HYDROLOGY	PRIMARY INDICA	TORS (iny one indicator is	sufficient)		SECONDARY	INDICATORS (2	A PLANT OF THE PARTY OF T
Surface Water	(A1)/	Su	face Soil Cracks (B6)		Water-stained Leaves (B9) _	/	Stunted or Stressed Plants (D1)
High Water Ta	ble (A2)/_	Inu (B7	ndation Visible on	Aerial Imag	ery	Drainage Patterns (B10)		Geomorphic Position (D2)
Saturation (A3)	Spa	arsely Vegetated ncave Surface (B8) See No	te	Oxidized Rhizospheres along Living Roots (C3)		Shallow Aquitard (D3)
Water Marks (B1)/		rl Deposits (B15) _	. /		Presence of Firon (C4) Del	Reduced very fain	Microtopographic Relief (D4)
Sediment Dep	osits (B2)		drogen Sulfide or (C1)			Salt Deposits	(C5)/	FAC-Neutral Test (D5)
Orift Deposits	(B3)/_	Dn	y-Season ater Table (C2)	1		Notes:	sing presence	t to make this yes.
Algal Mat or C	rust (B4)/		ner (Explain in Not	es):		Just all	the of pla	t to make this yes.
ron Deposits ((B5)							
	Docada I da	9.31A38	在《四字》	10.000	10	A LIGHT STATE		
Surface Water	Present (Y/N):	N	Depth (in):	6				(///)
Vater Table P	resent (Y/N):	У	Depth (in):	8	W	etland Hydro	logy Present (Y/N	1): ————————————————————————————————————
Saturation Pre includes capil	esent (Y/N): lary fringe)	y	Depth (in):	2	EC	: 34	P	H5.0
Notes:	111	- 4 5 4 7 6	Surface 9	re pre	sent	ived or	Aside \$ 20	d'houeter plot size t

VEGETA ΠΟΝ VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) √5 Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even Representation (M): Even Highly Uneven Representation (M): Even Representation (M): Even Highly Uneven
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water — < 25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) X One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric_
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Intermittent Inlet/Intermittent Outlet Perennial
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Inlet/Intermittent Inlet/Intermitt
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Per
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Inlet/P
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Per
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Outlet Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/N
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/I
Inlet/Outlet Class (P): No Inlet/Outlet

Crew Chief QA/QC check:

GPS Technician QA/QC check: /

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featur	re ID: <u>WIO6T1012</u> Field Target: 169 Date: 5.25.16
For all	items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	 At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species?
	Dominance Test and Prevalence Index have been completed?
3.	Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X halen	Volper	x has	leus Va	leer	5-27-16
Wetland Scientist (print)	V	Signature / Date	0		

X Jesse Brownee X fesse Browne

Field Crew Chief (print)

Signature Date

SITE DESCRIPTION	44 B 4 37 1 5 2 1	in the state of			
Survey Type: Centerline X Acce				Field Target: 173	Map #: (3) Map Date: 5.20-160
Date: 5 - 25-16	Project Name: Alask	a LNG		Feature Id	W106T1013
Investigators: Jessie &cc	unter, Ke	alers	Volve	25	Team No.: W \06
State: Alaska	Region: Alaska		Milepost:	751.3	
Latitude: (010 18) 10, 17	108"N	Longitude	: 1510 2	"31.69"W	Datum: WGS84
Logbook No.:	Logbook Page No.:	10	Picture No.:	P_WIOGTICI3_	.001 through -004
SITE PARAMETERS	斯巴里特别的	2018年10	24.28.68	2000年	(中国的基本的) (中国)
Subregion:	Rasin		Landform (hill	slope, terrace, hummock	s, etc.): Lawland/Swake
Slope (%): 0 - 3			Local relief (c	oncave, convex, none):	Plat
Pre-mapped Alaska LNG/NWI classifica	ition: PF04/18		Evidence of V	Vildlife Use: メン	
Are climatic/hydrologic conditions on the Yes No (if no expl	e site typical for this time ain in Notes)	of year?		ormal Circumstances" pre	esent: plain in Notes.)
Are Vegetation, Soil, or Hyd	drology Significant	y Disturbed?	No_ ×	_(If yes, explain in Notes)
Are Vegetation, Soil, or Hyd	drology Naturally P	roblematic?	No_d	_(If yes, explain in Notes	s.)
SUMMARY OF FINDINGS	发展的社会包含	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1700		《 》
Hydrophytic Vegetation Present? Yes_	No	ls	the Sampled A	rea within a Wetland?	Yes No
Hydric Soil Present? Yes_	<u> </u>	_ w	etland Type:	PF04/1B	5
Wetland Hydrology Present? Yes_	No	— Ala	aska Vegetation	Classification (Viereck):	102,1182
Notes and Site Sketch: Please include Ecorridor. PF04/1B Tall (~60') Mixed Concare Surface 5 Walving Scatu	I forest is alo	vaders der 1 co	mmanity	· Patches o	z sparoly regulate

?

WIOG TIOIS

	SAUL SENSE	Canal Decision	DATE WAS	Anni a de la companya
VEGETATION (use scientific names of plants	s)			
Tree Stratum (Plot sizes: 100)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:
1. Pirea Mariana	30	Y	FACIN	% Dominant Species that are OBL, FACW, or FAC: (A/B)
2. Betula Arnolaskana	20	Y	FAC	(45)
3. Picea Coloura	3		FACU	
4.				Prevalence Index worksheet:
Total Cover	53			Total % Cover of: Multiply by:
50% of total cover	: <u>265</u> 20	% of total cov	er: 10.6	OBL species:X 1 =
Sapling/Shrub Stratum (26')	Absolute	Dominant	Indicator	FACW species: 30 X2 = 60
	% Cover	Species?	Status	FAC species //9 x 3 = 357
1		(Y/N)		FACU species 35 X 4 = 140
1. Alnus Striticosa	40	Y	FAC	UPL species
2. spirace Stevenii	15		FACU	Column Totals: 184 (A) 55 (B)
3. vaccinium ovalifolium	12		FAC	PI = B/A = 3.02
4. Linnea boroalis	T		FACI	
5. Oplopanax horridus	2		FACU	
6. Menziesia ferriginea	9		FACU	
7.				
8.	<i>5</i> 2.			
9.		-		
Total Cover:			10 1.	
50% of total cover	<u>39</u> 20	% of total cov	er: /5.0	
VEGETATION (use scientific names of plants)		DEN STO	Section of the Park of the Control o
Herb Stratum (ZG)	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species?	Status	Dominance Test is > 50%
		(Y/N)		V Prevalence Index is ≤ 3.0
1. Rubus pedatus			FAC	Morphological Adaptations¹ (Provide supporting data in
2. trientalis Europaea	6		FACU	Notes)
3. Streptopus amplexifdius	T		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Cornus canadensis	7			¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Equiretum sulvadeum	3		FAC	disturbed or problematic.
6. Fasisatum Arvenso	20	4	FAC	

OIL PROFI							
Depth	Matrix		Redox Features				
inches)	Color (muist)	%	Color (moist)	% Type	Loc ²	Texture	Notes
0-40							w/sand throughout
4-12							high woody debris
							0
							-
		. 5	100	20 0	· Osetad Cand (Project 21 section	PL=Pore Lining, M=Matrix.
AND DESCRIPTION OF THE PARTY.	oncentration, D=Deple	etion, Ri	M=Reduced Matrix, C	S=Covered o	Coated Sand C		FOR PROBLEMATIC HYDRIC SOILS
	IL INDICATORS	-560	in all of	14440)	S. Completing	Shirt washing that Pip respond	Change (TA4) ⁴ /
listosol or H	listel (A1) didn't d	9 past	Alaska Gleyed				
listic Epiper	1011 (AZ)		Alaska Nedox				Swales (TA5)
Black Histic			Alaska Gleyed	Pores (A15)	h		with 2.5Y Hue without 5Y Hue or Redder Underlying
lydrogen Su	ulfide (A4)		3			Layer N	- manout of the of Redder onderlying
Thick Dark S	Surface (A12)					Other (Explain	
		etation, d	one primary indicator	of wetland hy	drology, and an	appropriate landsc	ape position must be present unless
Give details	problematic. of color change in No	otes.					
Restrictive L	ayer (if present): Typ	e: //	/ -	Donth (inches)		6	
	Present (Y/N):			Deptii (inches,	*		
Notes:		Y					
Notes:	Present (Y/N):	Y			SECONDAR	RY INDICATORS (2 or more required)
Notes:		TORS (any one indicator is surface Soil Cracks (B	sufficient)		RY INDICATORS (3	2 or more required) Stunted or Stressed Plants (D1)
Notes: HYDROLOG Surface Wat	Y PRIMARY INDICA	TORS (any one indicator is s	sufficient)	SECONDAR Water-staine Leaves (B9)	RY INDICATORS (3	Stunted or Stressed Plants (D1)
Notes: HYDROLOG Surface Wat High Water	er (A1)YYY	TORS (Su Inn - (B	any one indicator is surface Soil Cracks (Bundation Visible on A	sufficient) 6) erial Imagery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh	RY INDICATORS (3	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)
Notes: HYDROLOG Surface Wat High Water	er (A1) Fable (A2)Y	Su Inno	any one indicator is surface Soil Cracks (Bundation Visible on A	sufficient) 6) erial Imagery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh	atterns (B10)	Stunted or Stressed Plants (D1) _ / Geomorphic Position (D2) _ /
Notes: HYDROLOG Surface Wat High Water Saturation (A	er (A1) Fable (A2) A3) 5 (B1)	TORS (Sulphine) - (B Sp Co Ma	any one indicator is surface Soil Cracks (Bundation Visible on A7) parsely Vegetated oncave Surface (B8) arl Deposits (B15)	sufficient) 6) erial Imagery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of	atterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
Notes: HYDROLOG Surface Wat	er (A1)Y Table (A2)Y A3)Y s (B1)	TORS (Sulphine) Superior (B) S	any one indicator is surface Soil Cracks (Bundation Visible on A7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) ydrogen Sulfide of (C1)	sufficient) 6) erial Imagery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	atterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: HYDROLOG Surface Wat High Water T Saturation (A Water Marks	er (A1)Y Fable (A2)Y A3)Y s (B1) eposits (B2)	TORS (St. Int. (B) St. Co. M: Hy Oc. Dr. W	any one indicator is surface Soil Cracks (Bundation Visible on A 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) pdrogen Sulfide of (C1)	sufficient) 6) erial Imagery	Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	atterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
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AQUATIC SITE ASSESSMENT DATA FORM

Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Persistent Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) 60 Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M):/ Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water 25% Scattered/Peripheral Cover 25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover_ X
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic A Histosol: Sapric
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inl
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
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Intermittent United Perennial Inlet/New Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perenn
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet Perm. Flooded, Intermittent Utlet

Onlei QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featu	re ID: <u>WI06T1013</u> Field Target: <u>173</u> Date: <u>5.25.16</u>
	Il items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	. Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3.	. Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	. Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	. Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	. Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

X hales Wetland Scientist (print) Signature / Date 5-27-16

Field Crow Chief (wint)

Field Crew Chief (print)

Signature Date

SITE DESCRIPTION						
Survey Type: Centerline Acces	ss Road (explain) 🔨	Other (expla	ain)	Field Targ	jet: <u>177</u>	Map #: <u>/24</u> Map Date: <u>5-20-16</u>
Date: 5-2-(0-) Project Name: Alaska LNG				1	Feature Id:	W106T1014
Investigators: Jessie Browniee, Kale			y Xolver			Team No.: VIOG
State: Alaska	Region: Alaska		Milepost:	748		
Latitude: 610 19 34, 0347	" N	:151°1' 13, 2916"W			Datum: WGS84	
Logbook No.:	1)	Picture No.: PW10671014_001 thr. 001				
SITE PARAMETERS						
Subregion: Cook Inlet basin			Landform (hillslope, terrace, hummocks, etc.): Lowland			
Slope (%): 5-8			Local relief (concave, convex, none): Slightly concave Flat I			
Pre-mapped Alaska LNG/NWI classifica	1102	Evidence of Wildlife Use: MOOSE HEAR WATTER				
Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (if no explain in Notes) Are "Normal Circumstances" present: Yes No (If no, explain in Notes.)						
Are Vegetation, Soil, or Hydrology Significantly Disturbed? Nox(If yes, explain in Notes)						
Are Vegetation, Soil, or Hydrology Naturally Problematic? No (If yes, explain in Notes.)						
SUMMARY OF FINDINGS						
Hydrophytic Vegetation Present? Yes_	No	Is	the Sampled A	rea within a	Wetland?	Yes No
Hydric Soil Present? Yes	w	Wetland Type:				
Wetland Hydrology Present? Yes_	— Ala	Alaska Vegetation Classification (Viereck): / C 3 // B Z				
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Mixed woodland w/ Bet New 2 Pic G/G ~ 50' talk and Alder 54rub under story.						
Thick cal can cover: Ory site with a few small depressions that are slightly wet but over all 99%.						
of site is dry. At WIOLOTION- OP a slight swaling Reature is channeling						
water down slope . possible Intermittent in and out let in wet times Hom slope water in creek pt 5.4 EC 54. OP has same veg type & cowardise without slope						
aboter in creek pri	5.9 EC 54	or nac) Same. V	g m	e theo	Smars
Road		7			* WOUTIOH	PFOVYIS Shape
et ditch	HIOTTOM			-	Road	Sunde

W106 T1014

VEGETATION (use scientific names of plants	3)			
Tree Stratum (Plot sizes:\OO _)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:
1. Bet la neon las Kano	10	: Y	FAC	% Dominant Species that are OBL, FACW, or FAC:(A/B)
2. ALMUS SP	5	-4	FAC	W Dominant Species that are OBL, PACW, of PAC(AVB)
3. Picea Colauca present in me	sping pe	Vicam Lu	+ nest	是在这种特别的特别,
4. in our plat.	17 0	00		Prevalence Index worksheet:
Total Cover	15			Total % Cover of: Multiply by:
50% of total cover	7.5 20	% of total cov	er:3	OBL species: X 1 =
Sapling/Shrub Stratum ('UG')	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: O X 2 = O FAC species
1. Alnus 50	20	Y	FAC	UPL species
2. Opporanax harridus	15	Y	FACU	Column Totals: 207 (A) 696 (B)
3. Vibumim exule	7		FACU	PI = B/A = 3.36
4. Rubus idaeus	4		FALL	
5. Rihes Sp	T			
6.				.42
7.				
8.				
9.				
Total Cover:	46			
50% of total cover:	23 20	% of total cove	er: <u>9.2</u>	The state of the s
VEGETATION (use scientific names of plants			AND THE	
Herb Stratum (Z(a')	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% N Prevalence Index is < 3.0

Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
70 70 7 35 20	Y Y	FAC FACU FACU	Morphological Adaptations¹ (Provide supporting data in Notes) ———————————————————————————————————
5 10		FACU	% Bare Ground % Cover of Wetland Bryophytes
n: 146		,,,,,,	Total Cover of Bryophytes ———————————————————————————————————
	% Cover 70 7 35 20 4 10	% Cover Species? (Y/N) 70 7 7 35 7 20 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	% Cover Species? Status (Y/N) 70 Y FAC 7 FAC 35 Y FACU 20 Y FAC 5 10 FACU FACU FACU FACU FACU

WETLAND DETERMINATION DATA FORM WIGGTIOIS

Depth (inches) Oi 0-4 A-4-6 10 But 12 10 But 15 24 10 Type: C=Concentr HYDRIC SOIL INDI Histosol or Hister(A Histic Epipedon (A2 Black Histic (A3) Hydrogen Sulfide (A Thick Dark Surface	trix for (moist) $ \frac{2}{\sqrt{R}} $ $ \frac{3}{2} $ $ \frac{3}{2} $ $ \frac{3}{2} $ $ \frac{3}{2} $ ration, D=Deplet (CATORS 1) $ \frac{N}{2} $ (A12) $ \frac{N}{2} $ redrophytic vegetimatic.	% / / / / / / / / / / / / / / / / / / /	Pate Feature ID to the depth needed to document of Redox Features Color (moist) % Type SYR 2 5/2 4/ Con FSYR 3/3 5 Con Reduced Matrix, CS=Covered or Alaska Gleyed (A13) Alaska Redox (A14) Alaska Gleyed Pores (A15)	Loc² M Coated Sand (Texture Sandy laim VF Sa laam VF Sa laam VF Sa laam Grains. ² Location: F	Notes high sand content High cost content & om glishing on peds ~30% (ock frag DE=Pore Lining, M=Matrix. OR PROBLEMATIC HYDRIC SOILS3
Depth (inches) Ool	trix for (moist) $ \frac{2}{\sqrt{R}} $ $ \frac{3}{2} $ $ \frac{3}{2} $ $ \frac{3}{2} $ $ \frac{3}{2} $ ration, D=Deplet (CATORS 1) $ \frac{N}{2} $ (A12) $ \frac{N}{2} $ rdrophytic vegetimatic.	100 96 90 15 15	Redox Features Color (moist) % Type SYR 2 5/2 4/ Cor 7 5 YR 3/3 5 cor Reduced Matrix, CS=Covered or Alaska Gleyed (A13) Alaska Redox (A14)	Loc² M Coated Sand (Texture Sandy lum VF Sa laam VF Sa laam VF Sa laam INDICATORS FO	Notes high sand content High cost content & om glishing on peds ~30% (ock frag DE=Pore Lining, M=Matrix. OR PROBLEMATIC HYDRIC SOILS3
Col O-4	for (moist) $ \sqrt{R} = \frac{2}{\sqrt{1}} $ $ \sqrt{R} = \frac{3}{2} $ $ \sqrt{R} = \frac{3}{2} $ $ \sqrt{R} = \frac{3}{4} $ $ \sqrt{R} = \frac{3}{4} $ Fration, D=Deplet (CATORS) $ \sqrt{R} = \frac{1}{2} $ For induction of the properties of the properti	100 96 90 15 100	Color (moist) % Type SYR 2 5/2 4/ Cor 7 5 YR 3/3 5 cor =Reduced Matrix, CS=Covered or Alaska Gleyed (A13) Alaska Redox (A14)	M M Coated Sand (Sandy lam VF Sa laam VF Sa laam VF Sa laam Srains. ² Location: F	high sand content High cost content & om glitaire on peds ~30% (ock frag O PL=Pore Lining, M=Matrix. OR PROBLEMATIC HYDRIC SOILS3
Thick Dark Surface 3 One indicator of hydrogen Sulfide (A) To the surface of th	YR 2/, YR 3/2 YR 3/2 YR 3/4 YR 3/2 ration, D=Deplet CATORS 1) N (A12) N rdrophytic vegetimatic.	100 96 90 15 100	SYR 3 5/3 4/ Con 7.5 YR 3/3 5 Con =Reduced Matrix, CS=Covered or Alaska Gleyed (A13)	M M Coated Sand (Sandy lam VF Sa laam VF Sa laam VF Sa laam Srains. ² Location: F	high sand content High cost content & om glitaire on peds ~30% (ock frag O PL=Pore Lining, M=Matrix. OR PROBLEMATIC HYDRIC SOILS3
10 Bul 12 10 Bul 12 10 Bul 12 10 Bul 2 12 15 10 Bul 2 12 15 10 Bul 2 12 10 Bul 2 12 10 Bul 2 12 12 12 12 12 12 12 12 12 12 12 12 1	\sqrt{R} $\sqrt[3]{2}$ \sqrt{R} $\sqrt[3]{4}$ \sqrt{R} $\sqrt[3]{4}$ \sqrt{R} $\sqrt[3]{4}$ ration, D=Deplet CATORS \sqrt{R} \sqrt{R}	96	=Reduced Matrix, CS=Covered or Alaska Gleyed (A13) Alaska Redox (A14)	Coated Sand C	VF Sa loam VF Sa loam VF Sa loam VF Sa loam INDICATORS FO	PL=Pore Lining, M=Matrix.
Thick Dark Surface 3 One indicator of hydrogen sulfide (A) Thick Dark Surface Give details of color	\sqrt{R} $\sqrt[3]{2}$ \sqrt{R} $\sqrt[3]{4}$ \sqrt{R} $\sqrt[3]{4}$ \sqrt{R} $\sqrt[3]{4}$ ration, D=Deplet CATORS \sqrt{R} \sqrt{R}	96	=Reduced Matrix, CS=Covered or Alaska Gleyed (A13) Alaska Redox (A14)	Coated Sand C	VF Sa loam VF Sa loam VF Sa loam VF Sa loam INDICATORS FO	PL=Pore Lining, M=Matrix. DR PROBLEMATIC HYDRIC SOILS
Bul 6 /2 10 Bul 2 /2 /5 /6 Bul 2 /2 /5 /6 Bul 2 /2 /5 /6 Bul 3 /5 /24 /6 Type: C=Concentr HYDRIC SOIL INDI Histosol or Histel*(A Histic Epipedon (A2 Black Histic (A3) Hydrogen Sulfide (A Thick Dark Surface 3 One indicator of hydisturbed or probler 4 Give details of color	YR 3/2 YR 3/4 YR 3/2 ration, D=Deplet CATORS 1) N (A12) N rdrophytic vegetimatic.	15	=Reduced Matrix, CS=Covered or Alaska Gleyed (A13) Alaska Redox (A14)	Coated Sand C	VF SA LOAM VF SA LOAM Grains. ² Location: F	PL=Pore Lining, M=Matrix. DR PROBLEMATIC HYDRIC SOILS
Thick Dark Surface To Dark Surface Thick Dark Surface To Dark Surface Thick Dark Surface	ration, D=Deplet CATORS 1) N (A12) N rdrophytic vegeta	15	=Reduced Matrix, CS=Covered or Alaska Gleyed (A13)	Coated Sand (VF SA JOOM Grains. ² Location: F	PL=Pore Lining, M=Matrix. DR PROBLEMATIC HYDRIC SOILS
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HYDRIC SOIL INDI Histosol or Histef (A Histic Epipedon (A2 Black Histic (A3) Hydrogen Sulfide (A Thick Dark Surface 3 One indicator of hy disturbed or probler 4 Give details of color	CATORS 1) 2) A4) (A12) vdrophytic vegeta	ion, RM	Alaska Gleyed (A13)A		INDICATORS FO	OR PROBLEMATIC HYDRIC SOILS
Histosol or Hister (A Histic Epipedon (A2 Black Histic (A3) Hydrogen Sulfide (A Thick Dark Surface One indicator of hy disturbed or probler Give details of colo	A4) (A12) Variophytic vegeta	(8)	Alaska Redox (A14)		TOTAL BANKSON WAS DESCRIBED.	
Histic Epipedon (A2 Black Histic (A3) Hydrogen Sulfide (A Thick Dark Surface 3 One indicator of hy disturbed or probler 4 Give details of color	(A12) Various vegeta	je je	Alaska Redox (A14)		Alaska Color Cha	ange (TA4)* N
Black Histic (A3) Hydrogen Sulfide (A Thick Dark Surface ³ One indicator of hy disturbed or probler ⁴ Give details of colo	(A12) Variophytic vegeta	je je				
Hydrogen Sulfide (A Thick Dark Surface ³ One indicator of hy disturbed or probler ⁴ Give details of colo	(A12) Various vegeta		Alaska Gleved Pores (A15)		Alaska Alpine Sv	vales (TA5)
Thick Dark Surface ³ One indicator of hy disturbed or probler ⁴ Give details of colo	(A12) V rdrophytic vegeta natic.		Masika Cicycu i olcs (7170)	N_	Alaska Redox wi	
Thick Dark Surface ³ One indicator of hy disturbed or probler ⁴ Give details of colo	(A12) V rdrophytic vegeta natic.				Alaska Gleyed w Layer	ithout 5Y Hue or Redder Underlying
³ One indicator of hy disturbed or probler ⁴ Give details of colo	rdrophytic vegeta		THE SECOND SECON		Other (Explain in	Notes)
disturbed or probler Give details of cold	matic.	ation, or	ne primary indicator of wetland hyd	frology, and an		e position must be present unless
					and the second	Approprie
Restrictive Layer (ii			Depth (inches)	·		
The second secon	presenty. Type					
Hydric Soil Preser	ot (Y/N):					
Notes:				all a		A STATE OF THE STA
						1. 2. 4. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.
LIVEROL OCY PRI	MARY INDICAT	OPS (a	ny one indicator is sufficient)	SECONDA	RY INDICATORS (2 o	r more required)
HIDROLOGIFKI	MARTINDICAT			Water-stain	CHANGE DESCRIPTION OF THE PARTY	Stunted or Stressed
Surface Water (A1)		Sur	face Soil Cracks (B6)	Leaves (B9)		Plants (D1)
High Water Table (A2) _ /\	Inu (B7	ndation Visible on Aerial Imagery	Drainage Pa	atterns (B10)	Geomorphic Position (D2)
Saturation (A3)	N	Spa	arsely Vegetated ncave Surface (B8)	Oxidized Rh Living Roots	nizospheres along	Shallow Aquitard (D3)
Water Marks (B1)	IV		rl Deposits (B15)	Presence of	f Reduced	Microtopographic Relief (D4)
Sediment Deposits			drogen Sulfide	Salt Deposi	its (C5) N_	FAC-Neutral Test (D5)
Counter Bopolio		_	or (C1)	Notes:		The state of the s
Drift Deposits (B3)	_ N	Wa	ter Table (C2)		e notes)	
Algal Mat or Crust	(B4)	Oth	ner (Explain in Notes):			production of the second
Iron Deposits (B5)	N					
The state of the s		0.5000000		1000 AND THE	A STATE OF THE STA	
Surface Water Pres	sent (Y/N):	/	Depth (in):			
Water Table Prese			Depth (in):	Wetland Hyd	rology Present (Y/N)	:
Saturation Present	NA		Depth (in): 15-19 was able to sample	EC: M	935 pi	4 5.7)
(includes capillary						

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES: P= Plot, M= Matrix *
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved_ Scrub Shrub-Deciduous-Broad-leaved_ Scrub Shrub-Evergreen-Broad-leaved_ Scrub Shrub-Evergreen-Needle-leaved_ Emergent-Non-persistent_ Emergent-Persistent_ Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover >75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg. Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover 1
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
COU MADIARI FO
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hernic Histosol: Sapric Mineral: Gravelly Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outle
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Pe
Inlet/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inle
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial O
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Intermitten
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermit
Inlet/Outlet Class (P): No Inlet/Outlet
Inter/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet

Crew Chief QA/QC check:

Listin Brownlee

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featu	re ID: WIOGTIOIL Field Target: 17 Date: 5-26-35
For al	l items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2	. Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3	. Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4	. Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5	. Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6	. Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7	. Maps
	Wetland boundaries have been corrected if necessary?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X Kalen Volper	x haley Volger 5-27-16
Wetland Scientist (print)	Signature / Date

X pessie Brownlee 5,27.16 Signature Date

OUT OF ODINA	and removal late.	PRACOSES	MALE DE PARTIE	SVISTORY OF STREET					
SITE DESCRIPTION	MANUFACTURE STATE	femily Alm	March 1988	1					
Survey Type: Centerline Acce		-	ain)	Field Target: \75	Map #: 129 Map Date: 5.20.16				
Date: 5-26-16	Project Name: Alaska	a LNG		Feature Id:	W106T1015				
Investigators: Jessie Bround	ee Kaley Volp	ex			Team No.: WIOL				
State: Alaska	Region: Alaska		Milepost:	749.					
Latitude: 61° 18' 36,97	17" N	Longitude	: 150°5	8'3.85 W	Datum: WGS84				
Logbook No.:	Logbook Page No.:	ia	Picture No.:	P-WIGGT1016-601	thro coo4				
SITE PARAMETERS	(4) (6) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	MARK COMMAN	深沙外 名为	7.31、2.46、45、46、46、46、46、46、46、46、46、46、46、46、46、46、					
Subregion: Cook Inlet Ba	Y.M	***	Landform (hil	llslope, terrace, hummocks	s, etc.): Lowland				
Slope (%): 0 - 3			Local relief (d	concave, convex, none):	Flat				
Pre-mapped Alaska LNG/NWI classifica	ition: U 1CZ 11C	_7	Evidence of V	Wildlife Use: None					
Are climatic/hydrologic conditions on the Yes No (if no expl	site typical for this time			ormal Circumstances" pre					
Are Vegetation, Soil, or Hyd	drology Significantly	y Disturbed?	No^	(If yes, explain in Notes)					
Are Vegetation, Soil, or Hyd	drology Naturally P	roblematic?	No	(If yes, explain in Notes	.)				
SUMMARY OF FINDINGS		的國間	WALL TO		CANAL TO THE REAL PROPERTY.				
Hydrophytic Vegetation Present? Yes_	NoX	Is	the Sampled A	Area within a Wetland?	Yes NoX				
Hydric Soil Present? Yes_	Iric Soil Present? Yes No				Wetland Type:				
Wetland Hydrology Present? Yes_	NoX	— Ala	aska Vegetatio	n Classification (Viereck):	102,1182				
Notes and Site Sketch: Please include Ecorridor.	41067/0/5 by 1021/0/5	3	S W F	Wetland 1106TIDIS_OP SS./EMIE 11 cz, 111 A3 Flat - slope					

VEGETATION (use scientific names of plant	(2)	列阿利克司	17-100 (SIE)	
Tree Stratum (Plot sizes:(OO^_)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 2 (/
1. Picea Clauca 2. Betula Nevalackana	30	Y	FACI	Total Number of Dominant Species Across All Strata: 5 (6) **Dominant Species that are OBL, FACW, or FAC: 4 (A/
2. Betula Nevalackana	20	7.	FAC	
4.				Prevalence Index worksheet:
Total Cove	50			Total % Cover of: Multiply by:
50% of total cove	r: <u>a</u> 5 20	% of total cov	er: <u> O</u>	OBL species:X 1 =
Sapling/Shrub Stratum (1 ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species:
1. Rosa ockularis	35	Y	FACU	UPL species
2. Spiruea stevenii	3		KACU	Column Totals: 220 (A) 833 (B)
3. Oplapanax horridus	8		FACI)	PI=B/A= 3.73
4. Vacciolum ovalisation	3		FAC	
5. Linnaea borealis	LT		FACU	
5. Ribes triste	T		FAC	
7. Alvos so				
8. Pirea glanca	3		FAC	_
9. Betwa negalaskana	15	Y	FAC	
VIDWNUM EAVE Total Cover			15 er: 13.4	

Herb Stratum (26°)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. B Gymnocarpium dryoptens 2. Chamerian angustifilium 3. Rubus pesatus 4.	3	Y	FACU FACU FAC	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
5. trientalis europea 6. Equisation 50	2		FACU	Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
7. Calamagrostis canadensis 8. spinulum annatinum 9. Equisetum onvense	工		FAC FAC	% Bare Ground C % Cover of Wetland Bryophytes Total Cover of Bryophytes
Total Cover 50% of total cover	95	% of total cov	FACU er: 19	— % Cover of Water Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):

SOIL			5.96.15				
	A THE STATE OF		Date Feature II	D	10世代 10世代	族。對於在100mg	Soil Pit Required (Y/N)
SOIL PROFIL	E DESCRIPTION: (D	escribe	to the depth needed to doc	ument th	e indicator or	confirm the absence	of indicators.)
Depth	Matrix		Redox Features				
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture	Notes
01 0-2		1	· /				200000000000000000000000000000000000000
	104R 3/2	1			-	9:11.1	Dry organics
A 2-4		100				3:11 loans	
E 4-10	10 YR 5/2	100			-	Silt loom	
Bhs 6-11	5 YR 3/4	15.		-		Silt loom	
	7.54R 4/4	85				11.4	
Bw/ 11-24	104R 4/4	100			_	Silt loam	
						2	
'Type: C=Con	centration, D=Deplet	tion, RN	/I=Reduced Matrix, CS=Cove	ered or C	oated Sand G		PL=Pore Lining, M=Matrix.
HYDRIC SOIL	INDICATORS		2年,公司董福斯(1923年)	NEW YORK		THE RESIDENCE OF THE RESIDENCE	OR PROBLEMATIC HYDRIC SOILS
Histosol or His	tel (A1)		Alaska Gleyed (A13)	N,	-	Alaska Color Cl	hange (TA4) ⁴
Histic Epipedo	n (A2)/		Alaska Redox (A14) _	N	- /	Alaska Alpine S	swales (TA5)
Black Histic (A	3) N	4	Alaska Gleyed Pores	(A15)	N	Alaska Redox v	vith 2.5Y Hue
						Alaska Gleyed	without 5Y Hue or Redder Underlying
nyurogen Suii	de (A4)/					Layer_ N	
Thick Dark Sur		_				Other (Explain i	
One indicator disturbed or pr		ation, o	ne primary indicator of wetla	and hydro	ology, and an a	appropriate landsca	pe position must be present unless
	obiematic. f color change in Not	es.					
	er (if present): Type		J Depth (ii	nches):_		- 14	
Hydric Soil Pi	esent (Y/N):	\int_{-}					
Matan da			10 10 10	m 1			
Notes: All bo	undaries are w	avy	especially the Eq	845			
			. 0				
		000	15 March 1997		CECONDAD	VINDICATORS (S	and the second
HYDROLOGY	PRIMARY INDICAT	ORS (any one indicator is sufficient	()			
Surface Water	(A1) N				AND THE REST OF	and the state of t	or more required)
		Su	rface Soil Cracks (B6)		Water-staine	d ,	Stunted or Stressed
	,		rface Soil Cracks (B6)		Water-staine Leaves (B9)	d //	Stunted or Stressed' Plants (D1)
High Water Ta	ble (A2)/	Inu	indation Visible on Aerial Ima	agery	Water-staine Leaves (B9)	d ,	Stunted or Stressed
	-	Inu (B)	andation Visible on Aerial Ima	agery	Water-staine Leaves (B9) Drainage Par	d //	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
High Water Ta	-	Inu (B)	indation Visible on Aerial Ima	agery	Water-staine Leaves (B9) Drainage Par	d // tterns (B10) // zospheres along	Stunted or Stressed' Plants (D1)
Saturation (A3		Inu (B) Sp Co	arsely Vegetated	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic,
		Inu (B) Sp Co	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)
Saturation (A3)	Inu (B) Sp Co Ma	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Pat Oxidized Rhi Living Roots Presence of Iron (C4)	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3)	Sp Co Ma	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10)	Stunted or Stressed' Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3)	Inu (B7 Sp Co Ma Hy Od	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Pat Oxidized Rhi Living Roots Presence of Iron (C4)	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3 Water Marks (I	0	Inu (B7 Sp Co Ma Hy Od	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3 Water Marks (I	0	Inu (B7 Sp Co Ma Hy Od Dry Wa	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3 Water Marks (I Sediment Deposits (I Algal Mat or Ci	Desits (B2)	Inu (B7 Sp Co Ma Hy Od Dry Wa	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3 Water Marks (I Sediment Depo	Desits (B2)	Inu (B7 Sp Co Ma Hy Od Dry Wa	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3 Water Marks (I Sediment Deporift Deposits (I Algal Mat or CI Iron Deposits (I	Desits (B2)/ Desits (B2)/ Desits (B4)/ Pust (B4)/	Inu (B7 Sp Co Ma Hy Od Dry Wa Ott	arsely Vegetated ncave Surface (B8)	agery	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Saturation (A3 Water Marks (I Sediment Deposits (I Algal Mat or Ci	Desits (B2)/ Desits (B2)/ Desits (B4)/ Pust (B4)/	Inu (B7 Sp Co Ma Hy Od Dry Wa Ott	arsely Vegetated ncave Surface (B8)		Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits Notes:	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Saturation (A3 Water Marks (I Sediment Deporits (I Drift Deposits (I Algal Mat or CI Iron Deposits (I Surface Water	Desits (B2)	Inu (B) Sp Co Ma Hy Od Dn Wa Ott	arsely Vegetated ncave Surface (B8)		Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits Notes:	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Saturation (A3 Water Marks (I Sediment Deporift Deposits (I Algal Mat or CI Iron Deposits (I	Desits (B2)	Inu (B) Sp Co Ma Hy Od Dn Wa Ott	arsely Vegetated ncave Surface (B8)		Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits Notes:	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Saturation (A3 Water Marks (I Sediment Depo Drift Deposits (I Algal Mat or C Iron Deposits (I Surface Water Water Table P Saturation Pre	B1)	Inu (B) Sp Co Ma Hy Od Dn Wa Ott	arsely Vegetated ncave Surface (B8)	v	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits Notes:	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Saturation (A3 Water Marks (I Sediment Depo Drift Deposits (I Algal Mat or Collinon Deposits (I Surface Water Water Table P Saturation Pre (includes capill)	B1)	Inu (B) Sp Co Ma Hy Od Dn Wa Ott	arsely Vegetated ncave Surface (B8)	v	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits Notes:	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Saturation (A3 Water Marks (I Sediment Depo Drift Deposits (I Algal Mat or C Iron Deposits (I Surface Water Water Table P Saturation Pre	B1)	Inu (B) Sp Co Ma Hy Od Dn Wa Ott	arsely Vegetated ncave Surface (B8)	v	Water-staine Leaves (B9) Drainage Par Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits Notes:	tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM

	M= Matrix
Forested-Evergreen-Needle-leaved	acking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥1	Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M):	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse 80%) Very High Density (80-100%)	(0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): Peripheral Cover >75% Scattere	100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or ed or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant s	species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) _	One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): Open Small Scattered Patches	No Veg Solitary, Scattered Stems or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance (Abundant (>50% of surface)	(0-25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large High (small groupings, diverse and intersperse	patches, concentric rings) Moderate (broken irregular rings)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	
Soil Factors (P): Soil Lacking	Histosol:FibricHistosol:HemicHistosol: Sapric Mineral: Silty Mineral: Clayey
Outlet Intermittent Inlet/Intermittent	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
Inlet/Intermittent Outlet Perennial Ir	nlet/Perennial Outlet reterminal outlet reterminal microsoft outlet reterminal outlet
	nlet/Perennial Outletsonally Flooded, Saturated
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence Created	sonally Flooded, Temporarily Flooded, Saturated Semiperm. Flooded fice Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent	Inlet/Perennial Outlet
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent	sonally Flooded, Temporarily Flooded, Saturated Semiperm. Flooded fice Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent_ Frequency of Overbank Flooding.(P): No Overbank	sonally Flooded, Temporarily Flooded, Saturated
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent_ Frequency of Overbank Flooding (P): No Or Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Ci	Inlet/Perennial Outlet
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Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent_ Frequency of Overbank Flooding (P): No Or Return Interval >5 yrs_ Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Ci Surficial Geologic Deposit Under Wetland (Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Geologic Deposit Under Wetland (Conserved Conserved Conserved Conserved Conserved Connected C	Inlet/Perennial Outlet Sconally Flooded, Temporarily Flooded, Saturated Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) Proporty Developed (6in.) Pronounced (>18in.) Pronounced (>18in.) Proporty Developed (6in.) Pronounced (>18in.) Pronounced (>18in.) Pronounced (>18in.) Pro
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Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent_ Frequency of Overbank Flooding (P): No Or Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Ci Surficial Geologic Deposit Under Wetland (Glacial Till/Not Permeable Basin Topographic Gradient (M): Low (Evidence of Seeps and Springs (P): No See LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate Only Connected Above Connected Wetland Land Use: High Intensity (i.e., a) Watershed Land Use: 0-5% Rural	Interval Perennial Outlet Semiperm. Flooded Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Flooding Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs V Restricted Outflow Unrestricted Outflow Fircumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading Flooding Flooding Cardient (≥2%) Fligh Permeability Stratified Deposits Low Permeability Stratified Deposits Flooding Flood

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature	e ID: <u>W/00T/O/5</u> Field Target: <u>/7-5</u> Date: <u>5 26 / 6</u>
For all	items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
14	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present?
	Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3.	Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	☑ Appropriate hydrology indicators are marked?☑ Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

K Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

	South Control of the Control of		Military desired	新国 (A)
urvey Type: Centerline Acce	ess Road (explain) Othe	r (explain)	Field Target: \(\(\lambda\)	Map #: 1/2 Map Date: 5-27
ate: 5-2G-16	Project Name: Alaska LNG	Faci	Feature Id:	W106T1016
evestigators: Tecs p box	unles, kerlen	Volger	4	Team No.: WIOG
itate: Alaska	Region: Alaska	Milepost:	760	
atitude: 61° 11' 29.316'	Lon	gitude: \5\°	and the second s	Datum: WGS84
ogbook No.:	Logbook Page No.: 3	Picture No	^	16-001 thru 004
ITE PARAMETERS		的图像	网络学生	
Subregion: Cook Inle+ B	asin	Landform ((hillslope, terrace, hummock	s, etc.): Depussion
ilope (%): 0 - 3		Local relief	f (concave, convex, none):	CONCAUR
Pre-mapped Alaska LNG/NWI classific	ation: PFOLKIB	Evidence of	of Wildlife Use: Moose	proppingo
Are climatic/hydrologic conditions on th			"Normal Circumstances" pre No (If no, ex	sent: plain in Notes.)
Are Vegetation, Soil, or Hy				
Are Vegetation, Soil, or Hy	1-1-		✓ (If yes, explain in Notes	
SUMMARY OF FINDINGS	Transfer in the second of the	The last section of the la	THE STATE OF THE S	
		Is the Sample	d Area within a Wetland?	Yes No
lydric Soil Present? Yes_	No	Wetland Type	: Upland	
	No.		tion Classification (Viereck):	
orridor.	tall elevation ga	in. This F	To in a dep	resslan but sts
Bone dry, Dug hole in Bone dry Pot to FT is dry an anywhere But dry everywhere Start dry ever	ross any remot	cely wet	July of the	unable to take Z is PEMIE Source ?
an op anywhere But dry everywhere Permit Permit	ross any remoted length formation of the due to else Feature property of the f	trom Lz sely wet 6PS not issibly man ma	ground. Was working. Lade for material:	unable to take 7 is PEMIE Source ? A clevetion encircles tage

VEGETATION (use scientific names of plants)			
Win signature	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes:	% Cover	Species?	Status	No. of Dominant Species that are OBL, FACW, or FAC: 2 (A)
1. Betula negal askana	(2)		FAC	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: (A/B)
2. Adding to shrub layer	b/c its	inder	2/2	
4.				Paris I de la dela dela dela dela dela dela del
				Prevalence Index worksheet:
Total Cover:		0/ - 4 4 - 4 - 1		Total % Cover of: Multiply by: OBL species: X 1 =
50% of total cover:			_	
Sapling/Shrub Stratum (Z G)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species:
1. Salix Pulchrax	80	Y	FACW	UPL species X 5 =
2. Betula inpoxilaskana	4		EAC	Column Totals: 1\3 (A) 27-1 (B)
3. faculus balsamifera	+		FACU	PI = B/A = 2.39
4. Pica alanca	Ť			
5. Spireau Stevensii	T		-	4
6.	fa)			1
7.				
8.				
9.				E .
Total Cover: 50% of total cover:		% of total cov	er: <u>17.</u> 2	
VEGETATION (use scientific names of plants			No.	ALCOHOLOGICAL MARKET STATES
Herb Stratum (261)	Absolute % Cover	Dominant Species? (Y/N)	Indicator _ Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. hubus arcticus	15	Y	SAC	Prevalence Index is ≤ 3.0
2. Champaign angustifolium	3		FACU	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Exercism extranthum	7	Y	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Calamagnetis Canadan	T		FAC	Indicators of hydric soil and wetland hydrology must be present unless
5. 200	十			disturbed or problematic.
6. Samarisacha so	4			SET BELLEVILLE OF THE SET OF SET OF SET OF SET
7. Purola asarisolia	1		FACU	% Bare Ground
8. trientatis europaea	于		FACU	% Cover of Wetland Bryophytes
9.			17,20	
10.				% Cover of Water
	21			Hydrophytic Vegetation Present (Y/N):
Total Cover:_ 50% of total cover:_	15.5 20%	% of total cov	er: 6.2	Notes: (If observed, list morphological adaptations below):

WETLAND DETERMINATION DATA FORM W 106 TIO 16

SOIL.	SECTION AND ASSESSED.		DateFe	ature II	D _C ATA A	105-305-307	1-11-2-12-12-12-12-12-12-12-12-12-12-12-	Soil Pit Required (Y/N)
SOIL PROFIL	E DESCRIPTION: (D	escribe	to the depth needed	to doc	ument the	indicator or	confirm the absence	e of indicators.)
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Notes
0iA 0-2							Far -	Dandy loan watry organi.
A 2-5	7.54123/2	100					Fin Sandy LOAM	, , ,
BL 5-16	10 YR 4/4	75	765 YR 3/4	5	CON	m	sit Inam	
	10-1R 3/4	20		11.9				Y
Bw 10-24	10-1R 3/Z	160					silt loam w	Andie properties
¹ Type: C=Cor	nc <mark>entration, D=Deple</mark>	tion, RIV	=Reduced Matrix, C	S=Cove	ered or Co	pated Sand C		: PL=Pore Lining, M=Matrix.
HYDRIC SOIL	INDICATORS		有似的原则对于	2723		STATE OF	INDICATORS	FOR PROBLEMATIC HYDRIC SOILS
Histosol or His	stel (A1)		Alaska Gleyed	(A13)_	-N.		Alaska Color C	change (TA4) ⁴
Histic Epipedo	on (A2)		Alaska Redox	(A14) _	N		Alaska Alpine	Swales (TA5)
Black Histic (A	(3) N	4	Alaska Gleyed	Pores	(A15)		Alaska Redox	with 2.5Y Hue
Hydrogen Sulf	fide (A4)						Alaska Gleyed Layer	without 5Y Hue or Redder Underlying
Thick Dark Su		_					Other (Explain	in Notes) spe position must be present unless
Restrictive Lay	of color change in Notice (if present): Type resent (Y/N):	-			soil,		cent way	boundaries A for all
	PRIMARY INDICAT						RY INDICATORS (2	
Surface Water	(A1)/	Sur	face Soil Cracks (B6)_/		Water-staine Leaves (B9)		Stunted or Stressed Plants (D1)
High Water Ta	able (A2)	Inui (B7	ndation Visible on A	erial Ima	agery	Drainage Pa	tterns (B10)	Geomorphic Position (D2)
Saturation (A3)/	Spa	rsely Vegetated ncave Surface (B8)	Margi	recorte	Living Roots		Shallow Aquitard (D3)
Water Marks (B1)		l Deposits (B15)f	1		Presence of Iron (C4)	Reduced	Microtopographic/ Relief (D4)
Sediment Dep	osits (B2)	- Ode	or (C1)			Salt Deposit	s (C5)	FAC-Neutral Test (D5)
Drift Deposits	(B3)/		-Season ter Table (C2)			Notes:		
Algal Mat or C	rust (B4)	Oth	er (Explain in Notes)):				
Iron Deposits ((B5)		A SOUTH SERVICE	San Maria	No. of the last of	No de Called No.	The state of the s	
Surface Water	Present (Y/N): N	SEATIST ST	Depth (in):	ENT -	MS VISIT IN LA	STREET, STREET,	A STATE OF THE STA	是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个
Water Table P			Depth (in):		W	etland Hydr	ology Present (Y/N	v):
Saturation Pre (includes capil	sent (Y/N):		Depth (in):	-	EC			
Notes: One NO Soul	small und	eget	est though	5/ on	that - Ce	CMed' X 2'	ts water	in very wet times

AQUATIC SITE ASSESSMENT DATA FORM

W106T1016

VEGETA NON VARIABLES P= Plot, M=	Matrix
Forested-Evergreen-Needle-leaved S	king Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) Dwarf shrub (<0.5m) Tall herb (≥1m)	Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): E	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0 80%) Very High Density (80-100%)	-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): 1 Peripheral Cover >75% Scattered of	00% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species	ecies) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none)	One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): Notes Small Scattered Patches	o Veg Solitary, Scattered Stems1 or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance (0-Abundant (>50% of surface)	25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large pa High (small groupings, diverse and interspersed	atches, concentric rings)Moderate (broken irregular rings)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	
	istosol:Fibric Histosol:Hemic Histosol: Sapric
Mineral: Gravelly Mineral: Sandy	Mineral: Sitty Mineral: Clayey
HYDROLOGIC VARIABLES	CANDON BEAUTY OF THE PROPERTY
Inlet/Outlet Class (P): No Inlet/Outlet	
Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No utlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial t/Perennial Outlet Perennial Outlet
Inlet/Intermittent Outlet Perennial Inlet	utletIntermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial t/Perennial Outlet Perennial ally Flooded, Temporarily Flooded, Saturated
Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Ser Evidence of Sedimentation (P): No Evidence	utletIntermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial t/Perennial Outlet Perennial ally Flooded, Temporarily Flooded, Saturated
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Inlet/Intermittent Outlet Perennial Inlet Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Ser Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Over Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow	tutlet
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Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Ser Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Over Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Surficial Geologic Deposit Under Wetland (P) Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Gra	tutlet
Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Ser Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Over Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Surficial Geologic Deposit Under Wetland (P) Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Graevidence of Seeps and Springs (P): No Seeps	Intermittent Inlet/Perennial Outlet
Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Ser Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Over Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Surficial Geologic Deposit Under Wetland (P) Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Gratevice of Seeps and Springs (P): No Seeps LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated	tutlet
Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Ser Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Over Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Surficial Geologic Deposit Under Wetland (P) Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Gratevice of Seeps and Springs (P): No Seeps LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated	Intermittent Intervilled Perennial Intervilled P
Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Ser Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No Over Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Water pH (P): No surface water Surficial Geologic Deposit Under Wetland (P) Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Grates Evidence of Seeps and Springs (P): No Seeps LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Only Connected Above Connected L	Intermittent Intervilled Perennial Intervilled P

Crew Chief QA/QC check:

Jessie Brown Lee

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featur	e ID: <u>W10671016</u> Field Target: 162 Date: 5-26-16
For all	items not checked, please provide detailed explanation in the notes section of data form.
, 0, 0	
1.	Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3.	Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

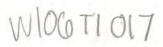
SITE DESCRIPTION			A STAN		
Survey Type: Centerline Acces	ss Road (explain) X Othe	r (explain)	Field Targe	t: 166	Map #: <u>/38 Map Date:</u> 5.20
Date: 5-29-16	Project Name: Alaska LNG		4	Feature Id:	WIOGTIOL7
Investigators: Jessic B	convilee, ka	len You	per		Team No.: WWG
State: Alaska	Region: Alaska	Milepost:	749		
Latitude: 6 0 6 20 5	610" N Lon	gitude: \50° 5	4123,3	807"W	Datum: WGS84
Logbook No.:	Logbook Page No.: 15				17_001 thru_004
SITE PARAMETERS	10 Park 19 19 19 19 19 19 19 19 19 19 19 19 19		2777.423.29		主情思想。因为他们的
Subregion: Cook Inle	t Lowlands	Landform (hi	illslope, terrace	, hummocks	s, etc.): Terrace
Slope (%): 3-5		Local relief (concave, conve	ex, none):	chtly concar Flat
Pre-mapped Alaska LNG/NWI classifica	tion; PSS \ B		Wildlife Use:	20 6	
Are climatic/hydrologic conditions on the Yes No (if no expl	e site typical for this time of yea ain in Notes)		lormal Circums 火 No		sent: plain in Notes.)
Are Vegetation, Soil, or Hyd		urbed? No X	(If yes, expla		
Are Vegetation, Soil, or Hyd	drology Naturally Problem	natic? NoX	(If yes, expl	ain in Notes	.)
SUMMARY OF FINDINGS		Visitor Edition (E	FAR 1012	7 97 296	
Hydrophytic Vegetation Present? Yes_	No	Is the Sampled	Area within a	Wetland?	Yes,NoX
Hydric Soil Present? Yes	No	Wetland Type:	\cup		
Wetland Hydrology Present? Yes	No <u>X</u>	Alaska Vegetatio	n Classification	n (Viereck):	1183,1181
Notes and Site Sketch: Please include E corridor. Exercise Even aged stand of Be edge of Plot. Site must be water table present a lack of soil concentral Hole dug "300" in same with a high 1/2 of conformal put boundary between here and there,	theo, Pic Cola + A have been clear of 21' but No E thous or other in polygon in light	Idenwith a for of a time of vidence of dicators, ter guen:	it raisin	en Cathonstruc	browoods on the
	WIDGTIOI	788			=

VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot sizes: (00)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
	31,24,33	(Y/N)	Giardo	No. of Dominant Species that are OBL, FACW, or FAC:
1. Populus balsamifera	20	FACU Y	FACU	Total Number of Dominant Species Across All Strata: (B
2. Belula Neoalaskama	X3		FAC	% Dominant Species that are OBL, FACW, or FAC:
3. Alaus virdis Fruticosa	3		FAC	TO THE RESERVE THE THE PARTY OF
4.				Prevalence Index worksheet:
Total Cover	76			Total % Cover of: Multiply by:
50% of total cover	: 13 20	0% of total cov	ver:5.2	OBL species: X1=
Sapling/Shrub Stratum (Z 6)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species:
1. Alous Viridia SED From ME	12	Y	FAC	UPL species X 5 = O
2. Behala Negalaskana	10	Y	FAC	Column Totals: 00 (A) Z80 (B)
3. Picea Colovica .	12	Y	FACU	PI = B/A =(B)
4. Salik sp	T			
5. Rhododendrum tomentusum.	T		FACW	
6. Populus balsamifers	5		FACO	
7. Vaccinium vitis-idrea	T			
8.				
9			,	
Total Cover:	19.5 20	% of total cov	er: <u>7,8</u>	
VEGETATION (use scientific names of plants)			
Herb Stratum (2.6 1)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. Equiselum arvense	7	Y	FAC	Prevalence Index is ≤ 3.0
2. Calamagrashs Canakari	7	m/un	FAC	Morphological Adaptations ¹ (Provide supporting data in
3. Chamerion angustifilium	/3	Y	FACU	Notes) Problematic Hydrophytic Vegetation¹ (Explain)
4. Ducola Grandiffica	3	Y		Indicators of hydric soil and wetland hydrology must be present unless
5.	T		FAC	disturbed or problematic.
6. Call 13	7			
(00053 SP	1			% Bare Ground
8.				% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
0.				% Cover of Water
<u> </u>				Hydrophytic Vegetation Present (Y/N):
Total Cover:_	15		2	Notes: (If observed, list morphological adaptations below):
50% of total cover:	209	% of total cove	er:	

W1011/017

5-29-16 Soil Pit Required (Y/N) Date Feature ID SOIL SOIL PROFILE DESCRIPTION: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features Depth Loc2 Notes Texture (inches) Color (moist) % Type1 Color (moist) 100 faint bands of darker A or O Material 10VB 3/2 80 ought horizon 10 YR 3/2 colo 104R 0 10-24 ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix. INDICATORS FOR PROBLEMATIC HYDRIC SOILS3 HYDRIC SOIL INDICATORS Alaska Color Change (TA4)4_ Histosol or Histel (A1) Alaska Gleyed (A13) Alaska Alpine Swales (TA5) ___ Alaska Redox (A14) Histic Epipedon (A2) Alaska Gleyed Pores (A15) Alaska Redox with 2.5Y Hue Black Histic (A3) Alaska Gleyed without 5Y Hue or Redder Underlying Hydrogen Sulfide (A4) Layer_ Other (Explain in Notes) -Thick Dark Surface (A12) One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. ⁴Give details of color change in Notes. Depth (inches):___ Restrictive Layer (if present): Type: Hydric Soil Present (Y/N): Notes: Sand with a few faint depositional events present throughout Profile SECONDARY INDICATORS (2 or more required) HYDROLOGY PRIMARY INDICATORS (any one indicator is sufficient) Stunted or Stressed Water-stained Surface Soil Cracks (B6) Surface Water (A1)_ Leaves (B9) Plants (D1) __ Inundation Visible on Aerial Imagery Geomorphic Position (D2) Drainage Patterns (B10) High Water Table (A2) Sparsely Vegetated Oxidized Rhizospheres along Shallow Aquitard (D3) __/V Saturation (A3) Living Roots (C3) Concave Surface (B8) Presence of Reduced Microtopographic Water Marks (B1) Marl Deposits (B15) Iron (C4)_ Relief (D4) Hydrogen Sulfide FAC-Neutral Test (D5) Salt Deposits (C5) Sediment Deposits (B2) Odor (C1) Notes: Dry-Season Drift Deposits (B3) Water Table (C2) Algal Mat or Crust (B4) Other (Explain in Notes): Iron Deposits (B5) Surface Water Present (Y/N): Depth (in): Wetland Hydrology Present (Y/N): Depth (in): Water Table Present (Y/N): Saturation Present (Y/N): Depth (in): 20 (includes capillary fringe) Notes:

AQUATIC SITE ASSESSMENT DATA FORM



VECETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Persistent Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water 25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A 26-75% Scattered or Peripheral Cover
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Inlet/Peren
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm, Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%)
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medium (10-100 acres) Large (>100 acres)

Chief QA/QC check: Jessie Browneau GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

esses	106 100 1100 T/017 Field Torrest 160 Date: 5.39 16
	e ID: <u>W//0/o T/0/7</u> Field Target: +40 Date: 5.29.1/o
For all	items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3.	Soil Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
NA	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	 □ Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? □ Each logbook page is initialed and dated?
7.	Maps
	 □ Wetland boundaries have been corrected if necessary? □ Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X halen	Volver X	nalow	Volker	5-29-16
Wetland Scientist (print)	Sign	nature / Date		

Field Crew Chief (print)

X

Signature / Date

SITE DESCRIPTION	STATE OF THE STATE OF	Suspendent Service	E LAND		
	ss Road (explain)_X Other	(explain)	Field Targ	get: <u>//08</u>	Map #: <u>176 Map Date: 5.20</u>
Date: 5-29-16	Project Name: Alaska LNG			Feature Id:	WIOGTIOIR
Investigators: Jessie B	rountee Ke	ley Vole	2en		Team No.: WLOG
State: Alaska	Region: Alaska	Milepost:	748	1	
Latitude: 616 16 54 9	19" N Long	gitude: 150°	551	2.44%	Datum: WGS84
Logbook No.:	Logbook Page No.:	Picture No.:	P-WI	OGTIOU,	018-001 thru 004
SITE PARAMETERS	WAR OF STREET	BING SHAND		是集创度	5、福建的成果是强性
Subregion: Cook Inlet boo	in	Landform (hill	Islope, terra	ce, hummock	s, etc.): hillside
Slope (%): ~ 15		Local relief (c	oncave, con	vex, none):	slightly concave + }
Pre-mapped Alaska LNG/NWI classifica	tion:	Evidence of V			0
Are climatic/hydrologic conditions on the Yes No (if no expl	e site typical for this time of year ain in Notes)	? Are "No Yes_		nstances" pre (If no, exp	sent: plain in Notes.)
Are Vegetation, Soil, or Hyd		irbed? No X	_(If yes, exp	olain in Notes	
Are Vegetation, Soil, or Hyd	rology Naturally Problem	natic? No X	_ (If yes, ex	plain in Notes	.)
SUMMARY OF FINDINGS			游战局	是中国	2000年1月1日 1000年100日
Hydrophytic Vegetation Present? Yes_	No. X	Is the Sampled A	Area within	a Wetland?	Yes No
Hydric Soil Present? Yes	NoX	Wetland Type:	U		3.
Wetland Hydrology Present? Yes_	No∠	Alaska Vegetation	n Classificati	on (Viereck):	1CZ, 11BZ
Notes and Site Sketch; Please include Decorridor.	Tall Missed Make with San Rac w thick A horizon	nderstory. No n Soils, Dug	sign of	hydrall st spot	et Neo, Pic Gla logy. Doy og in area bot still do a behind
W10671018			WW LETTO 18		



Tree Stratum (Plot sizes:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A
1 2 / 1		(Y/N)		Total Number of Dominant Species Across All Strata: 6 (E
1. Betula Necelas Kang 40	15	1	FAC	% Dominant Species that are OBL, FACW, or FAC: 1(0.7 (A/
2. Picea Colours 600'	15	Y	FACU	/
3. Populus balsamifera	10	4	FACU)	
4.				Prevalence Index worksheet:
Total Cover			7	Total % Cover of: Multiply by:
50% of total cover	: 20	% of total cov	ver: 8	OBL species:X 1 =
Sapling/Shrub Stratum (Z()	Absolute	Dominant	Indicator	FACW species: X 2 = C
	% Cover	Species? (Y/N)	Status	FAC species
1 2 1 11	7	(1/N)		FACU species 38 X 4 = 55 Z
2. Sambacus	3	V	FACU	UPL species X 5 = X
compositions face mas 9	40		FACU	Column Totals: (67 (A) (674 (B)
3.		4		PI = B/A = 3,85
5,				
3.				
				1
9.				
Total Cover:			4 -	
		% of total cov	er: <u>8 · Co</u>	
Total Cover:	21.5 20	% of total cov	er: <u>8 · Co</u>	
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants	21.5 20) Absolute	Dominant	er: D Co	Hydrophytic Vegetation Indicators:
Total Cover: 50% of total cover: 7EGETATION (use scientific names of plants	21.5 20	Dominant Species?	tare At	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
Total Cover: 50% of total cover: FEGETATION (use scientific names of plants lerb Stratum (21.5 20) Absolute	Dominant	Indicator Status	\ \ /
Total Cover: 50% of total cover: 50% of total cover: FEGETATION (use scientific names of plants lerb Stratum (26)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
Total Cover: 50% of total cover: 50% of total cover: FEGETATION (use scientific names of plants derb Stratum (26)	21.5 20 Absolute	Dominant Species?	Indicator Status FA(1) FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cover: 50% of total cover: 50% of total cover: FEGETATION (use scientific names of plants lerb Stratum (Z(o)) Chamerian angustifolium Chamerian angustifolium Counnoccupum dryoptens Friendalis Europaea	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cover: 50% of total cover: 50% of total cover: /EGETATION (use scientific names of plants Herb Stratum (Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cover: 50% of total cover: 50% of total cover: /EGETATION (use scientific names of plants Herb Stratum (26) 1. Chamerian angustifolium 2. Commocarpum dryoptens 3. Friendelis Europaeg 4. Egystelim Avense 5. Herodeum Maximum	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cover: 50% of total cover: 50% of total cover: FEGETATION (use scientific names of plants Herb Stratum (Z(o)) 1. Chamerian angustifolium 2. Coumnocarpum dryoptens 3. Friendlis Europaea 4. Equisatum Arvense 5. Heradeum Marimum 6. Coalium sp	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover: 50% of total cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26) 1. Chamerian angustifolium 2. Caymocarpum dryoptens 3. Friendelis Europaea 4. Equiselum Arvense 5. Heradeum Marimum 6. Coalium sp 7. Valiana sp	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground
Total Cover: 50% of total cover: 50% of total cover: FEGETATION (use scientific names of plants Herb Stratum (26) 1. Chamerian angustifolium 2. Caymocarpum dryoptens 3. Friendels Europaea 4. Egyisetim Arvense 5. Heracleum Maximum 6. Coalium sp 7. Valiana sp	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes
Total Cover: 50% of total cover: 50% of total cover: 50% of total cover: 50% of total cover: 6. Chamerian angustifolium 6. Cayminocarpum dryoptens 6. Equisetum Arvense 6. Heracleum Maximum 6. Calium sp 7. Valiana 6. Calamagrastis canadensis 6. Calamagrastis canadensis 6. Calamagrastis canadensis 6. Calamagrastis canadensis	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes Total Cover of Bryophytes
Total Cover: 50% of total	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes Total Cover of Bryophytes Cover of Water
Total Cover: 50% of total cover: 50% of total cover: 50% of total cover: 50% of total cover: 7EGETATION (use scientific names of plants Herb Stratum (26) 1. Chamerian angustifolium 2. Caypanocarpuna dryoptens 3. Friendels Europaeg 4. Equiselum Arvense 5. Heracleum Maximum 6. Calium sp 7. Valiana 8. Calamagnostis canadensis 9. Athyrium cyclosorum 0.	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. **Bare Ground** **Cover of Wetland Bryophytes* Total Cover of Bryophytes* **Cover of Water* **Hydrophytic Vegetation Present (Y/N):
Total Cover: 50% of total cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26) 1. Chamerian angustifolium 2. Caymnocarpunt dryoptens 3. Friendels Europaeg 4. Equiselum Arvense 5. Heracleum Maximum 6. Calium sp 7. Valiana 8. Calamagnostis canadensis 9.	21.5 20 Absolute % Cover 5 30 T 25 10 T T 5 4	Dominant Species?	Indicator Status FACU FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes Total Cover of Bryophytes % Cover of Water

5.29.16 Soil Pit Required (Y/N)_ "OIL Date Feature ID SOIL PROFILE DESCRIPTION: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Loc2 (inches) Type1 Texture Notes Color (moist) Color (moist) 100 loan silt loans 50 So loam 100 ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix. INDICATORS FOR PROBLEMATIC HYDRIC SOILS3 HYDRIC SOIL INDICATORS Histosol or Histel (A1) Alaska Gleyed (A13) Alaska Alpine Swales (TA5) Histic Epipedon (A2) _ N Alaska Redox (A14) Alaska Gleyed Pores (A15) Alaska Redox with 2.5Y Hue Black Histic (A3) Alaska Gleved without 5Y Hue or Redder Underlying Hydrogen Sulfide (A4) Layer_ Other (Explain in Notes) Thick Dark Surface (A12) One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. ⁴Give details of color change in Notes. Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present (Y/N): Notes: HYDROLOGY PRIMARY INDICATORS (any one indicator is sufficient) SECONDARY INDICATORS (2 or more required) Stunted or Stressed Water-stained Surface Water (A1) Surface Soil Cracks (B6) Leaves (B9) Plants (D1) Inundation Visible on Aerial Imagery Geomorphic Position (D2) Drainage Patterns (B10) High Water Table (A2) (B7) Sparsely Vegetated Oxidized Rhizospheres along Shallow Aguitard (D3) Saturation (A3) Concave Surface (B8) Living Roots (C3) Presence of Reduced Microtopographic Water Marks (B1) Marl Deposits (B15) Iron (C4) Relief (D4) Hydrogen Sulfide FAC-Neutral Test (D5) Sediment Deposits (B2) Salt Deposits (C5) Odor (C1) Notes: Dry-Season Drift Deposits (B3) Water Table (C2) Algal Mat or Crust (B4) Other (Explain in Notes): Iron Deposits (B5) Surface Water Present (Y/N): Depth (in): Wetland Hydrology Present (Y/N): Water Table Present (Y/N): Depth (in): Saturation Present (Y/N): Depth (in): EC: (includes capillary fringe) Notes:

AQUATIC SITE ASSESSMENT DATA FORM

W10671 018

Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No
Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennia
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Inlet/Intermittent Outlet
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Inlet/Intermittent Outlet
Inlet/Intermittent Outlet
Metland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created Fluvaquent Soils Sediment Observed Well Developed (6-18in.) Pronounced (>18in.) Pronounced (>
Inlet/Intermittent Outlet
Metland Water Regime (P):
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Dief
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Perennial Inlet/Perennial Outlet
Description

Crew Chief QA/QC check: Jess'e Brownlee GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

d explanation in the notes section of data form.
and summary of findings are complete? in logbook?
has been keyed to species, or collected for la
gibly for all strata present?
and correct?
determined and recorded per strata? th species?
Index have been completed?
are marked?
are marked? saturation depths are recorded if present?
ables, and landscape variables complete if site
ach site, including general description, sketch, d boundary as appropriate?
nd dated?
corrected if necessary?

8. Photos

Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

X Maley Mark X Maley Valler 5-29-16
Wetland Scientist (print)
Signature / Date

1 JBrownlee

Field Crew Chief (print)

Signature / Date

	SITE DESCRIPTION		oest places I	Section 1	
Investigators: Comment of the commen	Survey Type: Centerline Acc	ess Road (explain)_X_ Other (ex	plain)	Field Target: 64	Map #: <u>/40</u> Map Date: <u>5⋅2</u> 7
State: Alaska Region: Alaska Milepost: 755, 9 Datum: WGS84 Latitude: 15 8 10 0 5	Date: 5-20-16	Project Name: Alaska LNG		Feature Id:	W106T1019
Latitude: S & G D Naturn: WGS84 Logbook No.: Logbook Page No.: / Picture No.: WOG T O Q O D HAND (STEPARAMETERS Subregion: Gast Talet Basia	Investigators: Jessie	Brownlee Kel	very Vo	heer	Team No.: W 06
Logbook No.: Logbook Page No.: Picture No.: Wild Picture No.: Wild Og Ool How Ool	State: Alaska	Region: Alaska	Milepost:	955.9	
SITE PARAMETERS Subregion: Cock I talet Basia Local relief (concave, convex, none); slighty consume to be pre-mapped Alaska LNG/NWII classification: OFOULTB Evidence of Wildlife Use: Mose and Subregian in Notes) Are climatichydrologic conditions on the site typical for this time of year? Yes Y No. (If no explain in Notes) Are Vegetation Soil or Hydrology. Significantly Disturbed? No. (If yes, explain in Notes) Are Vegetation Soil or Hydrology. Naturally Problematic? No. (If yes, explain in Notes) Are Vegetation Present? Yes No. Is the Sampled Area within a Wetland? Yes Y No. Hydrocondition Present? Yes Y No. Alaska Vegetation Classification (Vereck): [CZ, II BZ Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of Bet North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of Bet North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of Bet North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of Bet North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of Bet North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of Bet North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of Bet North Arrow, Centerline, Longth of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk marker Mixed threat of the Survey of	Latitude: (10 15 8,	1963" N Longitud	de: 151° 8	" 6.071"N	Datum: WGS84
Subregion: Back Talak Basia Landform (hillslope, terrace, hummocks, etc.): Louland Slope (%): 3-5 Fre-mapped Alaska INGAMVI classification: PCOULTS Fre-mapped Alaska INGAMVI classification: PCOULTS Are Climatichydrologic conditions on the site typical for this time of year? Yes. No. (fro explain in Notes) Are Vegetation. Soil. or Hydrology Significantly Disturbed? No. (If yes, explain in Notes) Are Vegetation. Soil. or Hydrology Naturally Problematic? No. (If yes, explain in Notes) Are Vegetation Present? Yes. No. Is the Sampled Area within a Wetland? Yes. No. Hydric Soil Present? Yes. No. Wetland Type: PFOULTS Wetland Hydrology Present? Yes. No. Alaska Vegetation Classification (Viereck): [Z , B Z Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Tall markine History Areas of the strength of the sture of the strength of the sture of the strength of the sture of the strength of the strength of the sture of the strength of the strength of the strength of the sture of the strength of the strengt	Logbook No.:	Logbook Page No.: /%	Picture No.:	P-W106T1	019-001 thruso
Slope (%): 3-5 Pre-mapped Alaska LNG/NWI classification: PFOULTS Evidence of Wildlife Use: Misse In profine Stress In No. (If no explain in Notes) Are Clamatichydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes	SITE PARAMETERS	THE RESERVE OF THE PARTY OF THE	NEW TO	"一种"种类型	
Local relief (concave, correx, none): Apply correct to prevent to the prevent t	Subregion: Cook Talet 1	Basin	Landform (hill	slope, terrace, hummock	s, etc.): Lowland
Pre-mapped Alaska LNG/NWI classification: PFOULTS Are clamatichydrologic conditions on the site typical for this time of year? Yes			Local relief (c	oncave, convex, none):	Shapthy comes and
Are climatichydrologic conditions on the site typical for this time of year? Yes	Pre-mapped Alaska LNG/NWI classific	cation: PFO4/1B			, 0
Are Vegetation Soil or Hydrology Naturally Problematic? No (If yes, explain in Notes.) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No No Wetland Type: Pro4/13 Wetland Hydrology Present? Yes No Alaska Vegetation Classification (Viereck): ICZ, II BZ Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Site is a masaic transition with slight elevation the changes distating act Site is a masaic transition with slight elevation the changes distating act on mucky modifier, water shared depressions on Transact from LZ to all of Area (Same for accase spondey vegetate act formal through and stream all of Area (Same for accase spondey accepted to read of the read					sent:
SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes No. Is the Sampled Area within a Wetland? Yes Y No. Hydric Soil Present? Yes No. Wetland Type: PFO4/IB Wetland Hydrology Present? Yes No. Alaska Vegetation Classification (Viereck): [CZ, II BZ Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Tall madare Mixed treaty Bet New Pie Gle with Aldu t Cal Can understrue is a mosaic transition with slight elevation the changes distating wet to marginally wet calls, 3 soil prits dog. All three had Deep A horroons verging on muchy madifier, water stained depressions Tall madare transition with slight elevation to changes distating wet to marginally wet calls, 3 soil prits dog. All three had Deep A horroons verging on muchy madifier, water stained depressions Transacet from LZ to all off Area (save for area all off Area (save for area) were wet.	Are Vegetation, Soil, or H	ydrology Significantly Disturbe	d? No_/	_(If yes, explain in Notes)
Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Hydric Soil Present? Yes No Wetland Type: PF04/1B Wetland Hydrology Present? Yes No Alaska Vegetation Classification (Viereck): [CZ, 1] BZ Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Tall mature Mixed breat of Bet New Pic Cla with Aldre of Cell can undersorn Site is a masaic transition with slight elevation be changes dictating act on mucky mail fier, water shained depressions on mucky mail fier, water shained depressions of Transact transition LZ to all of Area (Save for acua of Transact transition) was wet. PF04/854B LZ PF04/854B LZ PF04/854B LZ PF04/854B LZ PFMIB	Are Vegetation, Soil, or H	ydrology Naturally Problematic	? No	_ (If yes, explain in Notes	i.)
Wetland Hydric Soil Present? Wetland Hydrology Present? Wetland Hydrology Present? Wetland Hydrology Present? Wes No. Alaska Vegetation Classification (Viereck): ICZ, II BZ Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Tall mature Mixed frust of Bet New Pie Cles with Aldrew to Cal Can understructure in the street of Bet New Pie Cles with Aldrew to Cal Can understructure. Site is a mesaic transition with slight elevation the changes dictating wet to marginally wet calls, 3 sail pits day. All three had Deep A horroons verging on mucky madifier, water stained depressions Many large concave spandey vegetate and formal through and site up all of Area (Save for area all of Area (SUMMARY OF FINDINGS	Y 含。	and the second second	Transmission Services	and the survey of the party of the survey of
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Tall mature Mixed breast of Bet New & Pie Gle with Aldre & Cal Can understructure. Site is a masaic transition with slight elevation Lec changes dictating are to marginally wet calls, 3 soil pits dug. All three had Deep A horroons verging on mucky marifier, water stained depressions. Many large concave spousley vegether and one transect from LZ to all of Area (Save for area all of Area (Save for area all of Area (Save for area for adjacent). Proujsile LZ PEMIB Page 1 of	Hydrophytic Vegetation Present? Yes	No	s the Sampled A	rea within a Wetland?	Yes No
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Talk mature Mixed threat of Bet New Pic Cle with Aldre of Cel Can underston Site is a mosaic transition with slight elevation she change distating wet to marginally wet calls. 3 soil pits dug. All three had Deep A horroons verging on mucky modifier. Water stained depressions on Transact from LZ to all of Area (save for area all of Area (save for area for road) was wet. PFOUSSYB LZ PFOUSSYB LZ PEMIS Page 1 of	Hydric Soil Present? Yes_	У No	Wetland Type:	PF04/13	y-
many large concave spensley vegetate on mucky modifier. wester stained depressions sphagman rand Nearly adjacent PFOUSSYB PFOUSSYB PROUSSYB PROUSSYB PROUSSYB PAGE 106 Page 1 of	Wetland Hydrology Present? Yes_	No	Alaska Vegetation	Classification (Viereck):	1CZ,11BZ
	on mucky modifier. water stained depring sphagnum road Nearly adjacent Prof/18848	calls, & som pro	A B B a	any large con un found the on Transact all of A	cave sponsley vegetate vougle out site w/
0.1011	7				Page 1 of 4

VEGETATION (use scientific names of plants	3)			
Tree Stratum (Plot sizes:(O O)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A)
1. Retula Negalaskana	20	Y	FAC	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: (A/B)
2. Picea Colouca	25	Ý	FACU	(A/b)
3.			-	
4.				Prevalence Index worksheet:
Total Cover	1		a	Total % Cover of: Multiply by:
50% of total cover	7			OBL species: X 1 = O
Sapling/Shrub Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FAC species $\sqrt{35}$ $\times 3 = \sqrt{95}$ FACU species $\sqrt{96}$ $\times 4 = \sqrt{264}$
· Alaus incama sen tenuifolia	35	Y	FAC .	UPL species X 5 =
· Vaccinium ovalifolium	T		FAC	Column Totals: 20 (A) 669 (B)
Menziesia ferriginea	4		FACU	PI = B/A = 3,3
spyraca stevenil	T		-	
				,
Total Cover:	1000	% of total cov	er: 7, 8	
EGETATION (use scientific names of plants				
lerb Stratum (Q()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
Calamagnostis conadensis	.50	Y	FAC	Prevalence Index is ≤ 3.0
Equisidom Arvense	130	Y	FAC	Morphological Adaptations ¹ (Provide supporting data in Notes)
Dryopteris expossa	8		FACU	Problematic Hydrophytic Vegetation¹ (Explain)
trientalis europaea	2		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
· viola sp	T		_	disturbed or problematic.
Coumnocarpium deventeris	25	Y	FACU	
· Streptopus amplexitalius	2		FACU	% Bare Ground
· Rubus pedatus	T		FAC	% Cover of Wetland Bryophytes
			艺	Total Cover of Bryophytes and Field
0.			/	% Cover of Water
Total Cover:	C7 500	0/ -54-4-1	7 24	Notes: (If observed, list morphological adaptations below):
50% of total cover:	58,520	% of total cov	er: <u>73</u> ,4	

W106T1019

OIL PROFI	Matrix	1	Redox Features					
epth nches)	Color (moist)	1%	Color (moist)	%	Type ¹	Loc²	Texture	Notes
	Color (moist)	70	Color (moist)	70	1360	1200	Hinz Sandy	Dampleaf litter
2-4	104R 2/2	100		1		1	VF Salo	
4-13	7 SYR 2.5/2	100				-	Silt loans	high organic content
13 - 18	104R 3/3		5/2.5/2	10	con	2.c. m	Fine Sa La	
15 (8	1010 13	-		,,,,	Can		1 110 110	
		1- 12			1 0	1 10 10	21 4:	Disposa Linius Manageria
THE RESERVE OF THE PARTY OF THE		tion, KN	1=Reduced Matrix, CS	S=Cove	red or Co	ated Sand G		: PL=Pore Lining, M=Matrix.
The state of the s	L INDICATORS	-	科研究研究 3000 15		10 A A	AND SHIPLE TO	ON THE RESIDENCE AND ADDRESS OF THE PARTY OF	FOR PROBLEMATIC HYDRIC SOILS
The second	istel (A1)/		Alaska Gleyed					Change (TA4) ⁴ \mathcal{N}
Histic Epiped			Alaska Redox (-		Alaska Alpine	
Black Histic (Hydrogen Su	-	-	Alaska Gleyed I	Pores (A	A15) _ N			with 2.5Y Hue without 5Y Hue or Redder Underlying
	urface (A12)					-	Other (Explain	in Notes) \
disturbed or p Give details	of color change in No			andle (in	ches):	,		- W
Restrictive La	ayer (if present): Type	2:	De	epin (in	0.1100)			Pan :
Hydric Soil [Present (Y/N):						orizon	
Hydric Soil (Notes: <i>Posid</i>	Present (Y/N): Y	Aion	(24", Mucky	in s	Andie (in Altho		or more required)
Hydric Soil (Notes: Posie	Present (Y/N): Y	ction rors (a	04". Mucky	sibly	and s	in Altho	/ INDICATORS (2	
Hydric Soil (Notes: Posice HYDROLOG Surface Wate	Present (Y/N):	FORS (a	iny one indicator is surface Soil Cracks (B6)	sibly	Andis O	ECONDARY Vater-stained eaves (B9)	/ INDICATORS (2	or more required) Stunted or Stressed
Hydric Soil (Notes: Posial HYDROLOG Surface Water T	Present (Y/N):	FORS (a	iny one indicator is surface Soil Cracks (B6)	fficient)	Andie O	ECONDAR) Vater-stained eaves (B9)	terns (B10)	Stunted or Stressed Plants (D1)
Hydric Soil (Notes: Posid HYDROLOG Surface Water High Water T	Present (Y/N):	FORS (a Sun (B7 Spa Con	iny one indicator is surface Soil Cracks (B6)	fficient)	Andie S Andie S V L gery C	ECONDARY Vater-stained eaves (B9) _ Orainage Patt	terns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Hydric Soil (Notes: Posid HYDROLOG Surface Water High Water T Saturation (A	Present (Y/N):	FORS (a Sun Inu (B7 Spa Con Ma	face Soil Cracks (B6) Indation Visible on Aer arsely Vegetated Incave Surface (B8)	fficient)	Spots) Andie S V L gery C L F III	ECONDARY Vater-stained eaves (B9) Drainage Patt Dxidized Rhiz iving Roots (Presence of Fron (C4)	terns (B10) cospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Hydric Soil (Notes: Posid HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De	Present (Y/N):	Sun Inu (B7 Sp. Con Ma	iny one indicator is surface Soil Cracks (B6) Indation Visible on Aer Indicator Visible on Aer I	fficient)	Spots) Andie S V L gery C L F III	ECONDARY Vater-stained eaves (B9) Drainage Patt Dxidized Rhiz iving Roots (Presence of Fron (C4)	terns (B10) cospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Hydric Soil (Notes: Posie HYDROLOG Surface Wate	Present (Y/N):	Sun Inu (B7 Spa Con Ma Hyd Odd Dry Wa	face Soil Cracks (B6) Indation Visible on Aer Dearsely Vegetated Incave Surface (B8) Indogen Sulfide Incorr (C1) I	fficient)	Spods) Andie S V L gery C L F III	ECONDARY Vater-stained eaves (B9) Drainage Patt Dxidized Rhiz iving Roots (Presence of Fron (C4)	terns (B10) cospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aguitard (D3) Microtopographic Relief (D4)
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Hydric Soil (Notes: Position HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or (ron Deposits	Present (Y/N):	Sun Inu (B7 Spa Con Ma Hyd Odd Dry Wa	Iny one indicator is surface Soil Cracks (B6) Indation Visible on Aer arsely Vegetated Incave Surface (B8) Indicator is surface (B8) Indicator Visible on Aer Arsely Vegetated Incave Surface (B8) Indicator (B15) Indicator is surface (B6) Indicator is surface (B7) Indicator is	fficient)	gery C	Vater-stained eaves (B9) Orainage Patt Oxidized Rhiz iving Roots (Oresence of Fron (C4) Salt Deposits	terns (B10) terns (B10) tospheres along (C3) Reduced (C5) Seeping in g to rise to	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aguitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) VICKLY From Yf" Water table Rest +4/5 / Kee/
Hydric Soil (Notes: Position HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment Deposits Algal Mat or (ron Deposits Surface Water	Present (Y/N):	Sun Inu (B7 Spa Con Ma Hyd Odd Dry Wa	Iny one indicator is surface Soil Cracks (B6) Indation Visible on Aer arsely Vegetated Incave Surface (B8) Indicator is surface (B8) Indicator Visible on Aer Arsely Vegetated Incave Surface (B8) Indicator (B15) Indicator is surface (B6) Indicator is surface (B7) Indicator is	fficient)	gery C	Vater-stained eaves (B9) Orainage Patt Oxidized Rhiz iving Roots (Oresence of Fron (C4) Salt Deposits	terns (B10) cospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aguitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) VICKLY From Yf" Water table Rest +4/5 / Kee/

AQUATIC SITE ASSESSMENT DATA FORM

W10671019

VELILITATION VARIABLES P= Plot, -M= Macrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved X Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Non-persistent Persistent Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) 45 Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water X <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none)X One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches_X Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Stope X Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Evidence of Sedimentation (P): No Evidence ObservedX Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading 5 / 3
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin l'opographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%)
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medium (10-100 acres) targe (>100 acres)

Crew Chief QA/QC check: Jessie Browniee

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featu	re ID: WIOGTIO19 Field Target: 169 Date: 5.30.16
For al	l items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
	✓ Vegetation names are entered legibly for all strata present? ✓ Cover calculations are complete and correct?
	All dominant species have been determined and recorded per strata?
	Indicator status is correct for each species?
	Dominance Test and Prevalence Index have been completed?
3.	Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X halen	Volver	X halls	Valger	5-30-16
Wetland Scientist (print)		Signature / Date		

X J. Brownlee

Field Crew Chief (print)

X Lessie Browlee 5.38.16

		The second			\$30.10.20m	
SITE DESCRIPTION			-			Man #: /4/ Man Data: 5, 27//
Survey Type: Centerline Acces			in)	Field Targe	Feature Id:	Map #: 14/ Map Date: 5-07-16
Date: 5 - 30 - 16						10100110-
Investigators: Jessie &	unler, Ka	ley	MONE			Team No.: WO6
State: Alaska	Region: Alaska	0	Milepost:	755.9	7	•
Latitude: 6 6 14 46, 0	51" N	Longitude:	151°7	150.4	611W	Datum: WGS84
Logbook No.:	Logbook Page No.:	9#	Picture No.:	PMOC	TIOZ	3-001 thre 004
SITE PARAMETERS	A CONTRACTOR OF THE SECOND		A SECRETARY	10000000000000000000000000000000000000		The second secon
Subregion: Cook Inlet	Basin		Landform (hill	slope, terrace	e, hummocks	s, etc.): lowland
Slope (%): 5 - 8			Local relief (co	oncave, conv	vex, none):	addating.
Pre-mapped Alaska LNG/NWI classifica	ition: U		Evidence of V	Vildlife Use:	None	V
Are climatic/hydrologic conditions on the Yes No (if no exp	e site typical for this time of ain in Notes)	f year?	Are "No Yes	ormal Circum No	stances" pre (If no, exp	sent: plain in Notes.)
Are Vegetation, Soil, or Hyd	drology Significantly	Disturbed?	No.	_(If yes, expl	lain in Notes)
Are Vegetation, Soil, or Hyd	drology Naturally Pro	oblematic?	No	_ (If yes, exp	lain in Notes	5.)
SUMMARY OF FINDINGS	Carponia and Assessment			ilishe - C		Atta Taring
Hydrophytic Vegetation Present? Yes_	No	_ Is 1	he Sampled A	rea within a	Wetland?	Yes X No
Hydric Soil Present? Yes_	<u> Х</u> Nо	_ We	tland Type:	PFO1/	4B -7	
Wetland Hydrology Present? Yes_	No	- Ala	ska Vegetation	n Classification	on (Viereck):	(CZ.11 BZ
Notes and Site Sketch: Please include I corridor. Marginal transitional Zo a few small pocket. This point to gravel construction. Site	ne, transitioning of wet s	Centerline, It to wet ports in along	stighty were man	re, Distances there pped o pred o sec	Mangina A train the state of th	Plant Post Locations, and Survey own 5 lope. Asidom From Insect For updates Westland Ho SE PES VEMIE
	102	LIIC	2	6 > 8	PF01/	113
	10	-			(C2.	11 B7_ Page 10

WIOGTLOZO

EGETATION (use scientific names of plan	nts)	15.15			
ree Stratum (Plot sizes: 00)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:	
Betula mean laskan	18	Y	FAC	Total Number of Dominant Species Across All Strata: % Dominant Species that are OBL, FACW, or FAC: 80	
Picea a lawcon	3		FACU	% Dominant Species that are OBL, FACW, or FAC:	
Almus in cana tenufolio	5		FAC		
				Prevalence Index worksheet:	
Total Cove	er: 26			Total % Cover of: Multiply by:	
50% of total cove	er: 3 20	0% of total co	ver:	OBL species: X 1 = O	
apling/Shrub Stratum (Z.6)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: X 2 = 0 FAC species 100	
Alnus incana var. Tenu	folia 20	Y	FAC	UPL species X 5 =	
Betula negalaska	4		FAC	Column Totals: 146 (A) 484 (B)	
ROSA ACICULARIS	2		FACU	PI = B/A = 3.3	
Vibranm edute	5	-	FALU		
Ribes triste	2		FAC.		
	77				
Total Cove	11	% of total cov	er 6.Ce		
Total Cove 50% of total cove	r:_ <u>16-5</u> 20	% of total cov	er:_ <i>6.</i> Ce		
50% of total coverage of plant	r: <u>//e-5</u> 20				
50% of total coverage of plant	r:_ <u>16-5</u> 20	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%	
50% of total coverage of plant of the Stratum (7 ()	r: <u>//e-5</u> 20	Dominant	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0	
50% of total coverage of plant of Stratum (7 ()	Absolute % Cover	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0	
GETATION (use scientific names of plant rb Stratum (7.6)	Absolute % Cover	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in	
GETATION (use scientific names of plant rb Stratum (7.6)	Absolute % Cover	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)	
Total Cove 50% of total cove GETATION (use scientific names of plant orb Stratum (7 6)	Absolute % Cover 20	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)	
Total Cove 50% of total cove GETATION (use scientific names of plant orb Stratum (7 6)	Absolute % Cover 20	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless	
Total Cove 50% of total cove EGETATION (use scientific names of plant erb Stratum (7 6) Equipment (7 6	Absolute % Cover 20	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless	
Total Cove 50% of total cove EGETATION (use scientific names of planterb Stratum (7 6)	Absolute % Cover 20	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Cover of Wetland Bryophytes	
Total Cove 50% of total cove EGETATION (use scientific names of plant erb Stratum (7 6) Equipment (7 6	Absolute % Cover 20	Dominant Species?	Indicator Status FAC FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Cover of Wetland Bryophytes Total Cover of Bryophytes	
Total Cove 50% of total cove EGETATION (use scientific names of plant erb Stratum (7 6) Equipment (7 6	Absolute % Cover 20	Dominant Species?	Indicator Status FAC FACU FACU FACU	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground We Cover of Wetland Bryophytes Total Cover of Bryophytes Cover of Water	
Total Coverson of total coverse of total covers of total cover	Absolute % Cover 20 3 0 2 4 3	Dominant Species?	Indicator Status FAC FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Cover of Wetland Bryophytes Total Cover of Bryophytes	

W106T1020

WETLAND DETERMINATION DATA FORM

5.30-16

SOIL	""一点"温度"		DateFeature ID_	. 75		Andrew word	Soil Pit Required (Y/N)
SOIL PROFILE	DESCRIPTION: (De	escribe	to the depth needed to docum	nent the	indicator or co	nfirm the absence	e of indicators.)
Depth	Matrix		Redox Features				
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture	Notes
Oe 0-3							Leaf litter & Sand throughout
A 3-6	104R 4/2	100					by loan & possibly Andic
Bul 6-12		90	- II	CON	W BC	SIFTORM	con an primarity cinterface up to
	10 11			con	m RC		,
BWZ /2=18	15 y 1/2	95		con	M RC	Sittloam	
BW3 18-24	2.544/2	92	7.5424/6 8	CON	RCM	Siltloom	47. 2
1		DI	1 Deduced Makin OS=Course	ad as Co	noted Cond Cr	nine ² l ocation:	PL=Pore Lining, M=Matrix.
	The second secon	ion, RN	1=Reduced Matrix, CS=Covere	ed or Co	bated Sand Gra		FOR PROBLEMATIC HYDRIC SOILS ³
HYDRIC SOIL		A COLOR	Aleska Clayed (A12)	N		And the Control of th	hange (TA4) ⁴ /
Histosol or His			Alaska Gleyed (A13)	1			Swales (TA5)
Histic Epipedo			Alaska Redox (A14)	45) 4	-		with 2.5Y Hue/_
Black Histic (A			Alaska Gleyed Pores (A	(15)			without 5Y Hue or Redder Underlying
Hydrogen Sulf	de (A4)		- 1 9			Layer_ N	#-1.1
Thick Dark Sur	face (A12)					Other (Explain	
³ One indicator disturbed or pr	of hydrophytic vegeta	ation, o	ne primary indicator of wetland	d hydrol	ogy, and an ap	propriate landsca	pe position must be present unless
4Give details o	f color change in Note		21				
Restrictive Lay	er (if present): Type:	N	_ Depth (inc	ches):	_		
Hydric Soil Pr		1					
Notes: 811+	som fiely des	nse.	Positive XX very Fo	i thris	n Bulh	orizon. Con:	sulted w/ Bryan strong
who supplie	ted me & as	50	ying faint XX ;	13 51	HIll posit	five if its	immediate reaction,
which 1	1 we						
HYDROLOGY	PRIMARY INDICAT	ORS (a	any one indicator is sufficient)		SECONDARY	INDICATORS (2	or more required)
Surface Water	(A1)/		rface Soil Cracks (B6)	_	Water-stained Leaves (B9) _		Stunted or Stressed Plants (D1)
High Water Ta	ble (A2)/	Inu (B7	indation Visible on Aerial Imag		Drainage Patte		Geomorphic Position (D2)
Saturation (A3)		arsely Vegetated ncave Surface (B8)		Oxidized Rhiz Living Roots (ospheres along C3)	Shallow Aquitard (D3)
Water Marks (B1)//	Ma	rrl Deposits (B15)		Presence of R Iron (C4)	Reduced see	Microtopographic Relief (D4)
Sediment Dep	osits (B2)/		drogen Sulfide for (C1)		Salt Deposits	(C5) _/_	FAC-Neutral Test (D5)
Drift Deposits	(B3)/		y-Season ater Table (C2)		Notes:		
Algal Mat or C	rust (B4)//	Oti	her (Explain in Notes):				
Iron Deposits	B5)						
	ALCONOMIC SERVICES	SAY ELEM	结合。2.40年5月共	The same of the sa	A 2000	Carried Colonia	S. C. S. A. C.
Surface Water	Present (Y/N):	V	Depth (in):			D	n. /
Water Table P	resent (Y/N):		Depth (in): ZO	W	etland Hydrol	logy Present (Y/N	V):
Saturation Pre (includes capil	lary fringe)		Depth (in): 9-15 11 566		c: 40	_ PH	5.5
Notes: woody de pit satur	stris @ 9" with	Q 0	ail saturation at closer to 15!	por	nt of con	fact and 1	oclow. Other parts of

AQUATIC SITE ASSESSMENT DATA FORM WIOGTI 0 20



VEGETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved_ Emergent-Non-persistent_ Emergent-Persistent_ Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) 3 ○ Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water X <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) Kunderste (broken i
HGM Class (P): SlopeX Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Sitty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Outlet Perenni
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed X Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Greated Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs Return Interval Yes
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading 5
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%)
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medium (10-100 acres) Large_(>100 acres)

Crew Chief QA/QC check:

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Fe	ature	ID: WOGT 020 Field Target: \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
		items not checked, please provide detailed explanation in the notes section of data form.
, ,		
	1.	Site Description
		Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
	2.	Vegetation
		At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
		Vegetation names are entered legibly for all strata present?
		Cover calculations are complete and correct? All dominant species have been determined and recorded per strata?
		Indicator status is correct for each species?
		Dominance Test and Prevalence Index have been completed?
	3.	Soil
		Soil profile is complete?
		Appropriate hydric soil indicators are marked?
	4.	Hydrology
		Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
	5.	Functions and Values
		Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
	6.	Field Logbook
		Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate?
		Each logbook page is initialed and dated?
	7.	Maps
		Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X haven Vo	leer :	x halen	Valger	5-31-16
Wetland Scientist (print)	9	Signature / Date	4	

X Jessu Brownlee X 5:31-16

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	All parties for the same			September 10 Company Comments
Survey Type: Centerline X Acces	ss Road (explain) Othe	r (explain)	Field Target: 176	Map #: 128 Map Date: 5-70
Date: 5-30 - \(p	Project Name: Alaska LNG		Feature Id	W10671021
Investigators: Jessie Bo	owniep. Kei	ley VOIR	er	Team No.: WLOG
State: Alaska	Region: Alaska	Milepost:	750.6	
Latitude: 610 181 38. Z	23" N Lon	gitude: \51°	1' 39.88"W	Datum: WGS84
Logbook No.:	Logbook Page No.: / S	Picture No	: P-WOGT10	21-001 thru 004
SITE PARAMETERS		ATTEN ASSESSMENT		
Subregion: Cook Inlet Ec	o region	Landform (hillslope, terrace, hummock	s, etc.): Lowland
Slope (%): 5-8	0	Local relief	(concave, convex, none):	undulating
Pre-mapped Alaska LNG/NWI classifica	tion: PFO 1/4 B	Evidence o	f Wildlife Use: NON E	-0
Are climatic/hydrologic conditions on the Yes No (if no expl		r? Are " Yes_	Normal Circumstances" pre	esent: plain in,Notes.)
Are Vegetation, Soil, or Hyd	frology Significantly Dist	urbed? No	(If yes, explain in Notes)
Are Vegetation, Soil, or Hyd	Irology Naturally Probler	natic? No	(If yes, explain in Notes	5.)
SUMMARY OF FINDINGS			CALL BUILDING SALE	H. T. C. Handley Live Swing
Hydrophytic Vegetation Present? Yes_	No	Is the Sampled	Area within a Wetland?	Yes No
Hydric Soil Present? Yes	No	Wetland Type:	U	· ·
Wetland Hydrology Present? Yes_	No ₹	Alaska Vegetat	ion Classification (Viereck);	102,11BZ
Notes and Site Sketch: Please include Decorridor. Sorrounding area is very well wet forest. This site is made on either side of the Site revisit recommend to keep site from making my PFOY 1854B PFOY PFOY	This is a small orginal wy wetland inclusion. Due to the slope charic soil & guestion in 1913	Marginal S VS + down Sion Lange I believe eather site ra CCCLEGOLA COLLEGOLA COLL	pland in other alope of conner water draps just all gived soil & 16" of wet	wise PFO1/4B ctivity between the
4 4 0 -	up s	tarting right	before FT 176	yak a tro-

W106T10Z1

VEGETATION (use scientific names of plants)			
1. Alpus Mana tensola 2. Bet la negalas lana 3. Picea glavia	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FAC FAC FAC	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 4 (A) Total Number of Dominant Species Across All Strata: 4 (B) % Dominant Species that are OBL, FACW, or FAC: 4 (A/B) Prevalence Index worksheet:
Total Cover:	45			Total % Cover of: Multiply by:
50% of total cover:		% of total cov	ver:	OBL species: X1 = O
Sapling/Shrub Stratum (ZG)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species:
1. Alyus incana tenusola	30	7	FAC	UPL species X 5 =
2. Ribes triste	10		FAC	Column Totals: 182 (A) 590 (B)
3. Optopanax harridus	/		FACU	PI = B/A = 3, 24
5. Dicos Gicularis	4		FACU	
6.	- (TACO	
7.				
8.				
9.				-
Total Cover:_ 50% of total cover:_	58 29 20	% of total cov	er: 1/6	
VEGETATION (use scientific names of plants)		Far-Paris		Court for the state of the stat
Herb Stratum (ZG)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. Ca amagostis canadens	30	4	FAC	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
2. Equisetush a evense	20	Y	FAC	Notes)
3. Equisetum sylvation	8		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Trientalis emogara	6		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Dryopter & expansa	15		FACU	disturbed or problematic.
6.				了。 第一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个
7.				% Bare Ground
8.				Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.				Word of Water Hydrophytic Vegetation Present (Y/N):
Total Cover:_	12			Notes: (If observed, list morphological adaptations below):
50% of total cover:_	39.5 209	% of total cove	er:15.8	section, list morphological adaptations below).

W106T1021

AND DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED	THE SECTION STATES AND ADDRESS.	CONTRACTOR DESCRIPTION		_				
OIL PROFIL	E DESCRIPTION: (Describe	to the depth needed to	o docu	ument the i	indicator or c	confirm the absen	ce of indicators.)
epth	Matrix	V	Redox Features			4		*
nches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-4								Dry organics
4-6	104R 2/Z	(00)					Sandy los	en,
1 6-16	104R 3/2	125	5YR 3/3	5	con	RC	Silt loam	Andic properties also co
2/10-24	104R 4/2	80	#54 2.5/2	20	con	RC M	Sandy Jam	focused at interface bet
	100							Bw 9 Bw 2 also 15%
	2.207							Frago
ype: C=Co	ncentration, D=Depl	etion, RI	M=Reduced Matrix, CS	=Cove	ered or Co	ated Sand G		n: PL=Pore Lining, M=Matrix.
YDRIC SOII	LINDICATORS	ALPHAN C	三国的			Production of the second	200 Edit	S FOR PROBLEMATIC HYDRIC SOILS
stosol or His	stel (A1) N		Alaska Gleyed (A	A13)_	N			Change (TA4) ⁴ N
stic Epipedo	on (A2)/		Alaska Redox (A	114)_	N		Alaska Alpine	e Swales (TA5) N
ack Histic (/	A3)		Alaska Gleyed F	Pores	(A15) N		The second secon	x with 2.5Y Hue
ydrogen Sul	fide (A4)						Alaska Gleye	ed without 5Y Hue or Redder Underlying
	urface (A12) N						Other (Expla	in in Notes)
ne indicato	r of hydrophytic year	etation (one primary indicator of	wetla	and hydrolo	ogy, and an a		cape position must be present unless
estrictive La	Present (Y/N):	De:	De	epth (i	nches):			
estrictive La	Present (Y/N):	De:	De Mineral	epth (i	nches):			
ydric Soil Potes: Neg	Present (Y/N):	De:			;			(2 or more required)
ydric Soil Potes: Neg	Present (Y/N):	ATORS (" of mineral	fficien	t)		Y INDICATORS	(2 or more required) Stunted or Stressed Plants (D1)
ydric Soil Potes: Wag	Present (Y/N):	ATORS (" on mineral any one indicator is sur	fficien	t) s	SECONDAR Water-staine Leaves (B9) Drainage Pa	Y INDICATORS d tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
ydric Soil Potes: Wag YDROLOG urface Wate igh Water To	Present (Y/N): Present (Y/N): Y PRIMARY INDICA or (A1) able (A2)	ATORS (St. Interest Barrier Bar	any one indicator is surface Soil Cracks (B6)	fficien	t) s	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi Living Roots	y INDICATORS d tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)
ydric Soil Potes: Way YDROLOG urface Water igh Water Taturation (A	Present (Y/N): Present (Y/N): Present (Y/N): Present (Y/N): A Present (Y/N):	ATORS (St. St. St. Co.	any one indicator is surface Soil Cracks (B6) undation Visible on Aer 7)	fficien	t) s	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi	y INDICATORS d tterns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
ydric Soil Potes: Was a Valentiate Water Marks	Present (Y/N): Present (Y/N): Present (Y/N): Y PRIMARY INDICA OF (A1) able (A2) (B1) (B1) (B1) OF (B1)	ATORS (St. Int. (B Sp. Cc. M.	any one indicator is surface Soil Cracks (B6) undation Visible on Aer 7) varsely Vegetated oncave Surface (B8)	fficien	t) s	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi Living Roots Presence of	tterns (B10) izospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
ydric Soil Potes: Water Marks ediment Department Color	Present (Y/N): (Present (Y/N): Present (X/N):	ATORS (Summer of the summer o	any one indicator is sur- urface Soil Cracks (B6) undation Visible on Aer 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15)	fficien	agery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi Living Roots Presence of Iron (C4)	tterns (B10) izospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Potes: Water Water Marks ediment Deposits	Present (Y/N): Present (Y/N): Present (Y/N): Present (Y/N): Y PRIMARY INDICA Out (A1) able (A2) (B1) posits (B2) (B3)	ATORS (St. Int. (B) Sp. Cc. M. Hy	any one indicator is surface Soil Cracks (B6) undation Visible on Aer 7)	irial Im.	agery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10) izospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Potes: Water Marks ediment Deposits lgal Mat or Communication (Accepted to the com	Present (Y/N): Present (Y/N): Present (Y/N): Present (Y/N): Present (Y/N): Y PRIMARY INDICATION (A1) able (A2) (B1) posits (B2) Crust (B4)	ATORS (St. Int. (B) Sp. Cc. M. Hy	any one indicator is surface Soil Cracks (B6) undation Visible on Aer 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) vdrogen Sulfide dor (C1) y-Season ater Table (C2)	irial Im.	agery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10) izospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Potes: Wage YDROLOG Urface Water igh Water Taturation (A: Water Marks ediment Deposits Igal Mat or Con Deposits	Present (Y/N):	ATORS (St. Int. (B) Sp. Cc. M. Hy	any one indicator is surface Soil Cracks (B6) undation Visible on Aer 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) ydrogen Sulfide dor (C1) y-Season ater Table (C2) ther (Explain in Notes):	irial Im.	agery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits	tterns (B10) izospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Potes: Water Marks ediment Deposits ligal Mat or Con Deposits urface Water urface Water Marks	Present (Y/N): Present (Y/N): Present (Y/N): Present (Y/N): Present (Y/N): Y PRIMARY INDICATION (A1) able (A2) (B1) posits (B2) Crust (B4)	ATORS (St. Int. (B) Sp. Cc. M. Hy	any one indicator is surface Soil Cracks (B6) undation Visible on Aer 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) vdrogen Sulfide dor (C1) y-Season ater Table (C2)	irial Im.	agery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rhi Living Roots Presence of Iron (C4) Salt Deposits Notes:	tterns (B10) izospheres along (C3) Reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM



VEGETATION VARIABLES P- Flot, W= Matrix
Primary Vegetation Type-(P): Vegetation Lacking Forested-Deciduous-Needle-leaved Ferested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water 25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A 26-75% Scattered or Peripheral Cover
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed) —
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Perennial Inlet/Perennial Inlet/Pe
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Microrelief of Wetland Surface (P): AbsentPoorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%)
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Upstream & Downstream Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized

Crew Chief QA/QC check:

Jesse Browle

GPS Technician QA/QC check:

KV

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

WIOGTOZI

Feature ID: WIOGTOZI

Field Target: 186

Date: 5-31-16

For all items not checked, please provide detailed explanation in the notes section of data form.

1. Site Description

- ☑ Site description, site parameters and summary of findings are complete?
- A detailed site sketch is included in logbook?

2. Vegetation

- At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
- ☑ Vegetation names are entered legibly for all strata present?
- ☑ Cover calculations are complete and correct?
- ☑ All dominant species have been determined and recorded per strata?
- Indicator status is correct for each species?
- ☑ Dominance Test and Prevalence Index have been completed?

3. Soil

- ☑ Soil profile is complete?
- ☑ Appropriate hydric soil indicators are marked?

4. Hydrology

- Appropriate hydrology indicators are marked?
- Surface water, water table, and saturation depths are recorded if present?

5. Functions and Values

Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?

6. Field Logbook

- Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate?
- Each logbook page is initialed and dated?

7. Maps

- ☑ Wetland boundaries have been corrected if necessary?
- Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

x haven you	per x haller	Volger	5-31-16
Wetland Scientist (print)	Signature / Date		

X JBrownlae

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	a an included that is a proper to a second	4		The second second
Survey Type: Centerline Acces	ss Road (explain) Other (ex		ield Target: 186	Map #: 17 Map Date: 5.23
Date: 5-31-16	Project Name: Alaska LNG		Feature Id:	WIOGTIOZZ
Investigators: Jessie &	where kake	n Volpo	~	Team No.: VV06
State: Alaska	Region: Alaska	Milepost: 73	38.8	
Latitude: 60 23 52.0	714" N Longitu	de: 150° 44	1 52.32'W	Datum: WGS84
Logbook No.:	Logbook Page No.: 20	Picture No.:	-W10611 0Z	Z-001 4mm 004
SITE PARAMETERS				
Subregion: Cook Inlet Bu	٨١٥	Landform (hillslop	pe, terrace, hummocks	i, etc.): Couland
Slope (%): 3-5			cave, convex, none):	
Pre-mapped Alaska LNG/NWI classifica	tion: PFO4B		life Use: Moose	oppings bird sengs
Are climatic/hydrologic conditions on the Yes No (if no expl.	site typical for this time of year?	Are "Norma	al Circumstances" pres	
Are Vegetation, Soil, or Hyd	frology Significantly Disturbe	d? No(If	f yes, explain in Notes)	
Are Vegetation, Soil, or Hyd	Irology Naturally Problematic	? No_X(II	f yes, explain in Notes.)
SUMMARY OF FINDINGS	A CONTRACTOR OF THE STATE OF	The Paris of the same	在上下的人员的最后,	
Hydrophytic Vegetation Present? Yes_	X No	s the Sampled Area	within a Wetland?	YesX No
Hydric Soil Present? Yes_	X No	Wetland Type: PF	F04B + A	2 11 B2
Wetland Hydrology Present? Yes		Alaska Vegetation Cla	assification (Viereck):	1AZ, 11BZ
Notes and Site Sketch: Please include Dicorridor. Tall mature Black St. Area shows many: sent fare cone are with sta rom 17" down, in sec map for ado Philadelphia	signs of hydrologianed depressions waterfuble like	y w/ prefer	deastory & Egental gran	the on hummorks.
PF61/55113	PFOYB			

W106T10ZZ

VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot.sizes: \(\infty OO \)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata:
1. Pices mariana	45	Y	FACIL	% Dominant Species that are OBL, FACW, or FAC: 75 (AV
2. Betula Negalaskana	10		FAC	
3.				
i.	*			Prevalence Index worksheet:
Total Cover	- 1 -		1.1	Total % Cover of: Multiply by:
50% of total cove	r: 27,5 20	% of total cov	er:\\	OBL species: X1 = V
Sapling/Shrub Stratum (76)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species:
vaccinium vitis-idea	13		FAC	UPL species X 5 = O
Meniesia ferruginea	10	Y	FACI	Column Totals: 140 (A) 389 (B)
Ribes triste	3		FAC	PI = B/A = 2,7
. Spirea Stevenii	T			
Between megalaskana	15	Y	FAC	
. F				
0				
3.		-		
9.				
Total Cover	r: 15.5 20	0% of total cov	ver: 6.2	
/EGETATION (use scientific names of plant		D	Indicates	Hydrophytic Vocatation Indicators:
Herb Stratum (Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤ 3.0
· Cornus canadensis	4	,	FACU	Morphological Adaptations¹ (Provide supporting data in
Equisetim sylvaticum	40	Y	FAC	Notes)
. Moneses whiftern	4-		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Rubis chamgemorus	4		FACUS	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Spinulum annofinum	T		FACE	disturbed or problematic.
6. Neottia SP	T			ANY STATE OF THE PARTY OF THE SECOND
1. Egyisthim Arvense	7		FAC	% Bare Ground
B. Calamagrostis constens	15 2		FAC	% Cover of Wetland Bryophytes
9. Feed 50	7		_	Total Cover of Bryophytes
o. Goodyera repens	T		Fu.	% Cover of Water
Total Cove	54		FAC	Hydrophytic Vegetation Present (Y/N):
50% of total cove		0% of total cov	ver: 10,8	Notes: (If observed, list morphological adaptations below):

W106T102Z

SOIL		GEO/CONTROL	5.3 · (6	iro I	D			0.330/.0
Line .	E DESCRIPTION: (to the depth needed to			indicator on co	onfirm the absence	Soil Pit Required (Y/N)
Depth	Matrix	December	Redox Features	doc	differit the	indicator of co	main the absence	e of indicators.)
(inches)	Color (moist)	%		%	Type ¹	Loc2 .	Texture	Notes
0. 01	Joint (molecy)	70	Color (moist)	70	Туре	LOC .	Texture	Notes
De 0-6	104R 3/2	10.3	-	-			1. 1.	Damp organics
3w/10-17	101R 3/2	100	7.54R 3/3	~			Mucky loam	1
2 17 24	101/2 3/			8	con	RCM	Silt larry	Devise
sg / + - d4	107 7	95	104R 5/4	5	lon	M RC	Course sand	Joan Dense
Type: C=Con	centration, D=Deple	etion, RM	=Reduced Matrix, CS=0	Cove	ered or Coa	ated Sand Gra	ins ² l ocation:	PL=Pore Lining, M=Matrix.
HYDRIC SOIL			SA - 代表 #\$豆体原生#5					FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or His	tel (A1)		Alaska Gleyed (A1	13)	7			hange (TA4) ⁴
Histic Epipedor			Alaska Redox (A1-		-			
Black Histic (A:	1		Alaska Gleyed Por					Swales (TA5)
Hydrogen Sulfi		,	, Alaska Gleyeu Ful	165 (A15)		Alaska Gleyed	with 2.5Y Hue without 5Y Hue or Redder Underlying
Thick Dark Sur	face (A12)						Other (Explain i	in Notes)
isturbed of pro	of hydrophytic vege oblematic. color change in No		ne primary indicator of w	etla	nd hydrolo	gy, and an ap	propriate landsca	pe position must be present unless
Notes: Positiv	esent (Y/N): X e XX station Muzky Mod.	901	"From 5. Hace	9	through	Kont		
YDROLOGY	PRIMARY INDICAT	TORS (a	ny one indicator is suffici	ient)	s	ECONDARY	INDICATORS (2	or more required)
Surface Water	(A1) M SEC NOT	Surf	ace Soil Cracks (B6)	V	1000	ater-stained eaves (B9)	Y	Stunted or Stressed Plants (D1)
ligh Water Tab	ole (A2)	Inur (B7)	dation Visible on Aerial	lma	gery D	rainage Patter	rns (B10)/	Geomorphic Position (D2)
Saturation (A3)	* ~		rsely Vegetated cave Surface (B8)	y		xidized Rhizos ving Roots (C	spheres along 3)	Shallow Aquitard (D3)
Vater Marks (B	1)	Mar	Deposits (B15)			resence of Re on (C4)	duced	Microtopographic Relief (D4)
ediment Depo	sits (B2)	100	rogen Sulfide r (C1)		S	alt Deposits (C		FAC-Neutral Test (D5)
Prift Deposits (E	33)		Season er Table (C2)	Y	N	otes: Lou sy	pots have v	ery saturated organic
lgal Mat or Cru	ust (B4)	Othe	er (Explain in Notes):			/ surfa	ce horri	-on.
on Deposits (E	35)							
and the same of th			and the second second second second		Actions	* (214x)	THE PARTY WITH STATE OF	
urface Water F	Present (Y/N):	1	Depth (in):				B	
Vater Table Pre	- 4		Depth (in): 15-17		Wetl	and Hydrolo	gy Present (Y/N)	:
aturation Presoncludes capilla			Depth (in): 15		EC:_	110		5.38 pH
otes: Seep	ing, Jahurat	Hon (15" expect w	ate	er Jabla	e to risi		a least if Not 15"

AQUATIC SITE ASSESSMENT DATA FORM

VECETATION VARIABLES P= Plot, M	= Matrix
Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	cking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥1n	Sapling (<5 dbh, <6m tall) /
Number of Wetland Types (M):	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse 80%) Very High Density (80-100%)_	(0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): Peripheral Cover >75% Scattere	100% Cover or Open WaterX <25% Scattered/Peripheral Cover 26-75% Scattered or d or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant s	species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none)	One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): Open Small Scattered Patches	No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Continuous Cover K
Dead Woody Material (P): Low Abundance Abundant (>50% of surface)	(0-25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large High (small groupings, diverse and interspers	patches, concentric rings)X Moderate (broken irregular rings)ed)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	"我们一个可以是一个产品,我们也没有一个人,我们也没有一个人。"
Soil Factors (P): Soil Lacking	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Outlet Perennial In	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial
Wet: Perm. Flooded, Intermittently Exposed,	Sonally Flooded, Temporarily Flooded, SaturatedSemiperm. Flooded
Created	ce Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Microrelief of Wetland Surface (P): Absent	1 doily beveloped (eliti)
Return Interval >5 yrs	Verbank Flooding
Degree of Outlet Restriction (P): No Outflow	V E 72
	(P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Low Permeability Stratified Deposits
Glacial Till/Not Permeable	
Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No Se	Gradient (<2%) High Gradient (≥2%) eps or Springs Seeps Observed Intermittent Spring Perennial Spring
LANDSCAPE VARIABLES (M)	
Wetland Juxtaposition: Wetland Isolate Only Connected Above Connected	ed Wetlands within 400m, Not Connected Only Connected Below ed Upstream & Downstream Unknown
Wetland Land Use: High Intensity (i.e.,	ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural	5-25% Urbanized 25-50% Urbanized >50% Urbanized
Size: Small (<10 acres) Med	ium (10-100 acres) Large />100 acres)

GPS Technician QA/QC check:

Crew Chief QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featu	e ID: WI06T1023 Field Target: 186 Date: 5.31.110
For a	items not checked, please provide detailed explanation in the notes section of data form.
1	Site Description
	 ☑ Site description, site parameters and summary of findings are complete? ☑ A detailed site sketch is included in logbook?
2	Vegetation
	 At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3.	Soil
	☑ Soil profile is complete?☑ Appropriate hydric soil indicators are marked?
4.	Hydrology
	 Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	☑ Vegetation, soil, hydrologic variables, and landscape variables complete if site is wetland?
6.	Field Logbook
	 Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

X halen Volper	X Kalen	Volker	5-31-16
Wetland Scientist (print)	Signature / Date		

X J Brownlee

Field Crew Chief (print)

X Jose Browlee 5.3114

SITE DESCRIPTION	· Name - Company of the Company	Andreas A September	Car 19 20 Car 20 Car	HOLL TO	On reput	
Survey Type: Centerline Acce	ess Road (explain)	Other (expl	ain)	Field Targ	73	Map #: 16 Map Date: 5-23
Date: 5-31-16	Project Name: Alask	a LNG			Feature Id:	W106T1073
Investigators: Jekil 610	where Kale	m Vo	1 RC			Team No.: 1, 11000
State: Alaska	Region: Alaska	200	Milepost:	737.9		VV V
Latitude: (0) 0 Z41 Z6.05	" N	Longitude			65"W	Datum: WGS84
Logbook No.:	Logbook Page No.:	20		A 1		13.001 thru 004
SITE PARAMETERS	THE PARTY STATES	1000	T. Property	Water and	STATE AND DESCRIPTION OF THE PARTY OF THE PA	
Subregion: (OOK MIPT			Landform (hills	slope, terrac	e, hummocks	s, etc.): Hillside / The slope to
Slope (%): 5 - 8		-	Local relief (co	oncave, conv	ex, none):	lat, hummorky from Ferr
Pre-mapped Alaska LNG/NWI classifica			Evidence of W	/ildlife Use:	Morose	PENCAS.
Are climatic/hydrologic conditions on the Yes No (if no expl	e site typical for this time ain in Notes)	of year?	Are "No Yes_		stances" pres (If no, exp	sent: lain in Notes.)
Are Vegetation, Soil, or Hyd	drology Significantl	y Disturbed?	No_X	_(If yes, expl	ain in Notes)	
Are Vegetation, Soil, or Hyd	drology Naturally P	roblematic?	No_X	(If yes, exp	lain in Notes.)
SUMMARY OF FINDINGS	《公司》		e Taran	24 2至3	Example	了自己的"我们"的"一个"。 第一个"我们"的"一个"。
Hydrophytic Vegetation Present? Yes_	No	Is t	he Sampled Ar	rea within a	Wetland?	Yes No
Hydric Soil Present? Yes	No	_ We	tland Type:	EMI/	551B	Talleying!
Wetland Hydrology Present? Yes_	Y No	— Ala	ska Vegetation	Classificatio	n (Viereck):	1182,111AZ
Notes and Site Sketch: Please include D corridor. Tram sition Zone from Soil shows repeated as is evident by band Mapping Notes: the St use contoms to be Alsoit jets off to Not wet	opland up slo S/continuous of concentr	satoro ations	sanding to water and dep is Not t Knob	feature talore oleted alway	fluctus Sand a Sand a LZ. U	n slope. att on from 17 " down inderneath. I'm correctly

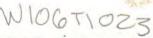
WETLAND DETERMINATION DATA FORM W 06T16Z3

VEGETATION (use scientific names of plants		END :		
VEGETATION (ase scename names of plants	and the second second	Desired	Indicator	Dominance Test worksheet:
Tree Stratum (Plot Sizes: \00\)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	No. of Dominant Species that are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B)
Alnus incara terrusola	10	Y	FAC	% Dominant Species that are OBL, FACW, or FAC: 80 (A/B)
Betwa neonlaskana	Ť		TAC	
· Picea glavca	T		FACU	
				Prevalence Index worksheet:
Total Cover:				Total % Cover of: Multiply by:
50% of total cover	5 20	% of total cov	er:	OBL species: X1 =
apling/Shrub Stratum (7 ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: X 2 = X 3 = Z 7 2 7 3 FACU species
Rosa acicularis	5		FACU	UPL species X 5 =
Amus in/ana tenufolia	15	Y	FAC	Column Totals: 140 (A) 467 (B)
July win Eyrs	4		FACU	PI = B/A = 3,3
· Bibes triste	3		FAC	
Ruhus idaeus	1		FACU	
			1	Apr.
)				
Total Cover 50% of total cover	1+	% of total cov	ver: 5.6	
/EGETATION (use scientific names of plants	s)			
Herb Stratum (Z 6)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤ 3.0
· Calamanostis canadensis	20	Y	FAC	Morphological Adaptations¹ (Provide supporting data in
trupateris expansa	30	Y	FACU	Notes)
Equisetum arvense	15		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
Eguisetum sulvaticum	3		FAC	¹ Indicators of hydric soil and wetland hydrology must be present unless
Stre otopus amotexicoliux			FACU	disturbed or problematic.
3. Bedstraw SI	T		-	《大教》 是是是100年的第三年代的《大学文》
· Trientalis europaea	2		FACU	% Bare Ground
3. Angelica se	1		-	% Cover of Wetland Bryophytes
3. Grannocarpin guroper	95		FACU	Total Cover of Bryophytes
o. En estim intense			FACW	Cover of Water
inth grium cyclosorum Total Cover	: \03		100	Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):
FACUY 25 50% of total cove	r: 5 15 2	0% of total co	ver:	
Heracleum Maximum F	ACUT			

W10671023

SUIL	Charles and		Date Feature ID		in the		Soil Pit Required (Y/N)
SOIL PROFILE	DESCRIPTION: (De	escribe	to the depth needed to docume	ent the indic	cator or co	nfirm the absence	of indicators.)
Depth	Matrix		Redox Features				
(inches)	Color (moist)	%	Color (moist) % Ty	ype ¹ I	Loc²	Texture	Notes
De 0-4							Dango (slightly) organics
A 4-7	Black	100				lasm.	righ organic confer t SBoried Mucky Oat & 8" in Bewl. force
Bul 7-12	104R 4/2	85	51R 3/3 7.51R % 15 C		RC M	Silt loans 1.	a court of contract the contract of
Bw2 12-13.	5YR 3/3	100	her		4	VF Sa Loam	Betzeen sand & silt loogun
C1 13-17	101/2 4/3	100				loamy coarses	nd
CL 19-19	7.5/R 3/ce	100				coarse gand	Band of concon circling pix
C3 19-24.	1043/	100				11 11	Depleted sand is woods debro
¹ Type: C=Con	centration, D=Depleti	on, RN	M=Reduced Matrix, CS=Covered	d or Coated	Sand Gra		PL=Pore Lining, M=Matrix:
HYDRIC SOIL	INDICATORS		学校》。《紫紫龙》 《《	新		INDICATORS F	OR PROBLEMATIC HYDRIC SOILS3
Histosol or Hist	tel (A1)		Alaska Gleyed (A13)	N		Alaska Color Ch	ange (TA4) ⁴ N
Histic Epipedor	n (A2)		Alaska Redox (A14)	N_		Alaska Alpine S	wales (TA5) N
Black Histic (A:	3)		Alaska Gleyed Pores (A1	5)		Alaska Redox w	The state of the s
Hydrogen Sulfi	de (A4)/					Alaska Gleyed v	vithout 5Y Hue or Redder Underlying
Thick Dark Sur					1	Other (Explain in	. / / / /
disturbed or pro	oblematic. f color change in Note	es.			and an ap	propriate landscap	pe position must be present unless
Restrictive Lay	er (if present): Type:		Deptil (inch	es)			A STATE OF THE STA
Hydric Soil Pr							
Notes: Nega	HUCK the	ove	ant profile. Wood	dy del	oris.	throughout	
HYDROLOGY	PRIMARY INDICATO	ORS (a	any one indicator is sufficient)	SEC	ONDARY	INDICATORS (2	or more required)
Surface Water	(A1)/	Su	rface Soil Cracks (B6)		er-stained res (B9) _	V	Stunted or Stressed Plants (D1)
High Water Tal	ble (A2)/	Inu (B7	ndation Visible on Aerial Image	Drain	nage Patte	erns (B10) N	Geomorphic Position (D2)
Saturation (A3)	- Y	Sp Co	arsely Vegetated ncave Surface (B8) M2'Spo		ized Rhizo	ospheres along	Shallow Aquitard (D3)
Water Marks (E	31)	Ма	rl Deposits (B15)		ence of Re (C4)	educed	Microtopographic Relief (D4)
Sediment Depo	osits (B2)		drogen Sulfide or (C1)	Salt	Deposits (C5)/_	FAC-Neutral Test (D5)
Drift Deposits (B3)		y-Season ater Table (C2)	Note	es:		,
Algal Mat or Cr	rust (B4)	Ott	ner (Explain in Notes):				1
Iron Deposits (B5)		De gant a la faction de la constant				the state of the s
		<u>.</u>	Darly (a)				Company of the Compan
Surface Water	Present (Y/N):		Depth (in):	Tes Metter	d Hudest	ogy Present (Y/N)	. Y
Water Table Pr	resent (Y/N):		Depth (in): expected to	y vvetiar	iu nyarok	ogy Present (Y/N)	
Saturation Pres (includes capill	ary fringe)	64	Depth (in): /Z	EC:	66		5.8
Notes: pit of		-	uten after all the of depleted Sa	inde	n done	scooped eath.	out in order to show

AQUATIC SITE ASSESSMENT DATA FORM W106T1023



VEGETATION VARIABLES - P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Persistent Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
Willicial, Oldy Willicial, Oldy
HYDROLOGIC VARIABLES
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet X No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Pe
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Perennial Inlet/Perennial Outlet Perenni
Inlet/Outlet Class (P): No Inlet/OutletX No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Out
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perenni
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet X No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Intermittent Inlet/I
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Inter
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet
Inlet/Outlet Class (P): No Inlet/Outlet X No Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Inlet/Perennial Inlet/Perennial Outlet Inlet/Perennial Inlet/Perennial Inlet/Perennial Outlet Inlet/Perennial Inlet/Perennial Outlet Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Outlet Inlet/Perennial Inlet/Pe
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet
InterVoltet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Intermittent

Crew Chief QA/QC check: Jessie Browner GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature	ID:	WI06T1023 Field Target: 187 Date: 5-31-16
For all	tems	s not checked, please provide detailed explanation in the notes section of data form.
1.	Site	e Description
	Ø Ø	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Ve	getation
		At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
	区	Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct?
	X	All dominant species have been determined and recorded per strata?
	N	Indicator status is correct for each species?
	K	Dominance Test and Prevalence Index have been completed?
3.	So	il
	Q	Soil profile is complete?
	×	Appropriate hydric soil indicators are marked?
4.	Ну	drology
	N N	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Fu	inctions and Values
		Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Fie	eld Logbook
	図	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate?
	Ø	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
7.	Ma	aps
	Ø	Wetland boundaries have been corrected if necessary?
	D	Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X halen	Volge	X	Kalen	Volker	5-31-16
Wetland Scientist (print)	4	Signa	ture / Date		

SITE DESCRIPTION				ma trans		
Survey Type: Centerline Acces	ss Road (explain) X O	ther (expla	ain)		et: 65	Map #: 139 Map Date: 6.20
Date: ()-\-\ ()	Project Name: Alaska L	_NG			Feature Id:	W166T1024
Investigators: Jessil bit	mnke, Kal	very	VOVREN			Team No.: VOC
State: Alaska	Region: Alaska	U	Milepost:	750		
Latitude: 610 16' 12,58" A	/	Longitude	150° E	2137	3983 W	Datum: WGS84
Logbook No.:	Logbook Page No.:	1	Picture No.:	^	06TIC	24-601 thm 002
SITE PARAMETERS	· · · · · · · · · · · · · · · · · · ·		(Charles of		of the property of	一个人的人们们们们们们们
Subregion: Cook Inlet Basi	n		Landform (hill	Islope, terrac	e, hummocks	s, etc.): Jowland
Slope (%): 0-3			Local relief (c	oncave, con	vex, none):	1/at
Pre-mapped Alaska LNG/NWI classificat	tion:		Evidence of V	Vildlife Use:	- Moase	browse, droppings
Are climatic/hydrologic conditions on the Yes No (if no expla		year?	Are "No Yes_		stances" pres (If no, exp	sent: plain in Notes.)
Are Vegetation, Soil, or Hyd	rology Significantly [Disturbed?	No	_(If yes, exp	lain in Notes)	
Are Vegetation, Soil, or Hyd	rology Naturally Prot	blematic?	No X	_ (If yes, exp	olain in Notes)
SUMMARY OF FINDINGS	State of the state	A water			NEW STATE	All Lands The Files
Hydrophytic Vegetation Present? Yes_		Ist	the Sampled A	rea within a	Wetland?	Yes NoX
Hydric Soil Present? Yes	No	We	tland Type:	162	HCZ	
Wetland Hydrology Present? Yes	No	Ala	ska Vegetation	Classification	on (Viereck):	10 Z, 11BZ
Notes and Site Sketch: Please include D corridor. Mature fall (30-90) and Vib Edu Fern, and Pry Soil with signs of a comcentrations but No signs of hydrology.	Mixed forest of ord Cal Can un of seasonal sa does not mee	Bet derso	Neo & P	ey down	with so	plings of each

W106T1024

/EGETATION (use scientific names of plant	s)	nest it		The second secon
Free Stratum (Plot sizes:	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 3 (A
Betwee Meglaskana	30	Y	FAC	Total Number of Dominant Species Across All Strata:(E % Dominant Species that are OBL, FACW, or FAC:(A/
Picea glava	5		FACU	
. /				English strip at the second second
				Prevalence Index worksheet:
Total Cover	35		1	Total % Cover of: Multiply by:
50% of total cover	: 17.5 20	% of total cov	er:_ 7	OBL species:X 1 =
apling/Shrub Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: X 2 =
Betwee Nepalaskowa	7		FAC	UPL species X 5 =
Vibramm earle	25	7	FACU	Column Totals: 150 (A) 513 (B)
losa acirularis	8	1	FACU	PI = B/A = 3.42
Rybes triste	3		FAC	
Oploganax Narribus	2		FACU	y
Total Cover	: <u>22,5</u> 20	0% of total cov	ver:_ 9	
Total Cover 50% of total cover EGETATION (use scientific names of plant	r: <u>22,5</u> 20 s)		V. 110000000	Hudronhytic Variatation Indicators:
Total Cover 50% of total cover EGETATION (use scientific names of plant	: <u>22,5</u> 20	Dominant Species?	rer:	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
Total Cover 50% of total cover scientific names of plant erb Stratum (26)	Absolute % Cover	Dominant	Indicator	Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0
Total Cover 50% of total cover 50% of total cover cover scientific names of plant erb Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Norphological Adaptations¹ (Provide supporting data in
Total Cover 50% of total cover 50% of total cover erb Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cover 50% of total cover 50% of total cover erb Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cover 50% of total cover 50% of total cover serb Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cover 50% of total cover 50% of total cover erb Stratum (Z(a)) Calamago St. S. Canadam Stratum Stratum (Z(a))	Absolute % Cover	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cover 50% of total cover 50% of total cover erb Stratum (Absolute % Cover	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cover 50% of total cover 50% of total cover erb Stratum (ZCo') Calamagn Stratum (ZCo') Calamagn Stratum (ZCo') Calamagn Stratum St	Absolute % Cover 5 20 15 15 5 2	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover 50% of total cover 50% of total cover 100% of total co	Absolute % Cover 5 20 15 15 5 2	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover 50% of total cover 50% of total cover 150% of total co	Absolute % Cover 5 20 15 15 5 2	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground W Cover of Wetland Bryophytes
Total Cover 50% of total cover 50% of total cover 150% of total co	Absolute % Cover 5 20 15 15 5 2	Dominant Species? (Y/N)	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Total Cover of Wetland Bryophytes Total Cover of Bryophytes
50% of total cover FEGETATION (use scientific names of plant lerb Stratum (ZCo) 1. Calamagnstis (anadm 2. Equipment of the second of the	Absolute % Cover 15 20 15 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	Dominant Species? (Y/N)	Indicator Status FAC FAC FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground M Cover of Wetland Bryophytes Total Cover of Bryophytes Cover of Water

· W10671024

WALL COUNTY	E DESCRIPTION !	Docarit	a ta the de-th					Transfer of the second
	LE DESCRIPTION: (Describe	Redox Features	ed to doc	ument the i	ndicator or co	onfirm the absence	e of indicators.)
Depth (inches)	Color (moist)	%		1 0/	- 1	1. 2		
3.' 0-1	Color (moist)	70	Color (moist)	%	Type ¹	Loc²	Texture	Notes
1 1-3	10 YR 3/2	11.					1	Dry organics
13-7	101K4/2	100					loam	, ,
347-14	2.5 4 5/2	100	11104	_		/ 5	Silt loam	
1600/-17	10424/3	10	101R 44	10	con	mat PC		
BN2/4-20	25485/2	60	104R 2/2	20	org/A	pockets		
11-00	101R 4/2	70	104/2 2/6	20	con	mat RC	Siltloam	
Type	Tentetion 040/4	etion (AR)	M=Reduced Matrix	CS=Cov	ared or Coa	ted Sand Gra	Fine Loamy Say	horizon of concentration
	INDICATORS		ricadoca Watiix,	00-000	ered or Coa	ited Sand Gra		PL=Pore Lining, M=Matrix.
COMPANIES CONTROL	stel (A1)		Alaska Clave	4 (412)		1.00		FOR PROBLEMATIC HYDRIC SOIL
Histic Epipedo			Alaska Gleye		N			hange (TA4) ⁴
Black Histic (A			Alaska Redox		N I	1		Swales (TA5)//
			Alaska Gleye	d Pores	(A15)//			vith 2.5Y Hue
Hydrogen Sulf	ide (A4) _/		1		[4]		Alaska Gleyed	without 5Y Hue or Redder Underlying
	rface (A12)			1			Other (Explain	in Notes)
One indicator disturbed or pr	of hydrophytic vege	tation, o	ne primary indicator	of wetla	nd hydrolog	y, and an app	propriate landsca	pe position must be present unless
Give details o	f color change in No	tes.						
Restrictive Lay	ver (if present): Type	:		Depth (ir	nches):			
TO SECURE MADE		/				-		
Hydric Soil Pr	resent (Y/N):/	/		-				
	resent (Y/N):/				1:	1		
	resent (Y/N):/V							
	resent (Y/N):/V	-			12			
Notes:		TORS (a	ny one indicator is s	sufficient'	SE	-CONDARY I	NDICATORS (2)	or more required.
Notes:	PRIMARY INDICAT			1	200		NDICATORS (2	or more required)
Notes:	PRIMARY INDICAT		ny one indicator is s	1	W	ECONDARY I ater-stained aves (B9)	NDICATORS (2)	Stunted or Stressed
Notes: HYDROLOGY Surface Water	PRIMARY INDICAT	Sur	face Soil Cracks (Bendation Visible on A	5) _/	W. Le	ater-stained aves (B9)	N	Stunted or Stressed Plants (D1)
Notes: HYDROLOGY Gurface Water High Water Tal	PRIMARY INDICAT	Sur Inur (B7	face Soil Cracks (Bendation Visible on A	5) _/	gery Dr	ater-stained aves (B9) ainage Patter	ns (B10)/	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Notes: HYDROLOGY Surface Water High Water Tal	PRIMARY INDICAT	Sur Inur (B7 Spa	face Soil Cracks (Bendation Visible on A	5) _/	gery Dr.	ater-stained aves (B9) ainage Patter	rns (B10)/	Stunted or Stressed Plants (D1)
Notes: HYDROLOGY Gurface Water High Water Tal Saturation (A3)	PRIMARY INDICAT	Sur Inur (B7 Spa Con	face Soil Cracks (Bondation Visible on A) Introduction Visible on A Intro	5) _/	gery Dr. Ox Liv	ater-stained aves (B9) ainage Patter kidized Rhizos ving Roots (C) esence of Rec	ns (B10)/ spheres along	Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic
Notes: HYDROLOGY Gurface Water High Water Tal Saturation (A3) Vater Marks (E	PRIMARY INDICAT (A1)/ ble (A2)/ B1)/	Sur Inur (B7 Spa Con Mar	face Soil Cracks (Bendation Visible on A) proceeding the control of the control	5) _/	gery Dr. Ox Liv	ater-stained aves (B9) ainage Patter didized Rhizos ing Roots (C	ns (B10)/ spheres along	Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/
Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Vater Marks (E	PRIMARY INDICAT (A1)/ ble (A2)/ B1)/	Sur Inur (B7) Spa Con Mar	face Soil Cracks (Bendation Visible on A) ursely Vegetated acave Surface (B8) I Deposits (B15) urogen Sulfide	5) _/	gery Dr. Ox Liv	ater-stained aves (B9) ainage Patter kidized Rhizos ving Roots (C) esence of Rec	rns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Vater Marks (E	PRIMARY INDICAT (A1) ble (A2) 31) psits (B2)	Sur Inur (B7) Spa Con Mar Hyd	face Soil Cracks (Bendation Visible on A) Arresely Vegetated acave Surface (B8) I Deposits (B15) Trogen Sulfide or (C1)	5) _/	gery Dr. Ox Liv Pre	ater-stained aves (B9) ainage Patter kidized Rhizos ring Roots (C) esence of Rec n (C4) It Deposits (C)	rns (B10)	Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic
Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Vater Marks (E	PRIMARY INDICAT (A1) ble (A2) 31) psits (B2)	Sur Inur (B7 Spa Con Mar Hyd Odd Dry-	face Soil Cracks (Bendation Visible on A) ursely Vegetated acave Surface (B8) I Deposits (B15) urogen Sulfide	5) _/	gery Dr. Ox Liv Pre	ater-stained aves (B9) ainage Patter tidized Rhizos ring Roots (C3 esence of Rec n (C4)	rns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes:	PRIMARY INDICAT (A1) ble (A2) B1) psits (B2)	Surrice Surric	race Soil Cracks (Bendation Visible on A) racely Vegetated acave Surface (B8) I Deposits (B15) rogen Sulfide or (C1) Season er Table (C2)	6) Nerial Ima	gery Dr. Ox Liv Pre	ater-stained aves (B9) ainage Patter kidized Rhizos ring Roots (C) esence of Rec n (C4) It Deposits (C)	rns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Vater Marks (E Sediment Depo	PRIMARY INDICAT (A1) ble (A2) B1) posits (B2) B3) ust (B4)	Surrice Surric	face Soil Cracks (Bendation Visible on A) proceeding the second of the	6) Nerial Ima	gery Dr. Ox Liv Pre	ater-stained aves (B9) ainage Patter kidized Rhizos ring Roots (C) esence of Rec n (C4) It Deposits (C)	rns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
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Notes: HYDROLOGY Gurface Water High Water Tal Saturation (A3) Vater Marks (E Sediment Deposits (I Algal Mat or Cre ron Deposits (E	PRIMARY INDICAT (A1)	Surring Inur (B7) Spa Con Mar Hydd Odd Dry- Wat Othe	face Soil Cracks (Bendation Visible on A) Insely Vegetated acave Surface (B8) I Deposits (B15) Grogen Sulfide or (C1) Season er Table (C2) Er (Explain in Notes)	6) Nerial Ima	gery Dr. Ox Liv Pre	ater-stained aves (B9) ainage Patter kidized Rhizos ring Roots (C) esence of Rec n (C4) It Deposits (C)	rns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: HYDROLOGY Gurface Water High Water Tal Saturation (A3) Vater Marks (E Sediment Deposits (I Algal Mat or Cre ron Deposits (E	PRIMARY INDICAT (A1)	Surring Inur (B7) Spa Con Mar Hydd Odd Dry- Wat Othe	race Soil Cracks (Bendation Visible on A) racely Vegetated acave Surface (B8) I Deposits (B15) rogen Sulfide or (C1) Season er Table (C2)	6) Nerial Ima	gery Dr. Ox Liv Pro	ater-stained aves (B9) ainage Patter idized Rhizos ing Roots (C3 esence of Ren (C4) It Deposits (C3 tes:	rns (B10) spheres along 3) duced 25)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo	PRIMARY INDICAT (A1) ble (A2) B1) psits (B2) B3) Present (Y/N): Present (Y/N):	Surring Inur (B7) Spa Con Mar Hydd Oddo Dry-Wat Othe	face Soil Cracks (Be indation Visible on A) Insely Vegetated incave Surface (B8) I Deposits (B15) Grogen Sulfide or (C1) Season er Table (C2) Per (Explain in Notes)	6) Nerial Ima	gery Dr. Ox Liv Pro	ater-stained aves (B9) ainage Patter idized Rhizos ing Roots (C3 esence of Ren (C4) It Deposits (C3 tes:	rns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
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Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Vater Marks (E Sediment Depo Orift Deposits (I Mgal Mat or Cre on Deposits (E Surface Water F	PRIMARY INDICAT (A1) ble (A2) B1) psits (B2) B3) Present (Y/N): ent (Y/N):	Sur Inur (B7) Spa Con Mar Hyd Oddo Dry-Wat Othe	face Soil Cracks (Be indation Visible on A) Insely Vegetated incave Surface (B8) I Deposits (B15) Grogen Sulfide or (C1) Season er Table (C2) Per (Explain in Notes)	6) Nerial Ima	gery Dr. Ox Liv Pro	ater-stained aves (B9) ainage Patter idized Rhizos ing Roots (C3 esence of Ren (C4) It Deposits (C3 tes:	rns (B10) spheres along 3) duced 25)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)

· AQUATIC SITE ASSESSMENT DATA FORM

W106 T1024

VEGETATION VARIABLES P= Plot, M= Matrix	
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Ne Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved_ Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved_ Persistent Aquatic Bed	edEmergent-Non-persistentEmergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall)	Tall shrub (2-6m) Short shrub (0.5-2m) Short shrub (0.5-2m) Submerged
Number of Wetland Types (M): Evenness of Wetland Type Distributi	on (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) 80%) Very High Density (80-100%)	
Interspersion of Cover & Open Water (P): 100% Cover or Open Water	<25% Scattered/Peripheral Cover 26-75% Scattered or
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species	s) High (>25)
Presence of Islands (M): Absent (none) One or Few Seve	The state of the s
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Solitary, S	
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderate Abundant (>50% of surface)	y Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) M High (small groupings, diverse and interspersed)	oderate (broken irregular rings)
HGM Class (P): Slope Flat Lacustrine Fringe Depression	onal Riverine Estaurine Fringe
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hem Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral:	ic Histosol: Sapric peral: Clayey
HYDROLOGIC VARIABLES	
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Pere	No Inlet/Perennial Outlet Intermittent Inlet/No Inial Outlet Perennial Inlet/No Outlet Perennial
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perei Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, S. Wet: Perm. Flooded, Intermittently Exposed, Semiperm, Flooded	nnial Outlet Perennial Inlet/No Outlet Perennial
Outlet	aturated Perennial Inlet/No Outlet Perennial rved on Wetland Substrate Fluvaquent Soils Sediment
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perentinlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, S. Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded	aturated Perennial Inlet/No Outlet Perennial rved on Wetland Substrate Fluvaquent Soils Sediment
Outlet	aturated Perennial Inlet/No Outlet Perennial aturated rved on Wetland Substrate Fluvaquent Soils SedimentWell Developed (6-18in.) Pronounced (>18in.)
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Per	aturated Perennial Inlet/No Outlet Perennial aturated rved on Wetland Substrate Fluvaquent Soils Sediment Well Developed (6-18in.) Pronounced (>18in.) erval 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Outlet	aturated Perennial Inlet/No Outlet Perennial aturated rved on Wetland Substrate Fluvaquent Soils Sediment Well Developed (6-18in.) Pronounced (>18in.) erval 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow er (>7.4) Acid (<5.5) pH Reading
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Crew Chief QA/QC check:

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featur	re ID: WUGT1034 Field Target: //oS Date: (01-16
For all	items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
	 ☑ Site description, site parameters and summary of findings are complete? ☑ A detailed site sketch is included in logbook?
2.	Vegetation
	 ☑ At least 80% of onsite vegetation has been keyed to species, or collected for later identification? ☑ Vegetation names are entered legibly for all strata present? ☑ Cover calculations are complete and correct? ☑ All dominant species have been determined and recorded per strata? ☑ Indicator status is correct for each species? ☑ Dominance Test and Prevalence Index have been completed?
3.	Soil
	☑ Soil profile is complete?☑ Appropriate hydric soil indicators are marked?
4.	Hydrology
	 ☑ Appropriate hydrology indicators are marked? ☑ Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	 Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? ☑ Each logbook page is initialed and dated?
7.	Maps
	☑ Wetland boundaries have been corrected if necessary?☑ Maps are initialed and dated?

3. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X Malen	Volver	x Ma	len	Valger	6-1-16
Wetland Scientist (print)	, ,	Signature / Date	1		

X J. Brownlee

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	· ANTONIO CONTRA		state from the son	
Survey Type: Centerline Acces	ss Road (explain) X Other		Field Target: 167	Map #: <u>137</u> Map Date: <u>5.20</u>
Date: 6-1-16	Project Name: Alaska LNG		Feature Id:	W106T1025
Investigators: Dessive &	rownlee, falt	y Volpe	1	Team No.: W\OG
State: Alaska	Region: Alaska	Milepost:	750.S	
Latitude: 61 6 16 44.943	5 ⁿ N Long	itude: 150°5	2132.0219"W	Datum: WGS84
Logbook No.:	Logbook Page No.: 23	Picture No.:	P-WIOGTIC	25-001 thru 004
SITE PARAMETERS				
Subregion: Cook Inlet	Basin	Landform (hill	slope, terrace, hummocks	s, etc.): Swele
Slope (%): 5-8		Local relief (c	oncave, convex, none):	Enrave I concave
Pre-mapped Alaska LNG/NWI classificat	tion: U			mel in their right mind would
Are climatic/hydrologic conditions on the Yes No (if no expla	site typical for this time of year ain in Notes)		ormal Circumstances" pre	The second secon
Are Vegetation, Soil, or Hyd	rology Significantly Distur	rbed? No_X	_(If yes, explain in Notes)	
Are Vegetation, Soil, or Hyd	rology Naturally Problem	atic? No_X	_ (If yes, explain in Notes	.)
SUMMARY OF FINDINGS	沙沙 克克斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯斯	A TOTAL CALL.	· · · · · · · · · · · · · · · · · · ·	ACARTO (ACART)
Hydrophytic Vegetation Present? Yes_	У No	Is the Sampled A	rea within a Wetland?	Yes No
Hydric Soil Present? Yes	/ No	Wetland Type:	PFOI/4B	
Wetland Hydrology Present? Yes_	Y No	Alaska Vegetation	Classification (Viereck):	162,1182
Suromaling veg is tall Meture mixed Frest Between & Pic Cola. Site is at swale Feature 15' below surrounding clever to the North, Swale is no 100', Devils club as such I Not captining the extent wetland feature. Cet is Lidan to determine exte	uning the magery &	Plot	Signature for 200 Mixed signs tis 11 Bi But	tine, Photo Locations, and Survey small and foounder the pull out map as 1C2, 11BZ

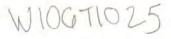
W106T1025

VEGETATION (use scientific names of plant	s)		-	AND THE PROPERTY OF THE PARTY O
Tree Stratum (Plot sizes:)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 4 Total Number of Dominant Species Across All Strata: 6
1. Alvus incana tenufok	a 45	7	FAC	% Dominant Species that are OBL, FACW, or FAC: 66 (A
2. Betula negalaskanu	35	У	FAC	70 Dominant opecies that are OBE, 177074, 017770.
3. Pilla alauca	IP		TACU	
4.				Prevalence Index worksheet:
Total Cove	r:8			Total % Cover of: Multiply by:
50% of total cove	r: 4D,5 20	% of total cov	er: 16.2	OBL species:X1 =
Sapling/Shrub Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 15
1. Alnus incana tempol	in 30	Y	FAC	UPL species
2. Oplopanax harridis	85	Y	FACU	Column Totals: 254 (A) 864 (B)
3. Ribes triste	6		FX	PI = B/A = 3.40
4. Vibram edule	8		FACU	40
5.				-
5.				7
7.				
8.				÷ .
9. Total Cove	129			
50% of total cove		0% of total cov	ver: 05.8	
VEGETATION (use scientific names of plant	s)		Marick La	
Herb Stratum (Z6')	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species? (Y/N)	Status	Dominance Test is > 50%
1. Equisetum p	15	У	FACW	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
2. Fauserum salvata	m 5	/	FAC	Notes)
3. Gumnecartum Irlandes	8	1-	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Drupteris expresa	10	Y	FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Trientalis europaea	5		FACU	disturbed or problematic.
6. Calamagnostis canadensis			FAC	A STATE OF THE STA
7.				% Bare Ground
8.				Cover of Wetland Bryophytes Total Cover of Bryophytes
9.				% Cover of Water
10.				Hydrophytic Vegetation Present (Y/N):
Total Cove	r: 44			Notes: (If observed, list morphological adaptations below):
50% of total cove	r: 22 2	0% of total cov	ver: 8 . 8	

W106T10Z5

SOIL PROFILE DESCRIPTION (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth (inches) Color (miss) Redox Features Redox Features Color (moist) Redox Features Color (moist) Redox Features Redox Fea	Depth M	ESCRIPTION: (Describe	to the depth neede	ed to docu	ment the	indicator or	confirm the absen	oo of india	4
Depth (inches) Color (moist) Redox Features Color (moist) Colo	Depth M	atriv					marcator or	committe absen	ce of indic	ators.)
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Graits. **Location: PL=Pore Lining, M=Matrix.** **PORIC SGIL INDICATORS** Istituted or Histel (A1) Alaska Gleyed (A13) Alaska Gleyed (A13) Alaska Gleyed (A14) Alaska Cleyed (A15) Alaska Gleyed (A15) Alaska Gleyed without 5Y Hue or Redder Underlying Leyer Other (Explain in Notes) The indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless sturbed or problematic. Surface Soil Cracks (B6) VES Ceasts Inundation Yardon (A2) Alaska Gleyed without 5Y Hue or Redder Underlying Leyer Other (Explain in Notes) Other (Explain in Notes) Depth (inches): Depth (inches): SECONDARY INDICATORS (2 or more required) Variace Water (A1) Alaska Gleyed without 5Y Hue or Redder Underlying Leyer Other (Explain in Notes) Surface Soil Cracks (B6) Variace Water (A1) Surface Soil Cracks (B6) Variace Water (A1) Geomorphic Position (D2) Valuration (A3) Variace Water (A1) Alaska Gleyed without 5Y Hue or Redder Underlying Leyer Other (Explain in Notes) Surface Soil Cracks (B6) Variace Water (A1) Surface Soil Cracks (B6) Variace Water (A1) Alaska Gleyed without 5Y Hue or Redder Underlying Leyer Other (Explain in Notes) Surface Soil Cracks (B6) Variace Water (A1) Alaska Gleyed without 5Y Hue or Redder Underlying Leyer Other (Explain in Notes) Surface Soil Cracks (B6) Variace Water (A1) Alaska Gleyed Water Table (C2) Variace Water (A1) Alaska Gleyed (A12) Alaska Gleyed (A13) Alaska Gleyed (A12) Alaska Gleyed (A13) Alaska Gleyed (A13) Alaska Gleyed (A12) Alaska Gleyed (A13) Alaska Gleyed (A12) Alaska G	inches) Co	allix								
Type: C-Concentration, D-Depletion, RM-Reduced Matrix, CS-Covered or Coated Sand Grains. **Location: PL-Pore Lining, M-Matrix.* INDICATORS FOR PROBLEMATIC HYDRIG SOLIS itsics of or Histel (A1)		olor (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Graips: *Location: PL=Pore Lining, M=Matrix: YVDRIC SOIL. INDICATORS INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOILS Alaska Color Change (TA4)* // Alaska Alpine Swales (TA5) // Alaska Redox (A14) // Alaska Alpine Swales (TA5) // Alaska Gleyed (A13) // Alaska Gleyed without 5Y Hue or Redder Underlying Dick Dark Surface (A12) // Other (Explain in Notes) Other (Explain in Notes) // Other (Explain in Notes) Depth (inches):	De 0-11								-	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Srains. *Location: PL=Pore Lining, M=Matrix. INDICATORS FOR PROBLEMATIC HYDRIC SOILS Alaska Gleyed (A13)	11-+ 2	5 y 3/2	100							wated organics
INDICATORS INDICATORS INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOILS Insisted of Histel (A1) Alaska Color Change (TA4) Alaska Color Change (TA4) Alaska Color Change (TA4) Alaska Alpine Swales (TA5) Alaska Alpine Swales (TA5) Alaska Alpine Swales (TA5) Alaska Alpine Swales (TA5) Alaska Gleyed Pores (A15) Alaska Gleyed without 5Y Hue or Redder Underlying Layer Other (Explain in Notes) Othe			11111					VF) a Loan	9	
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INDICATORS INDICATORS INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOILS Institute Institu										
INDICATORS INDICATORS INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOILS Institute Institu							-		10 15	
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INDICATORS INDICATORS INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOILS Institute Institu	Type: C=Concent	tration, D=Deple	tion, RN	=Reduced Matrix, (CS=Cover	red or Coa	ated Sand G	rains. ² Location	: PL=Pore	e Lining M=Matrix
Alaska Gleyed (A13) Alaska Color Change (TA4)* Alaska Color Change (TA4)* Alaska Redox (A14) Alaska Alpine Swales (TA6) Alaska Redox (A14) Alaska Alpine Swales (TA6) Alaska Redox (A14) Alaska Alpine Swales (TA6) Alaska Redox (A15) Alaska Redox with 2.5Y Hue or Redder Underlying Layer Alaska Gleyed without 5Y Hue or Redder Underlying Layer Check Carlor of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless sturbed or problematic. Depth (inches):				与自然是依据的	Wat Was					
Alaska Redox (A14) Alaska Redox with 2.5Y Hue Alaska Redox with 1.5Y Hue or Redox with 1.5Y Hue Alaska	istosol or Histel (A	A1) N		Alaska Gleyed	d (A13)	N	Extra Contraction			
Alaska Gleyed Pores (A15) Alaska Redox with 2.57 Hue // ydrogen Sulfide (A4) // Director Data Surface (A12) Depth (inches): Alaska Gleyed without 5Y Hue or Redder Underlying Layer Other (Explain in Notes) Director Data Surface (A12) Depth (inches): Dept	istic Epipedon (A2	2)				_				
Alaska Gleyed without SY Hue or Redder Underlying Layer Alaska Sileyed without SY Hue or Redder Underlying Layer Other (Explain in Notes) Other (Explain in Notes) Other (Explain in Notes) Depth (inches):	lack Histic (A3) _	V			-					
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Dee indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless issurbed or problematic. Six and a property of the control of the property of the control of the con		1 /						Layer_		Tride of Redder Oliderlying
Depth (inches): Depth								Other (Explain	in Notes)	- XX
Depth (inches): Depth	sturbed or probler	matic.	ation, or	ne primary indicator	of wetlan	d hydrolog	gy, and an a	ppropriate landsc	ape positio	on must be present unless
potes: Did und die pant **15". Hydrogen Sulfide observed w/in to (0." observed w/in to (Sive details of cold	or change in No	es.							
Approximate the property of th	Ani - Air - I CC				Denth (inc	ches): -	_			
Appropriate Surface Soil Cracks (B6) Surface S	estrictive Layer (if	present): Type			oben fuie					
YDROLOGY PRIMARY INDICATORS (any one indicator is sufficient) Secondary Indicators (2 or more required) Water-stained Leaves (B9) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Ider Marks (B1) Marl Deposits (B15) Presence of Reduced Iron (C4) Relief (D4) Water-stained Leaves (B9) Drainage Patterns (B10) Sparsely Vegetated Concave Surface (B8) Wicrotopographic Relief (D4) Presence of Reduced Iron (C4) Relief (D4) FAC-Neutral Test (D5) Water Table (C2) Other (Explain in Notes): Wetland Hydrology Present (Y/N): Depth (in): Depth (i	-	- (de)			Jopan (me	J.100)				
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Surface Still Clacks (B6)	ydric Soil Presen	dia paot	15",	Hydrogen Sul	fide	oloseru	ed w/i			
Inundation Visible on Aerial Imagery (B7)	ydric Soil Presen	dia paot	15 ", ORS (ar	Hydrogen Sull	fide (observ	ed w/i	INDICATORS (2	or more re	equired)
Sparsely Vegetated Concave Surface (B8)	otes: Did Not	da pao+	15 ", ORS (ar	Hydrogen Sull	fide (observ SI W	ECONDARY	INDICATORS (2	or more re	equired)
Adder Marks (B1) Marl Deposits (B15) Presence of Reduced Iron (C4) Relief (D4)	ydric Soil Present otes: Did Not YDROLOGY PRIM urface Water (A1)	MARY INDICAT	ORS (an	Hydrogen Sull my one indicator is s face Soil Cracks (B6 dation Visible on Ae	fide (ufficient)	observ SI W Le	ECONDARY dater-stained eaves (B9)	INDICATORS (2	or more re	equired) unted or Stressed ants (D1)
Hydrogen Sulfide Odor (C1) FAC-Neutral Test (D5) FAC-Neutral Test	ydric Soil Present otes: Did Not YDROLOGY PRIM urface Water (A1)	MARY INDICAT	ORS (all Surf (B7) Spa	Hydrogen Sull iny one indicator is so face Soil Cracks (B6 idation Visible on Ae	fide (ufficient)	SI W Le	ECONDARY dater-stained eaves (B9) _ rainage Patt	erns (B10)	or more re	equired) unted or Stressed ents (D1) omorphic Position (D2)
Odor (C1) Salt Deposits (C5) Notes: Dry-Season Water Table (C2) Notes:	ydric Soil Present otes: Did Not YDROLOGY PRIM urface Water (A1) gh Water Table (A	MARY INDICAT	ORS (and Inum (B7) Spa	Hydrogen Sull iny one indicator is s face Soil Cracks (Be idation Visible on Ae resely Vegetated cave Surface (B8)	fide (ufficient)	SI W Le ery Dr	ECONDARY Vater-stained eaves (B9) _ rainage Patt xidized Rhiz- ving Roots (resence of R	erns (B10)	Stu Pla Ge Sha	equired) unted or Stressed unts (D1) omorphic Position (D2) allow Aquitard (D3) crotopographic
Water Table (C2)	ydric Soil Present otes: Did John YDROLOGY PRIM Jurface Water (A1) gh Water Table (A aturation (A3)	MARY INDICAT	ORS (all Surf (B7) Spa Con Mark	Hydrogen Sulface Soil Cracks (Bedation Visible on Aedresely Vegetated cave Surface (B8)	fide (ufficient)	SI W Le ery Dr C:	ECONDARY Vater-stained eaves (B9) _ rainage Patt xidized Rhiz ving Roots (consence of Roon (C4)	erns (B10)/_ cospheres along C3) educed	Stu Pla Ge Sha	equired) unted or Stressed unts (D1) omorphic Position (D2) allow Aquitard (D3) crotopographic
on Deposits (B5)	ydric Soil Present otes: Did John YDROLOGY PRIM Jurface Water (A1) gh Water Table (A aturation (A3)	MARY INDICAT	ORS (all Surf (B7) Spa Con Mark	Hydrogen Sulfing one indicator is service Soil Cracks (B6 adation Visible on Active Surface (B8)	fide (ufficient)	SI W Le ery Dr C:	ECONDARY Vater-stained eaves (B9) _ rainage Patt xidized Rhiz ving Roots (consence of Roon (C4)	erns (B10)/_ cospheres along C3) educed	Stu-Pla Ge Sha Mic Rel	equired) unted or Stressed ants (D1) comorphic Position (D2) allow Aquitard (D3) crotopographic lief (D4)
ater Table Present (Y/N): Depth (in): Dept	ydric Soil Present otes: Did udid YDROLOGY PRIM urface Water (A1) gh Water Table (A aturation (A3) ater Marks (B1)	MARY INDICAT	ORS (and Surful Inum (B7) Spa Con Marid Hydd Odo Dry-	Hydrogen Sulfing one indicator is season	fide (ufficient)	Silvery Dr. Co. Lin Pr. Iro	ECONDARY dater-stained eaves (B9) _ rainage Patt xidized Rhiz- ving Roots (increase of Roon (C4)	erns (B10)/_ cospheres along C3) educed	Stu-Pla Ge Sha Mic Rel	equired) unted or Stressed ants (D1) comorphic Position (D2) allow Aquitard (D3) crotopographic lief (D4)
ater Table Present (Y/N): Depth (in): Depth (in): Depth (in): Depth (in): EC:	ydric Soil Present otes: Did udi yDROLOGY PRIM urface Water (A1) gh Water Table (A aturation (A3) ater Marks (B1) ediment Deposits (ift Deposits (B3)	MARY INDICAT WA2) V (B2) N	ORS (all Surf (B7) Spa Con Mark	my one indicator is season per Table (C2)	ufficient) werial Imag	Silvery Dr. Co. Lin Pr. Iro	ECONDARY dater-stained eaves (B9) _ rainage Patt xidized Rhiz- ving Roots (increase of Roon (C4)	erns (B10)/_ cospheres along C3) educed	Stu-Pla Ge Sha Mic Rel	equired) unted or Stressed ants (D1) comorphic Position (D2) allow Aquitard (D3) crotopographic lief (D4)
turation Present (Y/N): Depth (in): Depth (in): Depth (in): Depth (in): EC:	ydric Soil Present otes: Did udi yDROLOGY PRIM urface Water (A1) gh Water Table (A aturation (A3) ater Marks (B1) ediment Deposits (iff Deposits (B3)	MARY INDICAT WA2) V (B2) N	ORS (all Surf (B7) Spa Con Mark	my one indicator is season per Table (C2)	ufficient) werial Imag	Silvery Dr. Co. Lin Pr. Iro	ECONDARY dater-stained eaves (B9) _ rainage Patt xidized Rhiz- ving Roots (increase of Roon (C4)	erns (B10)/_ cospheres along C3) educed	Stu-Pla Ge Sha Mic Rel	equired) unted or Stressed ants (D1) comorphic Position (D2) allow Aquitard (D3) crotopographic lief (D4)
turation Present (Y/N): cludes capillary fringe) Depth (in): Depth (in): Depth (in): EC: 156 PH 5.76	ydric Soil Present otes: Did ud a yDROLOGY PRIM urface Water (A1)_ gh Water Table (A aturation (A3) ater Marks (B1) ediment Deposits (B3) gal Mat or Crust (B in Deposits (B5)	MARY INDICAT W (B2) N 34) N	ORS (all Surf (B7) Spa Con Mark	my one indicator is season per Table (C2)	ufficient) werial Imag	Silvery Dr. Co. Lin Pr. Iro	ECONDARY dater-stained eaves (B9) _ rainage Patt xidized Rhiz- ving Roots (increase of Roon (C4)	erns (B10)/_ cospheres along C3) educed	Stu-Pla Ge Sha Mic Rel	equired) unted or Stressed ants (D1) comorphic Position (D2) allow Aquitard (D3) crotopographic lief (D4)
cludes capillary fringe) Depth (in): EC: 126 PH 576	ydric Soil Present otes: Did ud a yDROLOGY PRIM urface Water (A1)_ gh Water Table (A aturation (A3) ater Marks (B1) ediment Deposits (B3) gal Mat or Crust (B in Deposits (B5)	MARY INDICAT W (B2) N 34) N	ORS (and Surful Inum (B7) Spa Con Mari Hyddo Odo Dry- Wate Othe	Hydrogen Sulface Soil Cracks (Bedation Visible on Aersely Vegetated cave Surface (B8)	ufficient) werial Imag	Silvery Dr. Co. Lin Pr. Iro	ECONDARY dater-stained eaves (B9) _ rainage Patt xidized Rhiz- ving Roots (increase of Roon (C4)	erns (B10)/_ cospheres along C3) educed	Stu-Pla Ge Sha Mic Rel	equired) unted or Stressed ants (D1) comorphic Position (D2) allow Aquitard (D3) crotopographic lief (D4)
	ydric Soil Present otes: Did work of the second of the second of the second otes: Did work of the secon	MARY INDICAT WA2) Y WA34) N Pent (Y/N): N	ORS (ar Surf Inum (B7) Spa Con Mari Hydi Odo Dry-Wate Othe	Hydrogen Sulling one indicator is season or Table (C2)	ufficient) werial Imag	SI WLE ery Dr Lin Pr Iro	ECONDARY Vater-stained eaves (B9) _ rainage Patte vidized Rhize ving Roots (consence of Roon (C4) alt Deposits on the state of t	erns (B10)/_ cospheres along C3) educed	Stu Pla Ge Sha Mic Rel	equired) unted or Stressed ants (D1) comorphic Position (D2) allow Aquitard (D3) crotopographic lief (D4)

AQUATIC SITE ASSESSMENT DATA FORM W 100 T10 25



VECETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved_
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) 45 Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) X Very High Density (80-100%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water < 25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A < 100% Cover or Open Water < 100% Cover or Open Water < N/A < 100% Cover or Open Water < N/A < 100% Cover or Open Water < N/A <a href="</td">
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg. Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover X
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope X Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Inlet/Intermitte
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 y
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading 5.76
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medium (10-100 acres) Large (>100 acres)
GPS Technician QA/QC check: V

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featu	ure ID: WIOGTIO 25 Field Target: 167 Date: 6.1.16
For a	Il items not checked, please provide detailed explanation in the notes section of data form.
1	. Site Description
	 ☑ Site description, site parameters and summary of findings are complete? ☑ A detailed site sketch is included in logbook?
2.	. Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
	 Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct?
	All dominant species have been determined and recorded per strata?
	 Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
1.2	
3.	Soil
	 ☑ Soil profile is complete? ☑ Appropriate hydric soil indicators are marked?
4.	Hydrology
	 Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	 Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

3. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

× halen	VOIRER	x ya	leis	Valy	201	6-1-15
Wetland Scientist (print)	* ()	Signature / Date				
V						

X J Brownlee

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	A STANDARD STANDARD		DO STATE OF	Just All Tool	mount of the second
Survey Type: Centerline Acc	ess Road (explain) 🗶			Field Target:	Map #: <u>13 2 Map Date: 5 20</u>
Date: (1-2-16	Project Name: Alask	á LNG		Feature Id	W10671026
Investigators: Je46'ie 66	Ownthe, Kat	en Vo	her		Team No.: WIOG
State: Alaska	Region: Alaska	J	Milepost: 7	50 ish	
Latitude: 61.29702		Longitude	-150.94		Datum: WGS84
Logbook No.:	Logbook Page No.:	27	Picture No.:	P_WIOGTIC	26-001 thru 004
SITE PARAMETERS	2001年的		(对)型缺陷	在 "表现在的情况	STATE OF THE STATE
Subregion: Cook Intel	Sesin		Landform (hill	slope, terrace, hummock	s, etc.): Lowland
Slope (%): 0-3		11 0	Local relief (co	oncave, convex, none):	Flat
Pre-mapped Alaska LNG/NWI classific	cation: U: \C	1	Evidence of V	Vildlife Use: Brows	Masse
Are climatic/hydrologic conditions on to YesXNo(if no ex		of year?	Are "No Yes 🗡	rmal Circumstances" pre	
Are Vegetation, Soil, or H		ly Disturbed?		_(If yes, explain in Notes	
Are Vegetation, Soil, or H	ydrology Naturally P	roblematic?	No_X	_ (If yes, explain in Notes	.)
SUMMARY OF FINDINGS	E TO STAND	h, ride line	STATE OF THE PARTY.	WAR TO COLUMN	
Hydrophytic Vegetation Present? Yes	NoX	ls t	the Sampled A	rea within a Wetland?	Yes No
Hydric Soil Present? Yes_	NoX	We	etland Type:	U	
Wetland Hydrology Present? Yes_	No	— Ala	ska Vegetation	Classification (Viereck):	1C1,111AZ
Notes and Site Sketch: Please include corridor. Tall Mature Mixed for Friend along road, it sold. No Signs of Appears an excavator human disturbance e	nest w/ Bet Ne 30' away. I hydrology.	Soil is Across	Cola w/ s dry to	thick industry	ong of ferns.
		Chowstow -		25	

VEGETATION (use scientific names of plan	ts)			
Tree Stratum (Plot sizes: 100)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:
1. Betila Nevalaskana	35	Y	FAC	Total Number of Dominant Species Across All Strata: (E) W Dominant Species that are OBL, FACW, or FAC: (A)
2. Picea Colonea	35	Y	FACU	
3.				A productive makes the second
				Prevalence Index worksheet:
Total Cove	05		111	Total % Cover of: Multiply by:
50% of total cove	er: 5 7 20	% of total cov		OBL species:X 1 =
Sapling/Shrub Stratum (200)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 8 X 2 = 10 FAC species
· Rosa acieslaris	8	Y	FACU	UPL speciesX 5 =
· Viburnum edule	5		FACU	Column Totals: 194 (A) 698 (B)
Linnaed borealis	T		FACU	PI = B/A = 3.59
Salix bebbiana	6		FAC	
· Betila neoalaskan	20	Y	FAC	
3.	20			
Total Cove	r: 19 15 20	0% of total cov	er: 7, 8	
Total Cove 50% of total cove /EGETATION (use scientific names of plant	r: 19 15 20	0% of total cov	ver: 7, 8	Hydrophytic Vegetation Indicators:
Total Cove 50% of total cove EGETATION (use scientific names of plant	er: 15 20	Dominant Species?		Dominance Test is > 50%
Total Cove 50% of total cove EGETATION (use scientific names of planters Stratum (24)	Absolute % Cover	Dominant	Indicator Status	Dominance Test is > 50% Nervalence Index is ≤ 3.0
Total Cove 50% of total cove EGETATION (use scientific names of planter of Stratum (34)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50% N Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
Total Cove 50% of total cove 50% of total cove erb Stratum (24) Chamedap angus Hell	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU	Dominance Test is > 50% Notes Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cove 50% of total cove 50% of total cove regeration (use scientific names of plant lerb Stratum (24) Chamerian angustific Chamerian angustific Separateurs Prateurs	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU FACU	Dominance Test is > 50% N Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
Total Cove 50% of total cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (24) Chamerian angustific Chamerian angustific Elawagesti's canadassis	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cove 50% of total cove 50% of total cove EGETATION (use scientific names of plant erb Stratum (24) Chamerian angustific Chamerian angustific Egyster Prateuse Calanageist's canadaisis Sanguisarba	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cove 50% of total cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (24) Chamerian angustific Canadensis Cornus canadensis	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cove 50% of total cove 50% of total cove 7EGETATION (use scientific names of plant lerb Stratum (24) 1. Country of the scientific names of plant 2. Chamerian angustific 3. Equischer Pratense 4. Calanagentis canadensis 5. Sanguisarba 6. Cornus canadensis 6. Spindom annother	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove 50% of total cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (24) Chamerian angustific Cornus canadensis Cornus canadensis Cornus canadensis Cornus canadensis	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove 60% of total cove 6	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. ——————————————————————————————————
Total Cove 50% of total cove 5	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. ——————————————————————————————————
Total Cove 50% of total cove 60% of total cove 6	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU FACU FACU FACU FACU FACU FAC	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. ——————————————————————————————————

W10677026

SOIL PROFIL							The second secon	
Depth	Matrix		Redox Features			10		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
9; 0-2								Dry organics
7 2-3	4042 67	201					loam.	The state of the s
3-6	104R 5/2 104R 5/1	30					Silt loom	
	354R 3/3 954R 3/4	30					N Fine Sa Loam	
sw/ 9-18	1048 43	95	7.542 3/4	5	con	RCM	Silt loan	Andleproperties
2 18-24	10 4R 5/2	90	SYR 3/4	10	con	Rem	Silt loam	
Type: C=Con	centration, D=Deple	etion, RN	/=Reduced Matrix, C	S=Cove	ered or Coa	ated Sand Gr	ains. ² Location:	PL=Pore Lining, M=Matrix.
	INDICATORS	die	大"在南部港灣台	100	UD Server	Service Control		FOR PROBLEMATIC HYDRIC SOIL
listosol or Hist	tel (A1)/		Alaska Gleyed	(A13)	N			hange (TA4) ⁴
listic Epipedor	n (A2)/		Alaska Redox				-	Swales (TA5)/
Black Histic (A:		-1	Alaska Gleyed	-		/		vith 2.5Y Hue
Hydrogen Sulfie			1					without 5Y Hue or Redder Underlying
	face (A12) _ //						Layer_ N	
		tation o	ne primary indicata-	of weetle	ad budest	au and an	Other (Explain	in Notes) — pe position must be present unless
	er (if present): Type	e:		epth (in	ches):			
ydric Soil Pre	esent (Y/N):						ets of each	distributed at depth
otes: All ho	ricons have horizon. All	wave,		born	daines	with pack b Andic		distributed at depth
lydric Soil Presides: All hogardless of	esent (Y/N): N ricons have horizon: All PRIMARY INDICA	wave, horize	discontinous ons showed po	bovni roper- ufficient)	dances ties of	with pack b Andic	INDICATORS (2	
lydric Soil Presides: All hogardless of YDROLOGY I	esent (Y/N): N ricons have horizon: All PRIMARY INDICAT	wave, horize	discontinous ons showed por ny one indicator is si face Soil Cracks (B6 ndation Visible on Ae	bovni roper- ufficient)	daires tius or	with pack Andic ECONDARY Vater-stained eaves (B9)	INDICATORS (2	or more required) Stunted or Stressed
lydric Soil Presides: All hogardless of YDROLOGY I	PRIMARY INDICATION (A2) Le (A2)	Korize FORS (a Sur Inur (B7) Spa	discontinous ons showed por ny one indicator is si face Soil Cracks (B6 ndation Visible on Ae	bovn	S S W Le	ECONDARY Vater-stained eaves (B9)	rns (B10)/spheres along	or more required) Stunted or Stressed Plants (D1)
otes: All ho gardless of YDROLOGY I urface Water (igh Water Tab	PRIMARY INDICATION (A2) Le (A2) NOTICON AIL PRIMARY INDICATION Le (A2)	TORS (a Sur Inur (B7) Spa Con	ny one indicator is si face Soil Cracks (B6 indation Visible on Ae incressly Vegetated icave Surface (B8)	bovning ficient)	S S V Le Gery Di	ECONDARY Vater-stained eaves (B9) rainage Patte xidized Rhizo	rns (B10)/_ spheres along 3)/_	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
ydric Soil Presides: All hogardless of YDROLOGY I urface Water (aigh Water Tabaturation (A3)	PRIMARY INDICATION (A2) Le (A2) M M M M M M M M M M M M M	TORS (a Sur (B7) Spa Con Mar	ny one indicator is stated production Visible on Ae processed visible on Ae processed visible visible on Ae processed visible	bovning ficient)	S S V Le	ECONDARY Vater-stained eaves (B9) rainage Patte xidized Rhizo ving Roots (Coresence of Re	rns (B10)/_ spheres along 3) duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
lotes: All ho gardless of YDROLOGY I urface Water (igh Water Tab aturation (A3) /ater Marks (B	PRIMARY INDICATION (A1) Le (A2) Sits (B2)	FORS (a Sur (B7) Spa Con Mar Hyd Odd	ny one indicator is si face Soil Cracks (B6 indation Visible on Ae incorporate (B8) I Deposits (B15)	bovning ficient)	Janus of Signature	ECONDARY Vater-stained eaves (B9) rainage Patte xidized Rhizo ving Roots (Coresence of Recon (C4)	rns (B10)/_ spheres along 3) duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Intes: All horseless All horse	PRIMARY INDICATION (AL) Le (A2) Sits (B2)	TORS (a Sur Inur (B7) Spa Con Mar Hyd Odd Dry- Wat	ny one indicator is si face Soil Cracks (B6 indation Visible on Ae increase (B8) I Deposits (B15) rogen Sulfide or (C1) Season	bovning ficient)	Janus of Signature	ECONDARY Vater-stained eaves (B9) rainage Patte xidized Rhizo ving Roots (Coresence of Report (C4)	rns (B10)/_ spheres along 3) duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
lydric Soil Presidents: All houses: All houses: All houses and least and least and least and least and least attraction (A3). Vater Marks (Burift Deposits (Bur	PRIMARY INDICATAL) Le (A2) Le (B2) Sits (B2) St (B4)	TORS (a Sur Inur (B7) Spa Con Mar Hyd Odd Dry- Wat	ny one indicator is signatured programment of the state o	bovning ficient)	Janus of Signature	ECONDARY Vater-stained eaves (B9) rainage Patte xidized Rhizo ving Roots (Coresence of Report (C4)	rns (B10)/_ spheres along 3) duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
lydric Soil Presidents: All Accordance Water (1997) August 1997 Au	PRIMARY INDICATION: All PRIMAR	TORS (a Sur Inur (B7) Spa Con Mar Hyd Odd Dry- Wat	ny one indicator is signatured programment of the state o	bovning ficient)	Si S	ECONDARY Vater-stained eaves (B9) rainage Patte xidized Rhizo ving Roots (Coresence of Report (C4)	rns (B10)/_ spheres along 3) duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
yDROLOGY I urface Water (igh Water Tab aturation (A3) // Ater Marks (B ediment Deposits (B gal Mat or Cru on Deposits (B	PRIMARY INDICATION: All PRIMAR	FORS (a Sur Inur (B7) Spa Con Mar Hyd Odd Dry- Wat Othe	ny one indicator is signatured programment of the state o	bovning ficient)	Janus Sigery Di Circo Sigery No.	ECONDARY Vater-stained eaves (B9) rainage Patte exidized Rhizo ving Roots (Coresence of Report (C4) alt Deposits (Coresence of Report (C4)	rns (B10)spheres along 3)duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Hydric Soil Pre	PRIMARY INDICATION: All PRIMAR	FORS (a Sur Inur (B7) Spa Con Mar Hyd Odc Dry- Wat	ny one indicator is si face Soil Cracks (B6 indation Visible on Ae incave Surface (B8)r I Deposits (B15)r rogen Sulfide or (C1) Season er Table (C2) er (Explain in Notes):	bovning ficient)	Janus Sigery Di Circo Sigery No.	ECONDARY Vater-stained eaves (B9) rainage Patte exidized Rhizo ving Roots (Coresence of Report (C4) alt Deposits (Coresence of Report (C4)	rns (B10)/_ spheres along 3) duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Notes: All And Application (A3) Water Marks (Burface Water Deposits (Burface Water Con Deposits (Burface Water Programmer)	PRIMARY INDICATION: All PRIMAR	TORS (a Sur Inur (B7) Spa Con Mar Hyd Odo Dry- Wat	ny one indicator is si face Soil Cracks (B6 indation Visible on Ae incave Surface (B8) I Deposits (B15)r rogen Sulfide or (C1) Season er Table (C2) er (Explain in Notes):	bovning ficient)	Janus Sigery Di Circo Sigery No.	ECONDARY Vater-stained eaves (B9) rainage Patte xidized Rhizo ving Roots (Coresence of Report (C4) alt Deposits (Coresence of Report (C4) and Hydrolo	rns (B10)spheres along 3)duced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)



AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, W	MINERAL PROPERTY AND ADDRESS OF THE PARTY AND	
Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Evergreen-Needle-leaved	
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (>1.5m)	Sapling (<5 dbh, <6m tall)	Tall shrub (2-6m) Short shrub (0.5-2m) Ss-Lichen Submerged Submerged
Number of Wetland Types (M):	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse 80%) Very High Density (80-100%)	(0-20%) Low Density (20-40%)	Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): Peripheral Cover >75% Scattere	100% Cover or Open Water <25% or Peripheral Cover N/A	6 Scattered/Peripheral Cover 26-75% Scattered or
Plant Species Diversity (P): Low (< 5 plant	species) Medium (5-25 species)	High (>25)
Presence of Islands (M): Absent (none) _	One or Few Several to I	Many N/A
Cover Distribution of Dominant Layer (P): Open Small Scattered Patches	No Veg Solitary, Scattered Stems_ Continuous Cover	1 or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance Abundant (>50% of surface)	(0-25% of surface) Moderately Abu	undant (25-50% of surface)
High (small groupings, diverse and interspers		
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional _	Riverine Estaurine Fringe
4		
SOIL VARIABLES	1885年代教育以外,然后	List on Coming
Soil Factors (P): Soil Lacking Mineral: Gravelly Mineral: Sandy	Histosol:Fibric Histosol:Hemic Mineral: Silty Mineral:	Clayey
	/	
HYDROLOGIC VARIABLES		
Inlet/Outlet Class (P): No Inlet/Outlet Intermittent Inlet/Intermitten Inlet/Intermittent Outlet Perennial I	t Outlet / Intermittent Inlet/Perennial C	Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial
Wet Perm Flooded Intermittently Exposed.	sonally Flooded, Temporarily Flooded, Saturate Semiperm. Flooded	
	sediment Observed c	
Created		n Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): Absent	Poorly Developed (6in.) W	ell Developed (6-18in.) Pronounced (>18in.)
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No C Return Interval >5 yrs	Dverbank Flooding Return Interval 1	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No C Return Interval >5 yrs	Dverbank Flooding Return Interval 1 W Restricted Outflow Un	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs prestricted Outflow
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No (Return Interval >5 yrs	Direction Poorly Developed (6in.) With the Poorly Developed (6in.)	ell Developed (6-18in.) Pronounced (>18in.) 1-2 yrs Return Interval 2-5 yrs arestricted Outflow 4) Acid (<5.5) pH Reading
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No (Return Interval >5 yrs	Dverbank Flooding Return Interval 1 W Restricted Outflow Un	ell Developed (6-18in.) Pronounced (>18in.) -2 yrs Return Interval 2-5 yrs -2 yrs
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No CReturn Interval >5 yrs	Poorly Developed (6in.) Will Developed (6in.	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs prestricted Outflow Acid (<5.5) pH Reading Low Permeability Stratified Deposits
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No CReturn Interval >5 yrs	Poorly Developed (6in.) Will Developed (6in.	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs prestricted Outflow Acid (<5.5) pH Reading Low Permeability Stratified Deposits
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No CReturn Interval >5 yrs	Poorly Developed (6in.) Will Developed (6in.	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs prestricted Outflow Acid (<5.5) pH Reading Low Permeability Stratified Deposits
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No CReturn Interval >5 yrs	Poorly Developed (6in.) With Diverbank Flooding Return Interval 1 W Restricted Outflow Un Circumneutral (5.5-7.4) Alkaline (>7.1 (P): High Permeability Stratified Deposits Gradient (<2%) High Gradient (≥2') Deeps or Springs Seeps Observed Wetlands within 400m, Not Con	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs prestricted Outflow 4) Acid (<5.5) pH Reading Low Permeability Stratified Deposits %) Intermittent Spring Perennial Spring unected Only Connected Below
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No CReturn Interval >5 yrs	Poorly Developed (6in.) With Developed (6in.	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs prestricted Outflow 4) Acid (<5.5) pH Reading Low Permeability Stratified Deposits %) Intermittent Spring Perennial Spring prected Only Connected Below pwn
Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No CReturn Interval >5 yrs	Poorly Developed (6in.) William Diverbank Flooding Return Interval 1 W Restricted Outflow Un Circumneutral (5.5-7.4) Alkaline (>7.4 I (P): High Permeability Stratified Deposits Gradient (<2%) High Gradient (≥2) Deeps or Springs Seeps Observed Seeps Observed ted Wetlands within 400m, Not Coned Upstream & Downstream Unknown, ag.) Moderate Intensity (i.e., forest	ell Developed (6-18in.) Pronounced (>18in.) I-2 yrs Return Interval 2-5 yrs prestricted Outflow 4) Acid (<5.5) pH Reading Low Permeability Stratified Deposits %) Intermittent Spring Perennial Spring unected Only Connected Below pwn

Crew Chief QA/QC check:

GPS Technician QA/QC check:

Page 4 of 4

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Fe	atur	e ID:	WIDGTI	260	Field Target:_	172	Date: 6-3	· (lp
Fo	r all	item	s not checke	ed, please pro	vide detailed exp	lanation in the r	notes section of a	ata form.
	1.	Sit	e Descript	tion				
					arameters and s s included in log		dings are comp	llete?
	2.	Ve	getation					
			identificati Vegetation Cover calc All domina Indicator s	on? n names are collations are ant species has status is corre	entered legibly complete and c	for all strata property or all strata propert	orded per strata	
	3.	Soi	1					
				e is complete' te hydric soil	? indicators are n	narked?		
	4.	Нус	drology					
					ndicators are m ble, and satura		e recorded if pr	esent?
	5.	Fur	nctions an	d Values	*			
			Vegetation wetland?	n, soil, hydrol	ogic variables, a	and landscape	e variables com	plete if site is a
	6.	Fie	ld Logboo	k				
			accuracy o	of pre-mappe	ded at each site d wetland boun nitialed and date	dary as appro	neral descriptio priate?	n, sketch, and
	7.	Ma	os					
				oundaries ha	ve been correct	ted if necessa	ry?	

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X haven	Volger X	(Kelley	Valger	6-3-16
Wetland Scientist (print)	Sig	nature / Date		

X & Branklee

Field Crew Chief (print)

X fisie Browler 6-216

Signature / Date

	2.			Z	New Wa	isilla 2
SITE DESCRIPTION		公园 总统	14 51 9	GERS STA	1	
Survey Type: Centerline Acces	ss Road (explain)	Other (expl	ain)	Field Targ	get:	Map #: _/8 Map Date: 7/5/4
Date: 7.28.16	Project Name: Alask	a LNG			Feature Id	: W10671027
Investigators: Jessie Brownle	e Kin Holo	Mes				Team No.: WIDE
State: Alaska	Region: Alaska	4	Milepost:	725.9		
Latitude: 61.5431		Longitude		54031		Datum: WGS84
Logbook No.: Z	Logbook Page No.:	41	Picture No.:	P_WIOL	T1027.	-001 thro -004
SITE PARAMETERS	THE RESIDENCE OF THE PARTY OF T	Angs into	(3) P. (2) P. (3) P. (4)			SAME A TO SERVICE AND A SERVICE.
Subregion: Cock Inlet Be	CALA	DOM:	Landform (hil	Islope, terra	ce, hummock	is, etc.): Mound
01 (0/): -	·		-			CONVEX
Pre-mapped Alaska LNG/NWI classifica	ation: Not pre man	poed	Evidence of V			
Are climatic/hydrologic conditions on the YesX No (if no expl	e site typical for this time	1	Are "No	ormal Circur	mstances" pre	
Are Vegetation, Soil, or Hyd		tly Disturbed			plain in Notes	
Are Vegetation, Soil, or Hyd		Problematic?			plain in Note	
SUMMARY OF FINDINGS	A CONTRACTOR	No.	Malerin	27.01 (82)	WEST TO	NAME OF TAXABLE PARTY.
Hydrophytic Vegetation Present? Yes_	No K	Is	the Sampled A	Area within	a Wetland?	Yes No
Hydric Soil Present? Yes_	* No 3	w	/etland Type:	U		
Wetland Hydrology Present? Yes_	No ×	A	laska Vegetatio	n Classificat	tion (Viereck)	: 1C2,11,B2
Notes and Site Sketch: Please include I corridor. Mature Pic Gla, Bet N Diverse forb community by weltlands.	Jirectional & North Arrow Leo Open Porest g fems & Ego	A Centerline	all shrub	Dry So	se >5"1 andy Ma	full & alder understory
March 1 and) - ((1) ((4 t)))			

VEGETATION (use scientific names of plants	5)			
Tree Stratum (Plot sizes: (00)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B)
1. Picca Glavea	130	У	FACU	% Dominant Species that are OBL, FACW, or FAC: 40 (A/B)
2. Belula Nevalaskana	15	Y	FACU	W Dominiant opecies that are OBL, 1 AOW, Of 1 AO (AB)
3. Populus balsamitara	3		FACU	
4.				Prevalence Index worksheet:
Total Cover				Total % Cover of: Multiply by:
50% of total cover	24 20	% of total cov	er: 9.4	OBL species:X 1 =
Sapling/Shrub Stratum (2C)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $\begin{array}{c ccccc} & & & & & & & & & & & & & & & & &$
1. Viburnum edule	12		FACU	UPL species X 5 =
2. Rosa acicolaris	45	Y	FACU	Column Totals: 137 (A) 524 (B)
3. Almus incona tenuifolia	10	= 1	FAC	PI = B/A = 3,82
4. Rubus idaeus	3		FACU	
5. Ribes triste	4		FAC	
6. Optopanax horridus	2		FACU	
8.				
9.	-			
Total Cover	-	% of total cov	er:_15.2	

Herb Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤ 3.0
1. Trientalis europaea	7		FACU	Morphological Adaptations¹ (Provide supporting data in
2. Equisatum prataise	1		FACW	Notes)
3. Equisation Arvensa	15	7	FAC	Problematic Hydrophytic Vegetation¹ (Explain)
4. Galium boreale	7		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Streptopus amplexitalia	1		FACU	disturbed or problematic.
6. Mertensia panicilata	- Cox		FACU	
7. Calamagrustis canadensis	(3	Y	FAC	_30_ % Bare Ground leaf Littler
8. The pysola Sp	7		_	% Cover of Wetland Bryophytes
9. Cornic canadensis	1		FACO	Total Cover of Bryophytes
10.			4	% Cover of Water
Total Cover:		% of total cov	er: .2.	Hydrophytic Vegetation Present (Y/N):

W106T1027

7: 0-2 De 2-4 4 4-5 (0 NN 5-8 2:		A Property of the Parket		ature ID	18 ATO	STATE OF THE PARTY	STATE OF THE PARTY	Soil	Pit Required (Y/N)
Depth (inches) Col (inches) C	trix	Jescribe	Chiprine Control	and the second second	nt the i	ndicator or c	onfirm the absence		The second secon
(inches) Col (inch			Redox Features	to docume	THE LITE I	naioator or o	Cilimit are appeared	l maioatoro.	
2 0-2 De 2-4 4 4-5 (0 S-8 2:	or (moist)	%	Color (moist)	% T	/pe ¹	Loc ²	Texture	Notes	1.634
De 2-4 4 4-5 10 5-8 2:		10	Color (moist)	1,01	, ро	100	TOMETO	110100	19 3
4 4-5 10 N 5-8 2	-		•	+					
N 5-8 2:	YR 2/2	100					Loan		
	374/1	85	104R 4/2	150	on	MKC	silt loam	Bend of Co	201 famo of interface
	123/1	180	1911 12				Coam	Zerra Zir der	CONTRACTOR TO INC. TO ID
	544/3	100					fine sand		
	5 4 4/1	100			+		fine sand		
		tion, RM	=Reduced Matrix, C	S=Covered	or Coa	ated Sand G		PL=Pore Lini	ng, M=Matrix.
YDRIC SOIL INDI	CATORS	1115	并March 1917	222644	ez.eh	Market .	INDICATORS F	OR PROBLE	MATIC HYDRIC SOILS
listosol or Histel (A	1)/		Alaska Gleyed	(A13)	N		Alaska Color Ch	nange (TA4) ⁴ _	N
listic Epipedon (A2) <u>N</u>		Alaska Redox	(A14)	Ν.		Alaska Alpine S	wales (TA5) _	N
Black Histic (A3)	N		Alaska Gleyed	Pores (A1	5) <u>N</u>		Alaska Redox w	vith 2.5Y Hue	展工好
lydrogen Sulfide (A	N4) _ /						Alaska Gleyed v	without 5Y Hu	e or Redder Underlying
hick Dark Surface	(A12) N						Other (Explain i	n Notes)	
Restrictive Layer (if	nt (Y/N): 1	1 fe	>	Pepth (inch		T 01	71		Y 1 1 1
1 wetness @	Site. Oir	119 5	from sile	0707	(690)	(4) 2,3	y any way.	Noc.	ikely due to savily do a industry
Surface Water (A1)	· N	Sur	face Soil Cracks (B6)		Vater-stained eaves (B9)		Stunted Plants	d or Stressed (D1)
ligh Water Table (A	A2) N	Inui (B7	ndation Visible on Ae	rial Image	гу	Prainage Pat	terns (B10)i√	Geomo	orphic Position (D2)//
Saturation (A3)	N	Spa	rsely Vegetated cave Surface (B8)	1		Oxidized Rhizospheres along Living Roots (C3)		Shallov	v Aquitard (D3)
Vater Marks (B1) / Marl Deposits (B15) /				/		Presence of Reduced Microtopog Relief (D4)			
Vater Marks (B1) _		Hyd	rogen Sulfide or (C1)		- 1-	Salt Deposits	(C5)/	FAC-N	èutral Test (D5)
	(B2) N				I N	lotes:			
Sediment Deposits	1	Dry	-Season ter Table (C2)N	-		totoo.			
Sediment Deposits Orift Deposits (B3)	N	Dry Wa	-Season ter Table (C2) <u>N</u> er (Explain in Notes)	r :: -					
ediment Deposits orift Deposits (B3) _	N	Dry Wa	ter Table (C2) N	11 -					
Nater Marks (B1) Sediment Deposits Orift Deposits (B3) Algal Mat or Crust (I ron Deposits (B5) Surface Water Pres	N B4) <u>N</u>	Dry Wa Oth	ter Table (C2) N	<u> </u>					
Sediment Deposits Orift Deposits (B3) _ Algal Mat or Crust (I	B4) $$ Neent (Y/N):	Dry Wa	ter Table (C2) <u>N</u> er (Explain in Notes)		We		ology Present (Y/N): _ /	

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P-Plot Mi-	Matrix
Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) Dwarf shrub (<0.5m) Tall herb (≥1m)	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Short herb (<1m) Moss-Lichen Floating Submerged
Number of Wetland Types (M): E	venness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-80%) Very High Density (80-100%)	-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): 1 Peripheral Cover >75% Scattered of	00% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant spe	ecies) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none)	One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Open Small Scattered Patches	o Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Continuous Cover
Dead Woody Material (P): Low Abundance (0-Abundant (>50% of surface)	25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large partial) High (small groupings, diverse and interspersed)	atches, concentric rings) Moderate (broken irregular rings)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	AND COLORS OF THE PROPERTY OF THE RESIDENCE AND THE PROPERTY OF THE PROPERTY O
Soil Factors (P): Soil Lacking Hi Mineral: Gravelly Mineral: Sandy	istosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet	N 1 1 10 1 10 10 10 11 10 10
	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Utlet Perennial Outlet Pere
Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet	utlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial t/Perennial Outlet Perennial t/Perennial Outlet Perennial t/Perennial Outlet Perennial Inlet/No Outlet Perennial t/Perennial Outlet Perennial Inlet/No Outlet Perennial
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Jessie Brownlee

Crew Chief QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

New

Feature ID: WIGGT 1 027	Field Target: Wasilla Z	Date:	7.28.16
-			- n of data form
For all items not checked, please pro-	vide detailed explanation in the no	tes secu	on oi data ioiiii.

For all items not checked, please provide detailed explanation in the notes section of data form.

1. Site Description

- ☑ Site description, site parameters and summary of findings are complete?

2. Vegetation

- At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
- □ Vegetation names are entered legibly for all strata present?
- Cover calculations are complete and correct?
- All dominant species have been determined and recorded per strata?
- ☐ Indicator status is correct for each species?
- ☑ Dominance Test and Prevalence Index have been completed?

3. Soil

- Soil profile is complete?
- Appropriate hydric soil indicators are marked?

4. Hydrology

- Surface water, water table, and saturation depths are recorded if present?

5. Functions and Values

Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?

6. Field Logbook

- Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate?
- Each logbook page is initialed and dated?

7. Maps

- Wetland boundaries have been corrected if necessary?
- Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- 也 Two photos were taken for each Observation Point (vegetation/site overview)?

X	X	
Wetland Scientist (print)	Signature / Date	
X Jessie Brownle	e XA	· 7.28-14
Field Crew Chief (print)	Signature / Date	

				V Wasilla	1
SITE DESCRIPTION	A CONTRACTOR OF THE SECOND	and the same	HARVE WE	The state of the s	Andrew Complete Comment
Survey Type: Centerline Acces	ss Road (explain)	Other (exp	olain) <u> 1</u>	Field Target:	Map #: <u>/7</u> Map Date: <u>7 /5 //</u>
Date: 7.28.16	Project Name: Alask	a LNG	, w	Feature I	d: WIOGT/028
Investigators: Jessie Brownles	Kim Halmes			-,	Team No.: Wole
State: Alaska	Region: Alaska		Milepost:	693.4	3 8
Latitude: 61, 93583	4	Longitud	e: -180,219	532	Datum: WGS84
Logbook No.: 2	Logbook Page No.:	41		P-WIOGTIOZ8-C	ool thra - 004
SITE PARAMETERS	同學科學的關係問題			PARTIES AND ADMINISTRATION OF THE PARTIE	
Subregion: Cook Inlet (Basin		Landform (hil	lislope, terrace, hummod	iks, etc.): River ferrace
Slope (%): 3-5		4	Local relief (d	concave, convex, none):	Flat
Pre-mapped Alaska LNG/NWI classifica	ition: Not mapped		Evidence of \	Wildlife Use: Mosc d	Cepi'ngo
Are climatic/hydrologic conditions on the		of year?		ormal Circumstances" p	4
Are Vegetation, Soil, or Hyd	drology Significant	ly Disturbed	1? NoX	(If yes, explain in Note	es)
Are Vegetation, Soil, or Hyd	drology Naturally F	Problematic	? No_X	(If yes, explain in Note	∋s.)
SUMMARY OF FINDINGS		成的影响			
Hydrophytic Vegetation Present? Yes_	X No		s the Sampled	Area within a Wetland?	Yes NoX
Hydric Soil Present? Yes_	NoX	_ \	Wetland Type:	- (
Wetland Hydrology Present? Yes_	No X	_ /	Alaska Vegetatio	n Classification (Viereck): 111B2,11CZ
Notes and Site Sketch: Please include I corridor. Previously burned Ple Soil is dry and sandy Much tree throat made to Much downed wood a	Marforest. No	u it is charcoc antinuos	Mesic for al/Burnec horizons.	-b & shrub co	ver ask over Bhs soil.
				-	
				'A	
				4	
	1921	1000	T. A	818	x
		8		- A	1.46

VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot sizes: /00)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A Total Number of Dominant Species Across All Strata: (E
1. Piece Mariana dead stages	25			Total Number of Dominant Species Across All Strata:(E % Dominant Species that are OBL, FACW, or FAC:75(A/I
2.	100	and the second		
3. No	100			
	01			Prevalence Index worksheet:
Total Cove	r. <u> </u>			Total % Cover of: Multiply by:
50% of total cove	r:20	% of total cov	er:O	OBL species:X 1 =
Sapling/Shrub Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $X = $ FAC species $X = $ $X = $ FACU species $X = $
· Vaccinium vitis-idaea	25	FAC	FAC	UPL species X 5 =
populus tramuloides	7		FACU	Column Totals: 120 (A) 39 (B)
· Betula Moaloskana	15	7	FACU	PI = B/A = 3.25
Solix Glavea	15	1	FAC	*
Picea Martana	2	-	FAC	
•				
		-		
	57			
Total Cove	r. <u>57</u>	not of total cou	ar: 11.4	
		0% of total cov	er:_/1,4	
Total Cove 50% of total cove EGETATION (use scientific names of plant	r:_ <u>28.5</u> 20)% of total cov	er:_/1,4	
Total Cove 50% of total cove	r:_ <u>28.5</u> 20	Dominant Species? (Y/N)	er:/1,-4IndicatorStatus	Hydrophytic Vegetation Indicators:
Total Cove 50% of total cove EGETATION (use scientific names of plant erb Stratum (2 4)	r: <u>28.5</u> 20 s) Absolute	Dominant Species?	Indicator	Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0
Total Cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (26)	s) Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50%
Total Cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (26) Cornus canadens (3	S) Absolute Cover	Dominant Species?	Indicator Status	Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 — Morphological Adaptations¹ (Provide supporting data in
Total Cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (26) Cornus canadens/3 Chamerian angustifalium Cyuschan sylvaticum	S) Absolute % Cover	Dominant Species?	Indicator Status FACV	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cove 50% of total cove EGETATION (use scientific names of plant erb Stratum (26) Cornus canadens/3 Chamerion angustifolium Egysschan s., lvahrum Colamograstis comodensis	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU FACU	Dominance Test is > 50% Notes Problematic Hydrophytic Vegetation¹ (Explain)
Total Cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (26) Cornus canadens/3 Chamerion angustifolium Calamagrasts canadensis calamagrasts canadensis cornus succica	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU	Dominance Test is > 50% Norphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove 50% of total cove EGETATION (use scientific names of plant lerb Stratum (26) Cornus canadens (3 Chamerion angustifolium Colamagrastis (amadens) Colamagrastis (amadens) Cornus Suecica Cornus Suecica Cornus Suecica	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove 50% of total cove FEGETATION (use scientific names of plant lerb Stratum (26) Cornus canadens/3 Chamerion angustifolium Chamerion angustifolium Calamagrasts comadensis cornus suecica Cornus suecica Cornus suecica	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0, Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove 50% of total cove EGETATION (use scientific names of plant lierb Stratum (26) Cornus canadens (3 Chamerion angustifolium Calamagrasts comodens (3) Cornus Suecica Cornus Suecica	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Mean Ground Me
Total Cove 50% of total cove 50% of total cove /EGETATION (use scientific names of plant fierb Stratum (26) 1. Cornus canadens/3 2. Chamerion angustifolium 3. Equischum si, luahkum 4. calanagrastis canadensis	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Company & Cover of Wetland Bryophytes

Feature ID Soil Pit Required (Y/N) SOIL SOIL PROFILE DESCRIPTION: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth (inches) Color (moist) Color (moist) % Type¹ Texture Dry organies Black stroyoutics yarcoal 160 7.54R 6/2 Ash 4-5 7.54R 3/3 th 5-12 30 ir ry five sandy 7. SYR 5/6 70 10 YR 4/4 Very Aine sand 100 ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix. INDICATORS FOR PROBLEMATIC HYDRIC SOILS1 HYDRIC SOIL INDICATORS Alaska Color Change (TA4)4_ Histosol or Histel (A1) Alaska Gleyed (A13) N Alaska Redox (A14) Alaska Alpine Swales (TA5) Histic Epipedon (A2) Alaska Redox with 2.5Y Hue Black Histic (A3) Alaska Gleyed Pores (A15) Alaska Gleved without 5Y Hue or Redder Underlying Hydrogen Sulfide (A4) Layer Thick Dark Surface (A12) N Other (Explain in Notes) One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. ⁴Give details of color change in Notes NO Depth (inches): Restrictive Layer (if present): Type: Hydric Soil Present (Y/N): *Notes: HYDROLOGY PRIMARY INDICATORS (any one indicator is sufficient) SECONDARY INDICATORS (2 or more required) Stunted or Stressed Water-stained Surface Soil Cracks (B6) ___/V Surface Water (A1) / Plants (D1) _______ Leaves (B9) Inundation Visible on Aerial Imagery Geomorphic Position (D2) / Drainage Patterns (B10) _ N High Water Table (A2) N (B7)Sparsely Vegetated Oxidized Rhizospheres along Shallow Aquitard (D3) Saturation (A3) Concave Surface (B8) Living Roots (C3) Presence of Reduced Microtopographic Marl Deposits (B15) Water Marks (B1) Relief (D4) Iron (C4) N Hydrogen Sulfide FAC-Neutral Test (D5) _ Sediment Deposits (B2) N Salt Deposits (C5) _ ^ Odor (C1) Dry-Season Notes: Drift Deposits (B3) Water Table (C2) Other (Explain in Notes): Algal Mat or Crust (B4) Iron Deposits (B5) Surface Water Present (Y/N): Depth (in): Wetland Hydrology Present (Y/N): Depth (in): Water Table Present (Y/N): Saturation Present (Y/N): EC: Depth (in): (includes capillary fringe) Notes:

AQUATIC SITE ASSESSMENT DATA FORM

W106T1028

VIGETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved_ Forested-Deciduous-Broad-leaved_ Forested-Evergreen-Needle-leaved_ Scrub Shrub-Deciduous-Needle-leaved_ Scrub Shrub-Deciduous-Broad-leaved_ Scrub Shrub-Evergreen-Broad-leaved_ Emergent-Non-persistent_ Emergent-Persistent_ Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A 25% Scattered Or Peripheral Cover N/A 26-75% Scattered Or Peri
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
CON MARIANI CO
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial In
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J Browniere

Crew Chief QA/QC check:

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feat	ıre ID:	WIDGETIOZ8 Field Target: Whoilla Date: 7.28-16
		s not checked, please provide detailed explanation in the notes section of data form.
, ., .	3	
4	. Sit	e Description
		Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2	2. Ve	getation
	囡	At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
	Ø	Vegetation names are entered legibly for all strata present?
	可	Cover calculations are complete and correct?
	E	All dominant species have been determined and recorded per strata? Indicator status is correct for each species?
	Ø	Dominance Test and Prevalence Index have been completed?
3	3. So	il .
		Soil profile is complete? Appropriate hydric soil indicators are marked?
4	I. Hy	drology
	Ø Ø	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5	5. Fu	nctions and Values
	₽	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6	S. Fie	eld Logbook
	Ø	Notes have been recorded at each site, including general description, sketch, and
	<i>.</i> []	accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7	7. Ma	ips .
	IŽA.	Wetland boundaries have been corrected if necessary?
		Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- ☑ Two photos were taken for each Observation Point (vegetation/site overview)?

X	X	
Wetland Scientist (print)	Signature / Date	

X Jessie Brownlee
Field Crew Chief (print)

Signature / Date

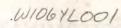
	Access Road (explain)	_ Other (exp	olain) Facility	Field Target: 270	Map #: 53 Map Date: 6-9-/
Date: 6.25.16	Project Name: Alas	ka LNG		Feature Id	W106 YL001
Investigators: Jessie Bre	ownles, Kaley Voloer	-			Team No.: WIOU
State: Alaska	Region: Alaska		Milepost:	882	
Latitude: 65.66563	32° N	Longitud		08569210	Datum: WGS84
ogbook No.: 2	Logbook Page No.:	8			001 thro _004
SITE PARAMETERS	10 miles and the second	SIMPS DAY	The second second		301 TW 0 200 T
Subregion: Ray Mounta	ia A		Landform (hil	Islope, terrace, hummock	s etc.): / /
lope (%): 0-3	<i>-</i>			concave, convex, none):	
Pre-mapped Alaska LNG/NWI cla	assification: PFMIB			Vildlife Use: NONE	1 (27
are climatic/hydrologic conditions	1111	e of year?	Are "No	ormal Circumstances" pre	esent:
re Vegetation, Soil,	, or Hydrology Significant	tly Disturbed		_(If yes, explain in Notes	
re Vegetation, Soil,	or Hydrology Naturally I	Problematic?	No_X	_ (If yes, explain in Notes	s.)
UMMARY OF FINDINGS	A SECTION OF THE SECT		AND AND A	新州等级数次。	
ydrophytic Vegetation Present?	Yes No	Is	the Sampled A	rea within a Wetland?	Yes/ No
ydric Soil Present?	YesYNo	_ w	etland Type:	PSSI/EMIB	, 3 3 TE 1811/10
Vetland Hydrology Present?	Yes No			Classification (Viereck):	11C2,111AZ
otes and Site Sketch: Please in	clude Directional & North Arrow	v, Centerline,	Length of featur	re, Distances from Center	
orridor. OPEN BET NEO Shro in between fussock	b community as/	tall to	~ 12" to	throughout. F	rine, Photo Locations, and Survey excepts of water but percent
Open Bet New shro in behoven fussocked 9 moderity incre	b community as/ o. Pic Mar sappease to the von	fall to	Not enough	throughout. P. Il a plot to gh to be so	ockets of water but percent
OPEN Bet New shro in behoven fussock	b community as/ o. Pic Mar sappease to the von	fall to	Not enough	throughout. P. Il a plot to gh to be so	ockets of water but percent
orridor. Gen Bet New Shruin behveen fussockers fussockers fussockers fussockers fussockers fussockers fussockers fussockers fuser fuser fuser fuser fuser fresh was Previous fresh	b community as/ o. Pic Mar sappease to the von	fall to	Not enough	throughout. P. Il a plot to gh to be so	ockets of water but percent
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OPEN Bet New shro in behoven tussock	b community as/ o. Pic Mar sappease to the von	fall to	Not enough	throughout. P. Il a plot to gh to be so	ockets of water but percent
OPEN Bet New shro in behaven hassock	b community as/ o. Pic Mar sappease to the von	fall to	Not enough	throughout. P. Il a plot to gh to be so	ockets of water but percent
OPEN Bet New shro in behaven hassock	b community as/ o. Pic Mar sappease to the von	fall to	Not enough	throughout. P. Il a plot to gh to be so	ockets of water but percent

WETLAND DETERMINATION DATA FORM WICLEYLOOK

and the second s	ants)		A Secretary of	Companies to the control of the cont
Tree Stratum (Plot sizes: 100	Absolute % Cover	Species?		No. of Dominant Species that are OBL, FACW, or FAC: 2
1.		(Y/N)		Total Number of Dominant Species Across All Strata:
2. Johnes				% Dominant Species that are OBL, FACW, or FAC:
3. None	175			1002
4.				
Total Cov	/er:		1	Prevalence Index worksheet:
50% of total cov		0% of total co	ver	Total % Cover of: OBL species: X 1 = Multiply by:
Sapling/Shrub Stratum (26)	Absolute	Dominant	Indicator	
	% Cover	Species? (Y/N)	Status	FAC species 77 x 3 = 26)
Betola Nana	40	Y	FAC	FACU species X 4 = X
Change daphne calvellar		77	FACU)	UPL species X 5 = Column Totals: (A) 313 (B)
Arctous rubra	8		FAC	Column Totals: 10 (A) 313 (B) PI = B/A = 2.8
Salx pulchra	8		FAC 4)	Rhododendrum tomentoum TI
Picra Mariana	T		FACW	Picea Glavica
vaccinium uliginosum	10	N L	FAC	Colauca T FA
Rhadodendrym groenlandicon	4		FAC	
Andromeda polifolia	T		FACIL	
			March Stee	
Betula Negalaskana	I		FACU	
Total Cove	110	% of total cove	FACU	
Total Cove	r: 40 20°	% of total cove	FACU	
Total Cove 50% of total cove	r: 40 20°	% of total cove	FACU er: \Q	Hydrophytic Vogeteting by the
Total Cove 50% of total cove GETATION (use scientific names of plant rb Stratum (26)	r: 40 20°		FACU	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
Total Cove 50% of total cove GETATION (use scientific names of plant rb Stratum (26)	s) Absolute	Dominant Species?	Indicator Status	
Total Cove 50% of total cove GETATION (use scientific names of plant rb Stratum (26)	s) Absolute	Dominant Species?	Indicator Status	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
Total Cove 50% of total cove GETATION (use scientific names of plant rb Stratum (26) Pyrola grandiflora	s) Absolute % Cover	Dominant Species?	Indicator Status	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cove 50% of total cove GETATION (use scientific names of plant of Stratum (26) Pyrola grandiflora Pyrola ascifolia	s) Absolute % Cover	Dominant Species?	Indicator Status FAC FAC	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cove 50% of total cove EGETATION (use scientific names of plant and Stratum (26) Pyrola grandiflora Pyrola ascifolia	Absolute % Cover	Dominant Species?	Indicator Status FAC FACU FACU FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cove 50% of total cove GETATION (use scientific names of plant of Stratum (26) Pyrola grandiflora Pyrola ascifolia	Absolute % Cover	Dominant Species?	Indicator Status FAC FACU FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cove 50% of total cove EGETATION (use scientific names of plant and Stratum (26) Pyrola grandiflora Pyrola ascifolia	Absolute % Cover	Dominant Species?	Indicator Status FAC FACU FACU FACU	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove EGETATION (use scientific names of plant and Stratum (26) Pyrola grandiflora Pyrola ascifolia	Absolute % Cover	Dominant Species?	Indicator Status FAC FACU FACU FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground
Total Cove 50% of total cove EGETATION (use scientific names of plant and Stratum (26) Pyrola grandiflora Pyrola ascifolia	Absolute % Cover	Dominant Species?	Indicator Status FAC FACU FACU FACU	Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground One Wetland Bryophytes
Total Cove 50% of total cove EGETATION (use scientific names of plant and Stratum (26) Pyrola grandiflora Pyrola ascifolia	Absolute % Cover	Dominant Species?	Indicator Status FAC FACU FACU FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground
Total Cove 50% of total cove EGETATION (use scientific names of plant and Stratum (26) Pyrola grandiflora Pyrola ascifolia	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Dominant Species?	Indicator Status FAC FACU FACU FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes Total Cover of Bryophytes

SOIL Date Feature ID Soil Pit Required (Y/N) SOIL PROFILE DESCRIPTION: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Depth (inches) Color (moist) % Color (moist) % Type1 Loc2 Texture Notes ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix. HYDRIC SOIL INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOILS3 Histosol or Histel (A1) Alaska Gleyed (A13) Alaska Color Change (TA4)4 Histic Epipedon (A2) Alaska Redox (A14) Alaska Alpine Swales (TA5) Black Histic (A3) Alaska Gleyed Pores (A15) Alaska Redox with 2.5Y Hue Alaska Gleyed without 5Y Hue or Redder Underlying Hydrogen Sulfide (A4) Layer Thick Dark Surface (A12) N Other (Explain in Notes) One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. Give details of color change in Notes. Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present (Y/N): Notes: HYDROLOGY PRIMARY INDICATORS (any one indicator is sufficient) SECONDARY INDICATORS (2 or more required) Water-stained Surface Water (A1) Stunted or Stressed Surface Soil Cracks (B6) Leaves (B9) Plants (D1) Inundation Visible on Aerial Imagery High Water Table (A2) Drainage Patterns (B10) Geomorphic Position (D2) Sparsely Vegetated Oxidized Rhizospheres along Saturation (A3) Concave Surface (B8) Shallow Aquitard (D3) Living Roots (C3) Presence of Reduced Water Marks (B1) Marl Deposits (B15) Microtopographic Iron (C4) Relief (D4) Hydrogen Sulfide Sediment Deposits (B2) Salt Deposits (C5) Odor (C1) FAC-Neutral Test (D5) Dry-Season Notes: Drift Deposits (B3) Water Table (C2) Algal Mat or Crust (B4) Other (Explain in Notes): Iron Deposits (B5) Surface Water Present (Y/N): Depth (in): Wetland Hydrology Present (Y/N): Water Table Present (Y/N): Depth (in): Saturation Present (Y/N): Depth (in): EC: (3/D) PH 6.39 (includes capillary fringe) Notes:

AQUATIC SITE ASSESSMENT DATA FORM



VEGETATION VARIABLES P= Plot, M= Ma	thix
Forested-Evergreen-Needle-leaved Scru	Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) Dwarf shrub (<0.5m)3O Tall herb (≥1m)	Sapling (<5 dbh, <6m tall) 2 Tall shrub (2-6m) Short shrub (0.5-2m) 33 Short herb (<1m) 35 Moss-Lichen 10 Floating Submerged O
Number of Wetland Types (M): _ Z Ever	nness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
	%) Low Density (20-40%) Modium Popolity (40-60%)
Interspersion of Cover & Open Water (P): 1009 Peripheral Cover >75% Scattered or P	% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Open Water
	es) Medium (5-25 species) High (>25)
	One or Few Several to Many N/A
	eg Solitary Scattered Stems 1 or Mars Lang Butch B 1 (0)
Dead Woody Material (P): Low Abundance (0-25% Abundant (>50% of surface)	% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patcher High (small groupings, diverse and interspersed)	es, concentric rings) X Moderate (broken irregular rings)
HGM Class (P): Slope Flat_X_ Lac	custrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	15 世纪中的特别是14 11 11 11 11 11 11 11 11 11 11 11 11 1
Soil Factors (P): Soil Lacking History Mineral: Gravelly Mineral: Sandy	sol:Fibric Histosol:Hemic
HYDROLOGIC VARIABLES	
nlet/Outlet Class (P): No Inlet/Outlet No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Pe	Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No
Wetland Water Regime (P): Drier: Seasonally Wet: Perm. Flooded, Intermittently Exposed, Semipe	erm Flooded
vidence of Sedimentation (P): No Evidence Obs	served K Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
routou	Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
	k Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs
CO WAS TO STATE OF THE STATE OF	
	11.10.6.7.0
Surficial Geologic Deposit Under Wetland (P): His	gh Permeability Stratified Deposits Low Permeability Stratified Deposits V
easin Topographic Gradient (M): Low Gradien vidence of Seeps and Springs (P): No Seeps or S	nt (<2%)X High Gradient (≥2%)
ANDSCAPE VARIABLES (M)	是是一种。在1000年,1000年
/etland Juxtaposition: Wetland Isolated_ inly Connected Above Connected Upstro	Wetlands within 400m, Not Connected Only Connected Below eam & Downstream Unknown
/etland Land Use: High Intensity (i.e., ag.)	Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
/atershed Land Use: 0-5% Rural 5	
ze: Small (<10 acres) Medium (10-	100 acros) Large (>100 acres)
ew Chief QA/QC check:	GPS Technician QA/QC check; \/ √

J. Brownlee

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Fea	eture ID: <u>W1064L001</u> Field Target: <u>270</u> Date: <u>6.25.16</u>
For	all items not checked, please provide detailed explanation in the notes section of data form.
	and couldn't data form.
	1. Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
	2. Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
	Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct?
	All dominant species have been determined and recorded per strata? Indicator status is correct for each species?
	Dominance Test and Prevalence Index have been completed?
	3. Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4	. Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5	. Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6	. Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

X halen Volver X halen before 6-26-16

Wetland Scientist (print)

Signature / Date

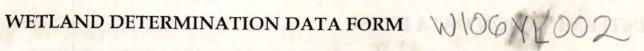
X J Brownlee

Field Crew Chief (print)

Signature / Date

United have been newaded at each sale, including property description, also by

SITE DESCRIPTION			3.00		S. Proposition	COLUMN TO THE
Survey Type: Centerline Acces	ss Road (explain)	Other (explanation	ain) Facility	,Field Targ	get: <u>269</u>	Map #: <u>54</u> Map Date: <u>6-9.16</u>
Date: 6-25-16	Project Name: Alask	a LNG	/		Feature Id:	W1064L002
Investigators: 565516	Brownlep.	Kalz	ers Va	re	_	Team No.: WIO6
State: Alaska	Region: Alaska		Milepost:	382		
Latitude: (05 6 (06 37 0.9	356°	Longitude	:-149	,090	144780	Datum: WGS84
Logbook No.:	Logbook Page No.:	8	Picture No.:	P-W	106	
SITE PARAMETERS		Spenier .			hat with the	
Subregion: Ray Mountain	۵		Landform (hil	slope, terra	ce, hummocks	i, etc.): Lowland, Valley bottom
Slope (%): 3-5			Local relief (c	oncave, con	ivex, none):	Tet
Pre-mapped Alaska LNG/NWI classifica	ation: PEM1/55.31	3	Evidence of V	Vildlife Use:	None	
Are climatic/hydrologic conditions on the Yes No (if no exp		of year?	Are "No		nstances" pres (If no, exp	sent: plain in Notes.)
Are Vegetation, Soil, or Hy	drology Significant	ly Disturbed?	No_≪	_(If yes, exp	plain in Notes)	
Are Vegetation, Soil, or Hy	drology Naturally F	Problematic?	No_ ×	_ (If yes, ex	plain in Notes)
SUMMARY OF FINDINGS	MORSE NO.		A CONTRACTOR			A CONTRACTOR OF THE PARTY OF TH
Hydrophytic Vegetation Present? Yes_	X No	Is	the Sampled A	Area within	a Wetland?	YesXNo
Hydric Soil Present? Yes_	× No	_ w	etland Type:	PEMI	/5513	1496
Wetland Hydrology Present? Yes_	No	AI	aska Vegetation	n Classificat	ion (Viereck):	MAQUCA
Notes and Site Sketch: Please include a corridor. Previously burned Pic M. Cared Herri vag undas From Delton Highway Moss layer & was in The ground, Moss & Ground.	ar woodland story, y we walked ery wed. In g	that is a sin on an eral	a 4 whee	le tra	shrub c	ommunity w/ a high and destroyed the maypped.
				(4)		1



VEGETATION (use scientific names of plan	nts)			AND
Tree Stratum (Plot sizes:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:
1,			de la 1	Total Number of Dominant Species Across All Strata: (B)
2.		1000		% Dominant Species that are OBL, FACW, or FAC:(A/B
3.				
4.				Prevalence Index worksheet:
Total Cove	er:			Total % Cover of: Multiply by:
50% of total cove	er: 20	0% of total cov	/er:	OBL species: X1=
Sapling/Shrub Stratum (261)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 45 $x_2 = 90$ FAC species 75 $x_3 = 225$ FACU species 4 $x_4 = 16$
Salix politing OK 46	1		FACE	UPL species X5 =
· Vaccinium vitis-idora	10	Y	FAC	Column Totals: 124 (A) 331 (B)
3. Arctous rubra	10:	V	FAC	PI = B/A = 2,67
· Vaccinium uliginosum	20	Y	FAC	Betvla Nana S 5 FAC
Salix glaves	10		FAC	Delta Nana 3 D FAI
Salix Arbusculoides	4		FACW	
· Rhododendrum groenlandice	um 7		FAC	
	11			
Ticea Colquea	7		FACU	
Dasiphora fruticosa	2		FAC	
TICER GIADER	er: <u>34 / 5</u> 20	% of total cov	FAC	
Total Covered Solventific names of planterb Stratum (261)	er: <u>34 / 5</u> 20	% of total cov Dominant Species? (Y/N)	FAC	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
Total Coversion of total coversi	ts) Absolute	Dominant Species?	er: \S.8 Indicator Status	Dominance Test is > 50% Prevalence Index is ≤ 3.0
Total Cover 50% of total cover 5	ts) Absolute % Cover	Dominant Species?	FAC er: \\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	Dominance Test is > 50%
Total Coversion of total coversi	ts) Absolute % Cover	Dominant Species?	er: \S.8 Indicator Status FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cover 50% of total cover 50% of total cover see Stratum (761) Eciophren vaginatum Pyrda asen falia Carex bigelowii	Absolute % Cover	Dominant Species?	FACU Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cover 50% of total cover 5	Absolute % Cover	Dominant Species?	FACU Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cover 50% of total cover 5	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover 50% of total cover 5	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground
Total Cove Total Cove 50% of total cove 50% of total cove FEGETATION (use scientific names of plan lerb Stratum (Z(1)) Eriophrym vaginatym Pyrda asenfalia Carcx bigelowii Forb sp Pyrola grandiflora .	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Cover of Wetland Bryophytes
Total Cove 50% of total cove 50% of total cove some scientific names of plan lerb Stratum (Z61) Ecrophrym vaginatym Pyrda aserifalia Carce higelowii Forb sp Pyrola grandiflora	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Cover of Wetland Bryophytes Total Cover of Bryophytes
Total Cove Total Cove 50% of total cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum (Z61) Eriophrym vaginatym Pyrda asenfalia Carcx bigelowii Forb sp Pyrola grandiflora .	Absolute % Cover	Dominant Species?	Indicator Status FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Cover of Wetland Bryophytes

Depth	DESCRIPTION: (Describe	to the depth needed	to docu	ment the i	ndicator or co	nfirm the sheen	ce of indicators.)
	Advisor .					indicator or co	I absert	
nches)	Matrix	100	Redox Features	1 01	_ 1	1. ,		
icries)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Notes
e 04	. 18/		4/					Bottom inches is damp
	2.543/1	8	7.54R 1/4	10	con	mat ra	5:14	
wf 10-+	10 YR 3/1	100	-	-	_	-		organic debris
				-		-		0
-		-	-				naia i	
	Ca C	100			-			;
vpe: C=Conc	centration, D=Deple	etion, RM	M=Reduced Matrix, C	S=Cove	red or Coa	ated Sand Gra	ins ² Location	n: PL=Pore Lining, M=Matrix.
YDRIC SOIL I		De au Albe			100 100	MAN SECOND		FOR PROBLEMATIC HYDRIC SOILS
stosol or Histe	el (A1) ~		Alaska Gleyed	(A13)	~			Change (TA4) ⁴
istic Epipedon			Alaska Redox (- Sperime		Swales (TA5) _ //
ack Histic (A3			Alaska Gleyed			ATT THE REAL PROPERTY.		with 2.5Y Hue _X
ydrogen Sulfid				. 0.00 (without 5Y Hue or Redder Underlying
							Layer_ /	
	ace (A12) N	tation o					Other (Explain	ape position must be present unless
vdric Soil Pre	sent (Y/N):	1					17.00	
	esent (Y/N):		10" horizon.			7		
otes: Posif	wexx o	n 4-1	ny one indicator is su	fficient)	S	ECONDARY	INDICATORS (2 or more required)
otes: Posif	PRIMARY INDICA	TORS (a	nny one indicator is su	N	_ V	ECONDARY Vater-stained eaves (B9)	1	2 or more required) Stunted or Stressed Plants (D1)
YDROLOGY F	PRIMARY INDICAT	TORS (a	nny one indicator is surface Soil Cracks (B6)	N	V L	Vater-stained eaves (B9)	1	Stunted or Stressed
YDROLOGY Furface Water (a	PRIMARY INDICATE A1) le (A2)	TORS (a	nny one indicator is surface Soil Cracks (B6)	rial Imag	gery D	Vater-stained eaves (B9) trainage Patte	rns (B10) spheres along	Stunted or Stressed Plants (D1)
YDROLOGY Furface Water (agh Water Tab	PRIMARY INDICA (A1) N (le (A2) N	TORS (a Sun Inu (B7 Cool	riny one indicator is surface Soil Cracks (B6) Indation Visible on Ae Indation Visible on A	rial Imag	gery D	Vater-stained eaves (B9)	rns (B10)/ spheres along 3)	Stunted or Stressed Plants (D1)/_ Geomorphic Position (D2)/
YDROLOGY Furface Water (agh Water Table aturation (A3)	PRIMARY INDICA (A1)	TORS (a Sun Inu (B7 Spa Cool Ma Hydro Odd	riny one indicator is surface Soil Cracks (B6) Indation Visible on Ae Indation Visible on A	rial Imag	gery D L P Ir	Vater-stained eaves (B9)	rns (B10)/ spheres along 3) educed	Stunted or Stressed Plants (D1)/_ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic
YDROLOGY Furface Water (Asigh Water Table aturation (A3) (Aster Marks (Balance Ma	PRIMARY INDICA (A1)/ (A2)/ (1)/ sits (B2)/	TORS (a Sun Inu (B7 Spa Con Ma Hyw Od	rany one indicator is surface Soil Cracks (B6) Indation Visible on Ae The property of the control of the contro	rial Imag	gery D L P Ir	Vater-stained eaves (B9)	rns (B10)/ spheres along 3) educed	Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic Relief (D4)/
YDROLOGY Furface Water (A) Igh Water Table Atturation (A3) Idea Marks (B) Idea Marks (B) In the Indian	PRIMARY INDICATION OF THE PRIMARY INDICATION	Sur Unu (B7 Spa Cool Ma Hyu Od Dry Wa	riny one indicator is surface Soil Cracks (B6) Indation Visible on Ae Indation Visible on A	rial Imag	gery D L P Ir	Vater-stained eaves (B9)	rns (B10)/ spheres along 3) educed	Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic Relief (D4)/
yDROLOGY Furface Water (A) atturation (A3) atter Marks (B) atturation (B) atturat	PRIMARY INDICATION OF THE PRIMARY INDICATION	Sur Unu (B7 Spa Cool Ma Hyu Od Dry Wa	rany one indicator is surface Soil Cracks (B6) Indation Visible on Ae The property of the prop	rial Imag	gery D L P Ir	Vater-stained eaves (B9)	rns (B10)/ spheres along 3) educed	Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic Relief (D4)/
YDROLOGY Furface Water (Asigh Water Table aturation (A3) (Aster Marks (Barrell Deposits (Barrell Depos	PRIMARY INDICA (A1)/ (A2)/ (A1)/ (A2)/ (A2)/ (A3)/ (A4)/ (A5)/ (A5	Sur Unu (B7 Spa Cool Ma Hyu Od Dry Wa	rany one indicator is surface Soil Cracks (B6) Indation Visible on Ae Indation Visible on A	rial Imag	gery D L P Ir	Vater-stained eaves (B9)	rns (B10)/ spheres along 3) educed	Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic Relief (D4)/
YDROLOGY Furface Water (Asigh Water Table aturation (A3) (Aster Marks (Barrell Deposits (Barrell Depos	PRIMARY INDICA (A1)/ (A2)/ (A1)/ (A2)/ (A2)/ (A3)/ (A4)/ (A5)/ (A5	Sur Unu (B7 Spa Cool Ma Hyu Od Dry Wa	rany one indicator is surface Soil Cracks (B6) Indation Visible on Ae The property of the prop	rial Imag	gery D Li P Ir S	Vater-stained eaves (B9)	rns (B10) spheres along 3) aduced C5)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
otes: Posif	PRIMARY INDICA (A1)/ (A2)/ (A1)/ (A2)/ (A3)/ (A4)/ (A5)/ (A5)/ (A7)/ (A7)	Sur Unu (B7 Spa Cool Ma Hyu Od Dry Wa	rany one indicator is surface Soil Cracks (B6) Indation Visible on Ae Indation Visible on A	rial Imag	gery D Li P Ir S	Vater-stained eaves (B9)	rns (B10)/ spheres along 3) educed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM W064L002

VEGETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved X Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M):/_ Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water Cover Seripheral Cover N/A Cover or Open Water N/A Cover or Open Water N/A Cover or Open Water N/A Cover Open W
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover_ X
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
COU MARIARI FO
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol: Fibric Histosol: Hemic Histosol: Sapric Histosol: S
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Per
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created Surface (P): Absorb of Pools Pools Pools (P): Absorb of Pools (P): Absorb of Pools (P): Absorb
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs
Frequency of Overbank Flooding (P): No Overbank Flooding X Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval 2-5 yrs Return Interval >5 yrs Return Interval 2-5
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) X Evidence of Seeps and Springs (P): No Seeps or Springs X Seeps Observed Intermittent Spring Perennial Spring
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Upstream & Downstream \times Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medium (10-100 acres) X Targe (>100 acres)
rew Chief QA/QC check: GPS Technician QA/QC check:

J Brownlee

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featu	re ID: WIOLOYLOOZ Field Target: 269 Date: 6-25.16
	items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3.	Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Mans are initialed and dated?

8. Photos

Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

X haven Volver X haven Valver 6-26-16
Wetland Scientist (print)
Signature / Date

X JBrownlee

Field Crew Chief (print)

A Spone 6

Signature / Date

SITE DESCRIPTION			No. 1 Chief Co.	EC:IO		and the latest and th
Survey Type: Centerline 🗡 Acces	ss Road (explain) Ot	her (expla	in) 9 Facility	Field Targ	jet: <u>272</u>	Map #: <u>51</u> Map Date: <u>6.9.1</u> 6
Date: 6,25.16	Project Name: Alaska LNG Feature Id:					W/06 YL003 .
Investigators: Jessie Brownles	Kaley Volper				1	Team No.: WIOL
State: Alaska	Region: Alaska	1				
Latitude: (65.8670610	L	ongitude:	Milepost: 3:		Z°	Datum: WGS84
Logbook No.: 2	Logbook Page No.: 9		Picture No.: (2-W10	67L00	3-501 4hru 004
SITE PARAMETERS	以	NEW N		O PARAMI		
Subregion: Ray Mountains			Landform (hills	slope, terra	ce, hummocks	i, etc.): f/://side
Slope (%): 8-10 or more						Tat to slightly convex
Pre-mapped Alaska LNG/NWI classifica			Evidence of W	'ildlife Use:	Hare o	troppings.
Are climatic/hydrologic conditions on the YesK No (if no expl		year?		rmal Circun	nstances" pre	
Are Vegetation, Soil, or Hyd	drology Significantly D	isturbed?	No_X	_(If yes, exp	olain in Notes)	
Are Vegetation, Soil, or Hyd	drology Naturally Prob	lematic?	No_X	(If yes, ex	plain in Notes)
SUMMARY OF FINDINGS		en estatoj j		SELECTION OF THE PARTY OF THE P	ate po	ACCOUNT STARTED
Hydrophytic Vegetation Present? Yes_	No	ls t	he Sampled Ar	rea within	a Wetland?	Yes NoX
Hydric Soil Present? Yes_	No X	We	tland Type: (J		, Va.
Wetland Hydrology Present? Yes	No 👺	KV Ala	ska Vegetation	Classificati	on (Viereck):	11 A 2
Notes and Site Sketch: Please include Decorridor. Shorted Pic Cola open Very low species divers Site is on a steep slope "wetland" polygons and are upland - No perma frost. Not water	Brest W/ trees ity & thick cover Mapped further	DA / of Fe n con down	0-20' 1. ather mo	all q	all L	3"DBH, The Hasee

WETLAND DETERMINATION DATA FORM WIGGYL 003

VEGETATION (use scientific names of plan	ts)	188 . 14.00		the way of the state of the sta
Tree Stratum (Plot sizes: 100)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B)
1.				% Dominant Species that are OBL, FACW, or FAC: \ \00 (A/E
2.				76 Dominant Species that are ODE, 17000, 01 170.
3. 70,00				The second secon
1. /	1 - 1 - 1	MET T		Prevalence Index worksheet:
Total Cove	er:			Total % Cover of: Multiply by:
50% of total cover	er: 20	% of total cov	er:	OBL species: X1 =
Sapling/Shrub Stratum (2(e)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species:
Rhododendrum grvenlandice	0		FAC	UPL species
Vaccinium vitis-idaes	4		FAC	Column Totals: 54 64 (A) 289 148
Betula Neagh ckang	41		FACU	PI = B/A = 2.21
· (Salix glavia	3	160	FAC	
Alous vicidis fruticosa	(5		FAC	
rosa ociculata	T	16-1-10	FACU	
Picea Marlana	45	Y	FACW	
1.			1	
The last transfer to the last transfer transfer to the last transfer transfer to the last transfer tra				W and Y
And the second s	er: 58		1) -	VV
).		0% of total cov	ver:\\o(\rho)	VI
Total Cove	er: 29 20	0% of total cov	ver:\\\o\cappa	
Total Cove 50% of total cove /EGETATION (use scientific names of plan	er: 29 20	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is < 3.0
Total Cove 50% of total cove /EGETATION (use scientific names of plan lerb Stratum ()	er: 79 20 ats) Absolute	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0
Total Cove 50% of total cove FEGETATION (use scientific names of plan lerb Stratum (20)	er: 79 20 ats) Absolute	Dominant Species?	Indicator Status	Dominance Test is > 50%
Total Cove 50% of total cove /EGETATION (use scientific names of plan Herb Stratum (er: 79 20 ats) Absolute	Dominant Species?	Indicator Status	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
Total Cover 50% of total cover 50% of total cover federation (use scientific names of planter Stratum (No) 1. pyrola grandiflora 2. Equisetum Scirpoides 3. Mentensia Paniculata	er: 79 20 ats) Absolute	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes)
Total Cover 50% of total cover 50% of total cover 150% of total co	er: 79 20 ats) Absolute	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cove 50% of total cove feet Stratum (er: 79 20 ats) Absolute	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cover 50% of total cover 50% of total cover 150% of total co	er: 79 20 ats) Absolute	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cove 50% of total cove 50% of total cove /EGETATION (use scientific names of plan Herb Stratum (er: 79 20 ats) Absolute	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover 50% of total cover 5	er: 79 20 ats) Absolute	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover 50% of total cover 5	er: 79 20 ats) Absolute	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cover 50% of total cover 50% of total cover VEGETATION (use scientific names of plan Herb Stratum (20) 1. pyrola grandiflora 2. Equise fum scirpoides 3. Mentensia paniculata 4.	Absolute % Cover	Dominant Species?	Indicator Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) — Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. — % Bare Ground — % Cover of Wetland Bryophytes — 100 Total Cover of Bryophytes

W1064L003

			O as IV					C-11 Did D- resided (VAI)		
SOIL	\$2.7642.03			ture II	The second second second second		and the absence	Soil Pit Required (Y/N)		
SOIL PROFILE		Describe	to the depth needed t	to doc	ument the II	ndicator or	confirm the absent	ce of indicators.)		
Depth	Matrix		Redox Features	1	1- 1	1. 2		Notes		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes		
01 0-4			-140				1	Dryfeather MOSS		
A 4-7	10YR 3/1	100	5/R 3/4		COU	77	loam	Dead water		
Buf 7-12	2.5/4/2	90	SYR 3/4	5	con	m	Silt	2.5 y color is Parent materi		
	20-		10 YR 3/4	5	(08)	-		nelated		
31 5000		-		-	-			-		
The state of the s					-	-	-			
1- 0-0		otion Pl	M=Reduced Matrix, CS	S=Cov	ered or Cos	ated Sand (Grains ² Location	n: PL=Pore Lining, M=Matrix.		
	INDICATORS	ation, Kr	W-Reduced Matrix, Co	SIN	ered or coe	TO COM COM		FOR PROBLEMATIC HYDRIC SOILS		
Histosol or His	and the same of th		Alaska Gleyed	(A13)	N		And the second of the second of the second of	Change (TA4) ⁴		
		-	Alaska Redox (-	7	Alaska Alpine Swales (TA5)				
Histic Epipedo	6/	-	Alaska Gleyed	-	-	-		with 2.5Y Hue		
Black Histic (A	7	3	Alaska Gleyeu	ruies	(//10)			d without 5Y Hue or Redder Underlying		
Hydrogen Sulf	fide (A4)		**		The de	. Layer_ N				
Thick Dark Su	rface (A12) N						Other (Explain			
One indicator	of hydrophytic vege	etation, o	one primary indicator of	of wetla	and hydrolo	gy, and an	appropriate landso	cape position must be present unless		
disturbed or pr	of color change in No	otes.								
Restrictive Lay	yer (if present): Typ	e: Pew	na frost D	epth (i	inches):	7				
HYDROLOGY	PRIMARY INDICA	TORS (any one indicator is st	ıfficien	nt) S	SECONDA	RY INDICATORS ((2 or more required)		
Surface Water	,		urface Soil Cracks (B6)	- 1	V	Vater-stain eaves (B9	ed /	Stunted or Stressed Plants (D1)		
High Water Ta	able (A2) N		undation Visible on Ae	rial Im			atterns (B10)			
Saturation (A3	parsely Vegetated oncave Surface (B8)	N		Oxidized Rhizospheres along Living Roots (C3)		Shallow Aquitard (D3)				
Water Marks (arl Deposits (B15)	N	- f	resence or ron (C4)	f Reduced	Microtopographic Relief (D4)				
Sediment Dep	posits (B2) N		drogen Sulfide			Salt Deposi	its (C5)	FAC-Neutral Test (D5)		
Drift Deposits	(B3)/	Dr	y-Season ater Table (C2)		1	Notes:		-13031		
Algal Mat or C	Crust (B4)		ther (Explain in Notes)	:						
Iron Deposits	(B5) N									
		elg. Li	公司 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	(A)		445464				
Surface Water	r Present (Y/N):	/	Depth (in):					· · · · · · · · · · · · · · · · · · ·		
Water Table F	Present (Y/N):		Depth (in):		We	etland Hyd	rology Present (Y	/N):/		
Saturation Pre (includes capi	illary fringe) N		Depth (in):		EC					
Notes: Two f	sery weak Secondary	Ind	icators.							

AQUATIC SITE ASSESSMENT DATA FORM

EGETATION VARIABLES P- Plot, M- Matrix
Primary Vegetation Type (P): Vegetation LackingForested-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leavedScrub_Shrub-Deciduous-Needle-leavedScrub_Shrub-Deciduous-Broad-leaved
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
/egetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) Very High Density (80-100%)
nterspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Perennial Inlet/Perennial Outl
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Created Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits
Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%)
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring Perennial Spring
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)

& Brownlee

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

		The state of the s
Fe	eatur	e ID: WIO6 1603 Field Target: 272 Date: 6.25.16
		items not checked, please provide detailed explanation in the notes section of data form.
	2,	
	1.	Site Description
		Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
	2.	Vegetation
		At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
		Vegetation names are entered legibly for all strata present?
		Cover calculations are complete and correct? All dominant species have been determined and recorded per strata?
		Indicator status is correct for each species?
		Dominance Test and Prevalence Index have been completed?
	3.	Soil
		Appropriate hydric soil indicators are marked?
	4.	Hydrology
		Appropriate hydrology indicators are marked?
		Surface water, water table, and saturation depths are recorded if present?
	5.	Functions and Values
		Vegetation, soil, hydrologic variables, and landscape variables complete if site is wetland?
	6.	Field Logbook
	1	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
	7.	Maps
		(7) Wotland houndaries have been assessed 1.5
		Wetland boundaries have been corrected if necessary? Mans are initialed and dated?

8. Photos

Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?

Two photos were taken for each Observation Point (vegetation/site overview)?

SITE DESCRIPTION			10 10 10 10 10 10 10 10 10 10 10 10 10 1		THE PARTY OF THE P
Survey Type: Centerline X Acces	ss Road (explain) Other (ex	plain)	Field Targ	et: <u>268</u>	Map #: 56 Map Date: 6.9.16
Date: 6.26.16	Project Name: Alaska LNG			Feature Id:	W10641004
nvestigators: Jessie Brownie	e Koley Volper				Team No.: W/06
State: Alaska	Region: Alaska	Milepost:	386.4		
atitude: (65° 38' 4 , 183'	Longitud	de: 1480 5	71 55.	552'W	Datum: WGS84
ogbook No.: 2	Logbook Page No.: 10	Picture No.:	8-WK	OGY LO	104-001 thru 004
BITE PARAMETERS	Tarana and the same		T. Calledon		A STATE OF THE STA
	- W	Landform (hi	Ilslope, terrac	e, hummock	s, etc.): Low land
Slope (%): (3-5		Local relief (concave, con	vex, none):	Flat undul Ling
Pre-mapped Alaska LNG/NWI classifica	ation: PSSC				Varrier & Harlens Hawk &
Are climatic/hydrologic conditions on the		Are "N	Iormal Circum	nstances" pre	
Are Vegetation, Soil, or Hy	drology Significantly Disturbe	ed? No X	(If yes, exp	lain in Notes	3)
Are Vegetation, Soil, or Hy	drology Naturally Problemation	c?. No_^	(If yes, exp	olain in Note	s.)
Hydrophytic Vegetation Present? Yes_ Hydric Soil Present? Yes_	/	Is the Sampled Wetland Type:	*		YesNo
Wetland Hydrology Present? Yes_	X No	Alaska Vegetatio	on Classificati	on (Viereck)	11CZ,1A3
Notes and Site Sketch: Please include I corridor. Presionsly burned pic under 3"DBH. Ground Area is a Pic Mar of Eri Vag. Site of area soplot was Soil is very this xotrop the interface of org	mar woodland. I die Moss cover has woodland w/ divers Boriginal target moved to better	been but shrub ~15' No represen	comment is	and is a swall	o 20' but all are uneven. and large tussack be and unrepresentated by trology
of 7" @ interface					

OTTO SELECTION AND SECURE	AND DESCRIPTION OF THE PERSON.	WHITH THE PARTY NAMED AND ADDRESS OF THE PARTY NAMED AND ADDRE	6.24		THE STREET STREET	ALC: UNIVERSITY OF			Call Did Danwing AVAD
SOIL	E DESCRIPTION (No de la constantina		eature I	Marian Park	adiantes on a	nefirm the about	non of india	Soil Pit Required (Y/N)
	Matrix	Describe	e to the depth needed Redox Features	to doc	ument the	ndicator or co	ontirm the abser	nce of indica	ators.)
Depth (inches)	Color (moist)	1%	Color (moist)	1%	Type ¹	Loc ²	Texture	Notes	1
	Color (moist)	70	Color (moist)	70	Type	Loc	Texture		y organics
01 0-4								Sad	urded organies
De 47.	2.544/1	80	10 YR 21/4	10	con	MRC	5:14	2007	U CARO EN MONES
ישני	104R 3/1	"10	1010	10					
JF 10-+	2.54 4/1	90	104R 4/4	10	con		Silt		
			100		- 5.0				
	THE RESERVE AND ADDRESS OF THE PARTY OF	etion, Ri	M=Reduced Matrix, C	S=Cov	ered or Coa	ated Sand Gr		40.00	e Lining, M=Matrix.
DESCRIPTION OF THE PERSON OF T	INDICATORS		14 305州市省8666		The state of the s		STATE OF THE PARTY	Contract of the Contract of th	OBLEMATIC HYDRIC SOILS
Histosol or His	Market Control of the	TE -	Alaska Gleyed				Alaska Color		
	n (A2) almost		Alaska Redox	_			Alaska Alpin		The state of the s
Black Histic (A	A STATE OF THE STA	-	Alaska Gleyed	Pores	(A15)		Alaska Redo	11110000	Y Hue or Redder Underlying
Hydrogen Sulfi	ide (A4)	440			60		Layer -	—	Tride of Redder Glidellying
Thick Dark Sur		_ '		- 9					on must be present unless
Restrictive Lay	f color change in No er (if present): Type			Depth (i	nches):	10	4:		1
Restrictive Lay	rer (if present): Type resent (Y/N):	e:_ <i>[</i> _	ivedo	Depth (i	nches):	10			
Restrictive Lay	rer (if present): Type resent (Y/N):	· posit		il er		The same	INDICATORS	(2 or more	required)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY	rer (if present): Type resent (Y/N):	positions (wedd	ufficien	t) s	The same	NAME AND POST OFFICE OF PERSONS IN	St	required) tunted or Stressed lants (D1)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Surface Water	PRIMARY INDICA (A1) One doe of Play	positions (any one indicator is surface Soil Cracks (Be	ufficien	t) s	ECONDARY Vater-stained eaves (B9) _	NAME AND POST OFFICE OF PERSONS IN	SI	tunted or Stressed
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Surface Water	PRIMARY INDICA (A1) One de of Playes ble (A2)	TORS (any one indicator is surface Soil Cracks (Be	oufficien S)	t) s / L agery C	ECONDARY Vater-stained eaves (B9) _ Drainage Patte	erns (B10)	Si Pi	tunted or Stressed
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Gurface Water High Water Ta	PRIMARY INDICA (A1) on ease of Play ble (A2)	TORS (any one indicator is surface Soil Cracks (Beaudation Visible on Arm)	oufficien S)	t) S V V L agery C L F	ECONDARY Vater-stained eaves (B9) _ Drainage Patto	erns (B10)/_ ospheres along C3)	SI PI G SI	tunted or Stressed lants (D1) eomorphic Position (D2)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Gurface Water High Water Ta Saturation (A3) Water Marks (E	PRIMARY INDICA (A1) On edge of Plants ble (A2)	TORS (F Su Int. (B) Sp Cc Ma	any one indicator is surface Soil Cracks (Be undation Visible on Ar7) harsely Vegetated ancave Surface (B8)	oufficien S)	t) S / V L agery C L I	Vater-stained eaves (B9) _ Orainage Patto Oxidized Rhiz- iving Roots (Oresence of R	erns (B10) Nospheres along C3) educed	SI Pl G SI M R	tunted or Stressed lants (D1) eomorphic Position (D2) hallow Aquitard (D3)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (I	PRIMARY INDICA (A1) on edge of Play ble (A2)	TORS (Inu (B) Sup Co Ma Hy Oc Dr	any one indicator is surface Soil Cracks (Beaundation Visible on Ar7) arsely Vegetated ancave Surface (B8) arl Deposits (B15) drogen Sulfide	oufficien S)	t) S / V agery C L II	Vater-stained eaves (B9) Drainage Patter Dividized Rhiziving Roots (Presence of Roon (C4)	erns (B10) Nospheres along C3) educed	SI Pl G SI M R	tunted or Stressed lants (D1) eomorphic Position (D2) hallow Aquitard (D3) licrotopographic elief (D4)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Gurface Water High Water Ta Saturation (A3) Water Marks (B	PRIMARY INDICA (A1) On edge of Play ble (A2) bits (B2)/ posits (B2)/	TORS (F Su Int. (B) Sp Co Ma Hy Oc Dr W:	any one indicator is surface Soil Cracks (Be undation Visible on Ar7) arracely Vegetated encave Surface (B8) arl Deposits (B15) drogen Sulfide for (C1) y-Season	oufficien S)	t) S / V agery C L II	Vater-stained eaves (B9) Prainage Patto Dividized Rhiz iving Roots (Coresence of Roon (C4) Calt Deposits	erns (B10) Nospheres along C3) educed	SI Pl G SI M R	tunted or Stressed lants (D1) eomorphic Position (D2) hallow Aquitard (D3) licrotopographic elief (D4)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Gurface Water High Water Ta Saturation (A3) Water Marks (B Sediment Depo	PRIMARY INDICA (A1) Present (Y/N): Y ble (A2) Y posits (B2) N rust (B4) N	TORS (F Su Int. (B) Sp Co Ma Hy Oc Dr W:	any one indicator is surface Soil Cracks (Beaundation Visible on Ar7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide or (C1) y-Season ater Table (C2)	oufficien S)	t) S / V agery C L II	Vater-stained eaves (B9) Prainage Patto Dividized Rhiz iving Roots (Coresence of Roon (C4) Calt Deposits	erns (B10) Nospheres along C3) educed	SI Pl G SI M R	tunted or Stressed lants (D1) eomorphic Position (D2) hallow Aquitard (D3) licrotopographic elief (D4)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (I Sediment Depo Drift Deposits (Algal Mat or Cr ron Deposits (PRIMARY INDICA (A1) One de of Plo (A2) (B3) (B3) (B4) (B4) (B5) (B5) (B6) (B7) (B7) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B8) (B	TORS (F Su Int. (B) Sp Co Ma Hy Oc Dr W:	any one indicator is surface Soil Cracks (Beaundation Visible on Ar7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide or (C1) y-Season ater Table (C2)	oufficien S)	t) S / V agery C L II	Vater-stained eaves (B9) Prainage Patto Dividized Rhiz iving Roots (Coresence of Roon (C4) Calt Deposits	erns (B10) Nospheres along C3) educed	SI Pl G SI M R	tunted or Stressed lants (D1) eomorphic Position (D2) hallow Aquitard (D3) licrotopographic elief (D4)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (I Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Water	PRIMARY INDICA (A1) One de of Plo (A2) (B3) Pust (B4) Present (Y/N): Present (Y/N): Present (Y/N): One of Plo O	TORS (A Suppose of Sup	any one indicator is surface Soil Cracks (Beaudation Visible on Art) parsely Vegetated oncave Surface (B8) ard Deposits (B15) drogen Sulfide or (C1) y-Season ater Table (C2) her (Explain in Notes	oufficien S)	t) S	Vater-stained eaves (B9) Prainage Patter Dividized Rhiziving Roots (CPresence of Reon (C4) Salt Deposits Hotes:	erns (B10) Nospheres along C3) educed	St Pl G St M R	tunted or Stressed lants (D1) eomorphic Position (D2) hallow Aquitard (D3) licrotopographic elief (D4)
Restrictive Lay Hydric Soil Pr Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (I Sediment Depo	PRIMARY INDICA (A1) On ease of Pla (A1) New of Pla (A2) New of Pla (B3) New (B4) New (B4) Present (Y/N): Von esent (Y/N): Von sent (Y/N): Von (B4) New (B4) New (B4)	TORS (A Suppose of Sup	any one indicator is surface Soil Cracks (Be undation Visible on Ar7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide for (C1) y-Season ater Table (C2) her (Explain in Notes	erial Ima	t) S	Vater-stained eaves (B9)	erns (B10) ospheres along C3) educed (C5)	Si Si Pi Gi Si Mi Ri Fi	tunted or Stressed lants (D1) eomorphic Position (D2) hallow Aquitard (D3) licrotopographic elief (D4)

W1064L004

SOIL.			DateFe					and design	Soil Pit Required (Y/N)
OIL PROFILI	E DESCRIPTION: (D	escribe		d to docu	ument the i	ndicator or c	onfirm the abser	nce of in	dicators.)
epth	Matrix		Redox Features						
inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	No	tes
0-4		-						7	Dry organics
e 47				1				S	aturated organics
Bw 7-10	2.544/1	80	10 YR 21/4	10	Con	MRC	5ilt		U
. 0	104R 3/1	-10	- 4/1				1		
f 10-t	2.54 4/1	90	104R 4/4	10	con.		Silt		
Гуре: C=Con	centration, D=Depleti	ion, RN	M=Reduced Matrix, C	S=Cove	ered or Coa	ated Sand Gr	ains. ² Locatio	on: PI =I	Pore Lining, M=Matrix.
	INDICATORS	3		A Property of					PROBLEMATIC HYDRIC SOILS
istosol or His	tel (A1)		Alaska Gleyed	(A13)	_	Age V Travelinas	Alaska Color		\$100 mg 3400 galler age 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
istic Epipedor	n (A2) almost		Alaska Redox			- 1 - 2	Alaska Alpine	-	
lack Histic (A:	3)/	7-3-3	Alaska Gleyed				Alaska Redo	_	
ydrogen Sulfi	de (A4) <u>/ - </u>	Pa	4 . 34	34.45	4.5.	We produce the second			ut 5Y Hue or Redder Underlying
hick Dark Sur	The state of the s	4		1			Other (Expla	in in Not	es) sition must be present unless
estrictive Laye	esent (Y/N):			Depth (in	nches):	10			
ydric Soil Proof	er (if present): Type:	Fo		H. Carlotte	140	10			
ydric Soil Pro	er (if present): Type:	Fo		H. Carlotte	que .	ECONDARY	INDICATORS	(2 or mo	re required)
ydric Soil Prootes:	er (if present): Type:	ORS (a	ny one indicator is s	ufficient)	SI W	ECONDARY /ater-stained eaves (B9)	INDICATORS	(2 or mo	re required) Stunted or Stressed Plants (D1)
ydric Soil Prootes: YDROLOGY urface Water (er (if present): Type: esent (Y/N):	ORS (a	face Soil Cracks (B6	ufficient)	SI SI	ater-stained eaves (B9) _	INDICATORS	(2 or mo	Stunted or Stressed
ydric Soil Prootes: YDROLOGY urface Water (PRIMARY INDICATO (A1) On edge of Plotole (A2)	ORS (a Sur Inui (B7 Spa	ny one indicator is so face Soil Cracks (B6 ndation Visible on Ae	ufficient) Verial Image	SI W Le	/ater-stained eaves (B9) _ rainage Patte	erns (B10)	(2 or mo	Stunted or Stressed Plants (D1)
ydric Soil Prototes: YDROLOGY I urface Water (igh Water Tab	PRIMARY INDICATO (A1) One doe of ploto (B) (A2)	Sur Inui (B7 Spa Cor	face Soil Cracks (B6 ndation Visible on Ae) arsely Vegetated ncave Surface (B8)	ufficient) Verial Image	SI W Le gery Di Li Pr	later-stained eaves (B9) rainage Patte xidized Rhizo	erns (B10) V espheres along 23)	(2 or mo	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
ydric Soil Proofes: YDROLOGY urface Water (igh Water Tab aturation (A3)	PRIMARY INDICATO (A1) one de a plot (B) (A2)	Sur Inui (B7 Spa Cor Mar Hyd Odd	face Soil Cracks (B6 Indation Visible on Ae Incave Surface (B8) I Deposits (B15) Irogen Sulfide	ufficient) Verial Image	SSE WW. Lee Gerry Do. Living Pr. Iron See See See See See See See See See Se	dater-stained eaves (B9)rainage Patter exidized Rhizo eving Roots (Cresence of Roon (C4)	erns (B10) espheres along c3) educed	(2 or mo	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
ydric Soil Proofes: YDROLOGY urface Water (igh Water Tab aturation (A3) ater Marks (B	PRIMARY INDICATOR (A1) On edge of ploto (Ba) Sits (B2)	Sur Inui (B7 Spa Cor Mar Hyd Odd	face Soil Cracks (B6 ndation Visible on Ae) arsely Vegetated ncave Surface (B8) I Deposits (B15)	ufficient) Verial Image	SSE WW. Lee Gerry Do. Living Pr. Iron See See See See See See See See See Se	dater-stained eaves (B9)rainage Patter in its patter in	erns (B10) espheres along c3) educed	(2 or mo	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Proofes: YDROLOGY urface Water (igh Water Table aturation (A3) atter Marks (B) ediment Deposits (E) gal Mat or Cru	PRIMARY INDICATO (A1) on edge of plot yes sits (B2) ast (B4)	Sur Inui (B7 Spa Cor Mar Hyd Odd Dry- Wat	face Soil Cracks (B6 Indation Visible on Ae Incave Surface (B8) I Deposits (B15) Irogen Sulfide	ufficient) //	SSE WW. Lee Gerry Do. Living Pr. Iron See See See See See See See See See Se	dater-stained eaves (B9)rainage Patter exidized Rhizo eving Roots (Cresence of Roon (C4)	erns (B10) espheres along c3) educed	(2 or mo	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Proposes ydric Soil Proposes yDROLOGY urface Water (gh Water Tab uturation (A3) ater Marks (B diment Deposits (B gal Mat or Cru	PRIMARY INDICATO (A1) on edge of plot yes sits (B2) ast (B4)	Sur Inui (B7 Spa Cor Mar Hyd Odd Dry- Wat	Iny one indicator is seface Soil Cracks (B6 Indation Visible on Ae) In Deposits (B15) In Deposits (B15) In Organ Sulfide or (C1) Season Let Table (C2)	ufficient) //	SSE WW. Lee Gerry Do. Living Pr. Iron See See See See See See See See See Se	dater-stained eaves (B9)rainage Patter exidized Rhizo eving Roots (Cresence of Roon (C4)	erns (B10) espheres along c3) educed	(2 or mo	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Proposes: YDROLOGY I urface Water (gh Water Tab atturation (A3) atter Marks (B ediment Deposits (B gal Mat or Cru n Deposits (B	PRIMARY INDICATO (A1) one de a plot (Be (A2) 1) sits (B2) ust (B4)	ORS (a Sur Inui (B7 Spa Cor Mar Hyd Odd Dry- Wat Oth	riny one indicator is siface Soil Cracks (B6 indation Visible on Ae) arsely Vegetated incave Surface (B8)	ufficient) //	SSE WW. Lee Gerry Do. Living Pr. Iron See See See See See See See See See Se	dater-stained eaves (B9)rainage Patter exidized Rhizo eving Roots (Cresence of Roon (C4)	erns (B10) espheres along c3) educed	(2 or mo	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Prototes: YDROLOGY urface Water (igh Water Tab aturation (A3) /ater Marks (B ediment Deposits (B gal Mat or Cru on Deposits (B	PRIMARY INDICATO (A1) One de a plot (A2) (A2) (A3) (A4)	ORS (a Sur Inui (B7 Spa Cor Mar Hyd Odd Dry- Wat Oth	Iny one indicator is seface Soil Cracks (B6 Indation Visible on Ae) In Deposits (B15) In Deposits (B15) In Organ Sulfide or (C1) Season Let Table (C2)	ufficient) //	gery Di	dater-stained eaves (B9)rainage Patter exidized Rhizo ving Roots (Cresence of Report (C4)rainage Patter exidized Rhizo ving Roots (Cresence of Report (C4)rainage Patter exidence	erns (B10) espheres along c3) educed		Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
ydric Soil Prototes: YDROLOGY I urface Water (igh Water Tab aturation (A3) /ater Marks (B ediment Deposits (E gal Mat or Cru on Deposits (B	PRIMARY INDICATO (A1) One de a plo (A2) (A2) (A3) Sits (B2) Present (Y/N): Present	ORS (a Sur Inui (B7 Spa Cor Mar Hyd Odd Dry- Wat	riny one indicator is signated and attention Visible on Ae indicator Visible on Ae indicator Visible on Ae incave Surface (B8)	ufficient) //	gery Di	dater-stained eaves (B9)rainage Patter exidized Rhizo ving Roots (Cresence of Report (C4)rainage Patter exidized Rhizo ving Roots (Cresence of Report (C4)rainage Patter exidence	erns (B10) verns ((N):	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, W= Ma	atrix
Forested-Evergreen-Needle-leaved Scri	gForested-Deciduous-Needle-leavedForested-Deciduous-Broad-leavedub Shrub-Deciduous-Needle-leavedScrub Shrub-Evergreen-Needle-leavedEmergent-Non-persistentEmergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) ○ Dwarf shrub (<0.5m) _ ⊇ ○ Tall herb (≥1m) _	Sapling (<5 dbh, <6m tall) 15 Tall shrub (2-6m) Short shrub (0.5-2m) Short herb (<1m) 30 Moss-Lichen 15 Floating Submerged
	enness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20 80%) Very High Density (80-100%)	0%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): 100 Peripheral Cover >75% Scattered or I	0% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant speci	ies) Medium (5-25 species)X High (>25)
Presence of Islands (M): Absent (none)	One or Few Several to Many N/A
	Veg. Solitary, Scattered Stems 1 or More Large Patches: Parts of Site
Dead Woody Material (P): Low Abundance (0-25 Abundant (>50% of surface)	% of surface)X Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patch High (small groupings, diverse and interspersed)	hes, concentric rings) Moderate (broken irregular rings)
HGM Class (P): Slope Flat_ X La	acustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	是一个一个人,我们也就是一个人的一个人,我们就是一个人的人的人,我们就是一个人的人的人。 第一个人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的人的
Mineral: Gravelly Mineral: Sandy Mineral: Sandy	osol:Fibric Histosol:Hemic Histosol: Sapric Mineral: SiltyX Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet N Outlet Intermittent Inlet/Intermittent Outlet Inlet/Intermittent Outlet Perennial Inlet/P	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No et Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial erennial Outlet
Wetland Water Regime (P): Drier: Seasonally Wet: Perm. Flooded, Intermittently Exposed, Semip	y Flooded, Temporarily Flooded, Saturated
	bserved Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): Absent	Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overba Return Interval >5 yrs	
Degree of Outlet Restriction (P): No Outflow	Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circum Surficial Geologic Deposit Under Wetland (P): H Glacial Till/Not Permeable	neutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading 5/5/1 High Permeability Stratified Deposits Low Permeability Stratified Deposits
Basin Topographic Gradient (M): Low Gradient (M): No Seeps or	ent (<2%) High Gradient (≥2%) Springs Seeps Observed Intermittent Spring Perennial Spring
ANDSCAPE VARIABLES (M)	
Vetland Juxtaposition: Wetland Isolated_	Wetlands within 400m, Not Connected Only Connected Below stream & Downstream Unknown
Vetland Land Use: High Intensity (i.e., ag.)_	Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Vatershed Land Use: 0-5% Rural X	5-25% Urbanized 25-50% Urbanized >50% Urbanized
dze: Small (<10 acres) Medium (1	0-100 acres) X Large (>100 acres)
rew Chief QA/QC check:	GPS Technician QA/QC check: // /

Crew Chief QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featu	re ID: W106 44 004 Field Target: 368 Date: 6-2616
For a	Il items not checked, please provide detailed explanation in the notes section of data form.
1	. Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2	. Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification? Vegetation names are entered legibly for all strata present? Cover calculations are complete and correct? All dominant species have been determined and recorded per strata? Indicator status is correct for each species? Dominance Test and Prevalence Index have been completed?
3.	Soil
	Soil profile is complete? Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked? Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	☑ Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	Wetland boundaries have been corrected if necessary? Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

x halpy	Volper x Maller	Malker	G G- 27-11
Wetland Scientist (print)	Signature / Date	nob	
and the sent transferred in	The second and a second as a second)	

X JBrownlee

Field Crew Chief (print)

X & Bromere 6.21.

Signature / Date

SITE DESCRIPTION	and the Control of th	· · · · · · · · · · · · · · · · · · ·		astronomia est biografia de porto contribi
Survey Type: Centerline	ss Road (explain) Other (ex	plain)	Field Target: 267	Map #: 56 Map Date:6 . 9.14
Date: 6-29-16	Project Name: Alaska LNG		Feature Id:	W1064L005
Investigators: Jessie 8	browniee, Ken	len V	Olper.	Team No.: W 106
State: Alaska	Region: Alaska	Milepest:	386.3	
Latitude: 65, 632182	Longitu	de: -148,	9613071°	Datum: WGS84
Logbook No.:	Logbook Page No.: /4	Picture No.:	P-W106YL	005-001 Thru 00
SITE PARAMETERS		公 海岸区的		Company of the second of the s
Subregion: Ray moun	fans	Landform (hil	llslope, terrace, hummock	s, etc.): Apron
Slope (%): 3-\$		Local relief (c	concave, convex, none):	convex
Pre-mapped Alaska LNG/NWI classifica	ation: PSSI/FO4B	Evidence of V	Wildlife Use: NONE	
Are climatic/hydrologic conditions on the Yes No (if no exp	e site typical for this time of year? lain in Notes)	Are "N	ormal Circumstances" pre ∠ No (If no, ex	
Are Vegetation, Soil, or Hy	drology Significantly Disturbe	d? No_X	(If yes, explain in Notes)
Are Vegetation, Soil, or Hy	drology Naturally Problematic	? No_x	_ (If yes, explain in Notes	5.)
SUMMARY OF FINDINGS	以此 · · · · · · · · · · · · · · · · · · ·	77度的显显。分	公公司。	《一种数据数据》
Hydrophytic Vegetation Present? Yes_	No	Is the Sampled A	Area within a Wetland?	YesX No
Hydric Soil Present? Yes_	X No	Wetland Type:	PS51/4B	
Wetland Hydrology Present? Yes_	<u> Х</u> Nо	Alaska Vegetatio	n Classification (Viereck):	IICZ, IIA3
Notes and Site Sketch: Please include corridor. Previously borned Prediction of Pic Mar being 3 to see if it was dry. Us too. Popped I hoke in But Neg ax but close wet call.	Mar woodland. M. sapplings. Walked to Because this is wet	highest po	out on landscy ssuming every	be broad flat expanse thing to The TABS ROW was saturated
TAPS	PEMU/SSIB PS	51/48	A 23	W1010/LL 005 — - 12

W106 YL005

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes: 100)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC:
1. Picea mariana	5	Y	PACW	Total Number of Dominant Species Across All Strata:
2.				W Dornmant openies that are OBE, 1 NOW, 01 1 NO
3.				
4.		-		Prevalence Index worksheet:
Total Cove				Total % Cover of: Multiply by:
50% of total cove	r: <u>2 •5</u> 20	0% of total cov	/er:	OBL species: X 1 =
Sapling/Shrub Stratum (2(c. 1)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $57 \times 2 = 119$ FAC species $60 \times 3 = 180$ FACU species $3 \times 4 = 12$
1. Salix pulcha	(0		FACIN	UPL species X 5 =
2. Bhododondrum tomentosum	25	Y	FACW	Column Totals: 120 (A) 306 (B)
3. vaccinium uliginosum	20	Y	FAC	PI = B/A = 2.55
4. Vaccinium vitis- idaca	18	Ý	FAC	May Burned Snage
5. Rosa oricularis	13		FACU	1 , 444
	E		I TO A C	
Betila nava	5		FAC	
7. Picca mariana ~ 25	10		FACW	
7. Picca mariana ~ 12"	10		FACW	
7. Picea mariana 22.88. Rhododendrum groenlandicum 9. Total Cove 50% of total cove	10 ⁷	0% of total cov	FAC	
7. Picea maciona 12. 8. Zhododendrum groenlandicum 9. Total Cove 50% of total cove	10 2 1. 89 1. 44.520 s)		FACU FAC ver: 17.8	
7. Picea maciana 12. 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant	10 ⁷	Dominant Species?	FAC	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
7. Picea maciana ~ ? 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26)	10 89 r. 44.520 s) Absolute	Dominant	FACU FAC Jer: 17.8	Dominance Test is > 50% Prevalence Index is ≤ 3.0
7. Picea maciana 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26)	10 89 r: 89 r: 44.520 s) Absolute % Cover	Dominant Species?	FACU FAC Ver: 17.8 Indicator Status	Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
7. Picea marrang 12. 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26) 1. Equise fum sylvaticum 2. Eriorshorum vaginatum	10 89 r. 89 r. 44.520 s) Absolute % Cover	Dominant Species?	FACW FAC Indicator Status FAC FACW	Dominance Test is > 50% Prevalence Index is ≤ 3.0
7. Picea marrang 12. 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26) 1. Equise tum sylvaticum 2. Eriosshorum vaginatum 3. Calamagronds Canadensis 4.	10 89 r: 89 r: 44.520 s) Absolute % Cover	Dominant Species?	FACU FAC Ver: 17.8 Indicator Status	Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 — Morphological Adaptations¹ (Provide supporting data in Notes)
7. Picea maciona 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26) 1. Equise fum sylvaticum 2. Eriorshorum vaginatum 3. ralamagants canadensis 4. Hellacia	10 89 r: 89 r: 44.520 s) Absolute % Cover	Dominant Species?	FACU FAC FACU FAC FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain)
7. Picea maciona 2. 2. 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26) 1. Equise fum sylvaticum 2. Eriorshorum vaginatum 3. Calamagants Tanadensiz 4. Hellacia 5. Petasites frigidus	10 89 r: 89 r: 44.520 s) Absolute % Cover	Dominant Species?	FACU FAC FACU FAC FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
7. Picea maciona 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26) 1. Equise fum sylvaticum 2. Ericiphorum vaginatum 3. Calamagronts Canadensiz 4. Heria 5. Petasider frigidus 6. Rubus chamaemorus	10 8 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dominant Species?	FACU FAC FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
7. Picea maciona " ?	10 8 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dominant Species?	FACU FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
7. Picea maciana 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26) 1. Equise fum sylvaticum 2. Eriorshorum vaginatum 3. calamagroshs tanadensiz 4. Helacia 5. Petasiter frigidus 6. Ruhus chamaemorus	10 8 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dominant Species?	FACU FAC FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Market State S
7. Picea mariana 8. Rhododendrum groenlandicum 9. Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (26) 1. Equise fum sylvationm 2. Friorshorum vaginatum 3. calamagrashs tranadensis 4. Hellaria 5. Petasiler frigidus 6. Rubus chamaemorus 7. Calamagrastis canadensis 8. Saussurea angastitolia	10 8 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dominant Species?	FACU FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Bare Ground Cover of Wetland Bryophytes

SOIL PROFILE DESCRIPTION (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth (matrix Radox Features Radox				6.29.16					
Depth (inches) Matrix (Color (moist) % Color (moist) % Type¹ Loc² Texture Notes (Color (moist) % Texture Notes (moist) % Texture Notes (Color (moist) % Texture Notes (moist) % Text	SOIL	A STATE OF THE SE		Date Fea	ature II	D_			Soil Pit Required (Y/N)
Color (moist) % Color (moist) % Types Loc Texture Notes Color (moist)	SOIL PROFILE	E DESCRIPTION: (D	escribe	to the depth needed	to doci	ument the	indicator or	confirm the absence	e of indicators.)
inches) Color (moist) % Color (moist) % Type' Loc' Texture Notes Color (moist)	Depth	Matrix		Redox Features		4			
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix, CS=Covered Grains. *Location: PL=Pore Lining, M=Matrix,	(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
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Histoso or Histel (A1) N Alaska Gleyed (A13) N Alaska Color Change (TA4) N Alaska Color Change (TA5) N Alaska Colo						3			
Histoso or Histel (A1) N Alaska Gleyed (A13) N Alaska Color Change (TA4) N Alaska Color Change (TA5) N Alaska Colo							150	1 1 1 1	
INDICATORS INDICATORS INDICATORS INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOILS	¹ Type: C=Con	centration, D=Deplet	ion, RN	M=Reduced Matrix, C	S=Cove	ered or Co	ated Sand C	Grains. ² Location:	PL=Pore Lining, M=Matrix.
Alaska Alpine Swales (TA5) Alaska Redox (A14) Alaska Alpine Swales (TA5) Alaska Redox with 2.5Y Hue Maska Gleyed Pores (A15) Nalaska Redox with 2.5Y Hue Maska Gleyed Without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed Without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed Without 5Y Hue or Redder U				23/24/2018/2019	100				FOR PROBLEMATIC HYDRIC SOILS3
Alaska Alpine Swales (TA5) Alaska Redox (A14) Alaska Alpine Swales (TA5) Alaska Redox with 2.5Y Hue Maska Gleyed Pores (A15) Nalaska Redox with 2.5Y Hue Maska Gleyed Without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed Without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed without 5Y Hue or Redder Underlying Layer Maska Gleyed Without 5Y Hue or Redder U	Histosol or Hist	tel (A1) N		Alaska Gleyed	(A13)	N	_	Alaska Color C	hange (TA4) ⁴
Alaska Gleyed Pores (A15) N Alaska Redox with 2.5Y Hue N Alaska Gleyed Without 5Y Hue or Redder Underlying Layer N Other (Explain in Notes) One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. Give details of color change in Notes. Restrictive Layer (if present): Type: Prest Depth (inches): //e Hydric Soil Present (Y/N): Y Notes: Water Table (A2) Y Induction (B7) Sparsely Vegetation (B7) Presence of Reduced Iron (C4) Notes: Oxidized Rhizospheres along Living Roots (C3) Salt Deposits (B3) Notes: Water Table (C2) Notes: Water Table (C2) Notes: Water Table (C5) Notes: Water Table (C6) Notes: Water Table (C6) Notes: Water Table (C6) Notes: Water Table (C7) Notes: Water Table (C7) Notes: Water Table (C7) Notes: Water Table (C7) Notes:		- 1.				1			
Alask Gleyed without 5Y Hue or Redder Underlying Layer			-				N		
Thick Dark Surface (A12) One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. Give details of color change in Notes. Restrictive Layer (if present): Type: Prod. Depth (inches): //a Hydric Soil Present (Y/N): Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Saturation (A3) Sparsely Vegetated Concave Surface (B8) Nater Marks (B1) Marl Deposits (B1) Dry-Season Water Table (C2) Drift Deposits (B3) Dry-Season Water Table (C2) Other (Explain in Notes) Other (Explain in Notes) SECONDARY INDICATORS (2 or more required) Secondary Indicators (2 or more required) Stunted or Stressed Plants (D1) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Oxidized Rhizospheres along Living Roots (C3) Living Roots (C3) Shallow Aquitard (D3) Water Marks (B1) Marl Deposits (B15) N Presence of Reduced Iron (C4) N Salt Deposits (C5) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Surface Water Present (Y/N): Water Table (C2) Water Table (C2) Water Table Present (Y/N): Depth (in): Depth (in)	1.00	7.5	-	7 Habita Gloyea	, 0,00	(110)		The state of the s	
One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. Give details of color change in Notes. Restrictive Layer (if present): Type:	ydrogen Sulfi	de (A4)/	-						
disturbed or problematic. Give details of color change in Notes. Restrictive Layer (if present): Type: Frest Depth (inches): //e Hydric Soil Present (Y/N): Y Notes: Water (A1) Y Surface Soil Cracks (B6) Water-stained Leaves (B9) Plants (D1) Plants (D1) Plants (D1) Plants (D1) Present (Plants) Plants (D1) Present (Plants) Plants (D1) Presence of Reduced Iron (C4) Plants (D3) Presence of Reduced Iron (C4) Plants (D5) Presence of Reduced Iron (C4			_						
Cive details of color change in Notes. Restrictive Layer (if present): Type:	One indicator	of hydrophytic veget	ation, o	ne primary indicator of	of wetla	and hydrolo	gy, and an	appropriate landsca	ape position must be present unless
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Notes: Notes:	Restrictive Lay	er (if present): Type	Fra	D D	epth (ii	nches):	16 .		
Surface Water (A1)	INDEAL OCY	DDIMARY INDICAT	ODC (any ana indiastaria ar	ufficient		RECONDAR	PY INDICATORS (2	or more required)
High Water Table (A2) Y	39.362					1	Water-staine	ed	Stunted or Stressed
Saturation (A3)								1	
Saturation (A3)			(B)	7)	1				
Water Marks (B1)	Saturation (A3))						(C3)	
Drift Deposits (B3) Notes: Dry-Season Water Table (C2) Notes: Algal Mat or Crust (B4) Other (Explain in Notes): Depth (in): 3 Wetland Hydrology Present (Y/N): Saturation Present (Y/N): Depth (in): 3 Saturation Present (Y/N): Depth (in): 5	Water Marks (E	B1) N	Ma	rl Deposits (B15)				Reduced	
Algal Mat or Crust (B4) Other (Explain in Notes): Surface Water Present (Y/N):	Sediment Depo	osits (B2)					Salt Deposit	s (C5)	FAC-Neutral Test (D5)
Surface Water Present (Y/N): / Depth (in): 3 Water Table Present (Y/N): / Depth (in): 7 Wetland Hydrology Present (Y/N): / Depth (in): 7 Saturation Present (Y/N): / Depth (in): 5 EC: 59 PH 5-83	Drift Deposits ((B3) N	Dr	y-Season ater Table (C2)/\(\mathcal{N}\)		5	Notes:	110	
Surface Water Present (Y/N): Water Table Present (Y/N): Depth (in): 7 Wetland Hydrology Present (Y/N): Saturation Present (Y/N): Depth (in): 5 EC: 59 PH 5-83	Algal Mat or Ci	rust (B4)	Ot	ner (Explain in Notes)):				
Water Table Present (Y/N): Depth (in): 7 Wetland Hydrology Present (Y/N): Saturation Present (Y/N): Depth (in): 5 EC: 59 PH 5-83	Iron Deposits (B5)/							4
Water Table Present (Y/N): Depth (in): 7 Wetland Hydrology Present (Y/N): Saturation Present (Y/N): Depth (in): 5 EC: 59 PH 5-83	3757	AND AND THE REAL PROPERTY.	1		100	The second		Per tradition of	(1994)。在1994年,1994年,1994年
Water Table Present (Y/N): Saturation Present (Y/N): (includes capillary fringe) Depth (in): 7 Depth (in): 5 EC: 59 PH 5-83	Surface Water	Present (Y/N):		Depth (in): 3					. 4
(includes capillary fringe)	Water Table P	resent (Y/N):		Depth (in): 7		We	etland Hydr	ology Present (Y/N	N):
Notes:				Depth (in): 5		EC	:.59		PH 5.83
Y Additional Control of the Control	Notes:			W. A.					
70.74		No.							

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Persistent Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) 5 Sapling (<5 dbh, <6m tall) /○ Tall shrub (2-6m) ○ Short shrub (0.5-2m) 3분 Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) 80%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water 25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A 25% Scattered/Peripheral Cover
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (none) X One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope FlatX Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Pere
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrsReturn Interval >5 yrs
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading 5.83
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%) X Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring
LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below
Only Connected Above Connected Upstream & Downstream Unknown
Only Connected Above Connected Upstream & Downstream Unknown
Only Connected Above Connected Upstream & Downstream Unknown Unknown Low Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)

JBrownel

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

eatur	ture ID: 4/10612005 Field Target:_	267 Date: 6.29-16
	all items not checked, please provide detailed expla	
1.	1. Site Description	
1	Site description, site parameters and su A detailed site sketch is included in log	
2.	2. Vegetation	
	At least 80% of onsite vegetation has be identification?	been keyed to species, or collected for later
	Vegetation names are entered legibly f	
	Cover calculations are complete and complete	nined and recorded per strata?
	Dominance Test and Prevalence Index	have been completed?
3.	3. Soil	
	Soil profile is complete? Appropriate hydric soil indicators are m	narked?
4.	4. Hydrology	
	Appropriate hydrology indicators are m Surface water, water table, and saturat	narked? tion depths are recorded if present?
5.	5. Functions and Values	
	Vegetation, soil, hydrologic variables, a wetland?	and landscape variables complete if site is
6.	6. Field Logbook	
	Notes have been recorded at each site accuracy of pre-mapped wetland boun Each logbook page is initialed and date	
7.	7. Maps	
	✓ Wetland boundaries have been correct✓ Maps are initialed and dated?	ted if necessary?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

X haley volver	X Kalen Valger	6-29-16
Wetland Scientist (print)	Signature / Date	

X Browner

Field Crew Chief (print)

Signature / Date

Survey Type: Centerline & Access Road (explain) Other (explain) Field Target: 27 Map #: 52 Map Date: (a. 47 / 4) Date: 6 28 - 6 Project Name: Alaska LNG Feature (d. V.) COCG Investigators: Sessie Region: Alaska LNG Feature (d. V.) COCG Investigators: Sessie Region: Alaska LNG Feature (d. V.) COCG Investigators: Sessie Region: Alaska Milepost: 363.4 Latitude: 65.8 9980 Logbook Page No.: (3 Picture No.: P. V.) Cocg VL 1006 - 001 Hm. 2004 SITE PARAMETERS Subregion: Ray Mountanna Landform (hillslope, terrace, hummooks, etc.): Hill stade Local relief (concave, convex, none): Shaffly convex Pre-mapped Alaska LNG/NVII classification: PF 04 BST B. Local relief (concave, convex, none): Shaffly convex Rec (introduce) (fine explain in Notes) Are Cimatichyrologic conditions on the sile typical for this time of year? No. (fine explain in Notes) Are Vegetation. Soil. or Hydrology. Significantly Disturbed? No. (fi yes, explain in Notes) Are Vegetation. Soil. or Hydrology. Naturally Problematic? No. (fi yes, explain in Notes) No. (fi yes, exp	Date: 6 - 28 - 16 Project Name: Alaska LNG Feature Id: WIOCO YLOOGE Investigators: Description Method Region: Alaska Longitude: L49 5 7 3 9 3° Datum: WGS84 Longbook No: 2 Logbook Page No: 3 Picture No: 0 WOGYLOOG - OOI Throw OOL SITE PARAMETERS Subregion: Ray Montains Landform (hillslope, terrace, hummocks, etc.): Hill side Slope (%): 5 - 9 Pre-mapped Alaska LNG/NWI classification: Pro 04 15518 Evidence of Wildlife Use: Non Are climatichydrologic conditions on the site typical for this time of year? Yes X No (if no explain in Notes) Are Vegetation Soil or Hydrology Significantly Disturbed? No (if yes, explain in Notes) Are Vegetation Soil or Hydrology Naturally Problematic? No (if yes, explain in Notes) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes X No Staturally Problematic? No (if yes, explain in Notes) Wetland Hydrology Present? Yes No Alaska Vegetation Classification (Viereck): A 7, II C 7 Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Ofen Ric Mar Forest, Trees range from 2" Sapplings to 30' fall. Divise thick under for y g Rho Groe, Egy Syl + thick feather moss. Microscellef is undulabling. Soil was Saturated in the thixotropic mineral layer but not you or you labeling. Frost P 9" which was a repeat of the Bull closus of the Sull closus of	SITE DESCRIPTION	起达。河南洋江北		142	Transfer design	1000	The second second
Investigators: Jesse Manner Region: Alaska Region: Alaska Millepost: 363.4 Latitude: 65.8 9980 Longitude: 149.573930 Datum: WGS84 Logbook No.: 2 Logbook Page No.: 3 Picture No.: P.W.O.G.Y.L. 1006-001 Thro. 004 SITE PARAMETERS Subregion: Ray Manner Landform (hillslope, terrace, hummocks, etc.): Hill side Slope (%): 5-9 Pre-mapped Alaska LNG/NWI classification: P.P.O.4 555R Are climatichydrologic conditions on the site typical for this time of year? Yes No. (If no explain in Notes) Are Vegetation Soil or Hydrology Significantly Disturbed? No. (If yes, explain in Notes) Are Vegetation Soil or Hydrology Naturally Problematic? No. (If yes, explain in Notes) Wetland Type: Wetland Hydrology Present? Yes No. No. (Wetland Type: Wetland Hydrology Present? Yes No. (Wetland Type: Wetland Hydrology Present? Yes No. (Hydrology Fresent? Yes No. (Hydrology Fres	Investigators: Jessie hawait (Alex Office Alex Alex Alex Alex Alex Alex Alex Ale	Survey Type: Centerline X Acces	ss Road (explain) Ot	ther (explain)		Field Targe		
State: Alaska Region: Alaska Millepost: 363.4 Latitude: (55.8 9980 Logbook No.: 2 Logbook Page No.: (3 Picture No.: P_WOGYL 006 - 001 + 1/10 004 STEPARAMETERS Subregion: Ray Maintains Slope (%): 5-9 Local relief (concave, convex, none): Staffy (onvex Pre-mapped Alaska LNG/NWI classification: PEO4 5518 Evidence of Wildlife Use: Non (If no explain in Notes) Are climatichydrologic conditions on the site typical for this time of year? Yes X No (If no explain in Notes) Are Vegetation Soil or Hydrology Significantly Disturbed? No (If yes, explain in Notes) Are Vegetation Soil or Hydrology Naturally Problematic? No (If yes, explain in Notes) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes X No Alaska Vegetation Classification (Viereck): A Z, II C Z Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Open Fic Mar Facet, Trees range from 2" Sapplings to 30' tall. Divise thick under story of Kho Goro, Egy Syl thick feather moss. Microscilet is undulating. Soil was safurated in the thixotropic Wineral layer but Not in organics. Frost Q 9" which was a repeat of the Bull colons of the Colons of the Survey of the Bull colons of the Bull colons of the Survey of the Survey of the Colons of the Survey of the Survey of the Survey of the Colons of the Survey of the Colons of the Survey of the Sur	State: Alaska Region: Alaska Region: Alaska Region: Alaska Millepost: 363.4 Logbook No.: 2 Logbook Page No.: 13 Picture No.: PWOGYLOOGOON Throuse Site PARAMETERS Subregion: Ray Mountains Logal relief (concave, convex, none): Staff (convex pre-mapped Alaska LNG/NWI classification: PRO4/551R Are climatichydrologic conditions on the site typical for this time of year? Yes X No (if no explain in Notes) Are Vegetation Soil or Hydrology. Significantly Disturbed? No (if yes, explain in Notes) Are Vegetation Soil or Hydrology. Naturally Problematic? No (if yes, explain in Notes) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No X Hydric Soil Present? Yes No Alaska Vegetation Classification (Viereck): A 7, 11 C 7 Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Open Fic Mar Forest, Trees range from 2" Sapplings to 30' tall. Diverse thick under tory of Rho Goro, Egy Syl thick feather moss. Microerelief is undulating. Soil was Saturated in the thixotropic Mineral layer but not in organics. Frost Q 9" which was a repeat of the Bull colors of the Sul colors of the	Date: 6-28-16	NG .		*	Feature Id:		
Latitude: 65.8 99980 Logbook No.: 2 Logbook Page No.: 13 Picture No.: P_W\06\text{VL 006} - 001 \text{ How oct} SITE PARAMETERS Subregion: Ray wountains Landform (hillslope, terrace, hummocks, etc.): Hill side Slope (%): 5-8 Pre-mapped Alaska LNG/NWI classification: PF 04/551B Evidence of Wildlife Use: No (if no explain in Notes) Are climatic/hydrologic conditions on the site typical for this time of year? Yes_X No (if no explain in Notes) Are Vegetation Soil or Hydrology Significantly Disturbed? No X (If yes, explain in Notes) Are Vegetation Soil or Hydrology Naturally Problematic? No X (If yes, explain in Notes) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes_X No Is the Sampled Area within a Wetland? Yes No Wetland Type: Wetland Hydrology Present? Yes_X No Alaska Vegetation Classification (Viereck): [A Z, I] C Z Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Open Fic Mar Great, Trees range firsm 2" Sapplings to 30" tall. Diverge thick anders for y of Rho Gro, Egy Syl 4 thick feather moss, Microscellet is undulating. Soil was Saturated in the thixotropic mireral layer but Not in organics. Frost Q 9" which was a repeat of the Bull colors of t	Latitude: 65.899990 Logbook Page No.: 13 Picture No.: P_WOBYLOOG_GOI + Thro Cog SITE PARAMETERS Subregion: Ray Mountains Landform (hillslope, terrace, hummocks, etc.): Hill side Slope (%): 5-8 Local relief (concave, convex, none): Shifty convex Pre-mapped Alaska LNG/NWI classification: PF O4 55.1B Evidence of Wildlife Use: NON Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes_X No_ (if no explain in Notes) Are Vegetation_ Soil_ or Hydrology_ Significantly Disturbed? No_X (if yes, explain in Notes) Are Vegetation_ Soil_ or Hydrology_ Naturally Problematic? No_X (if yes, explain in Notes) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes_X No_ Is the Sampled Area within a Wetland? Yes_No_X Hydric Soil Present? Yes_X No_ Alaska Vegetation Classification (Viereck): [A Z, I] C Z Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Open Fic Mar Forest. Trees range from 2" sapplings to 30' tall. Divise thick understory of Rho Gro, Egy Syl + thick feather moss, Microrelist is undulating. Soil was saturated in the Hixotropic Mineral layer but not in organics. Frost Q 9" which was a repeat of the Bull colors of the survey colors.	Investigators: Jessip &	ownles, K	alers	VOLPE	2		Team No.: WV06
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WETLAND DETERMINATION DATA FORM WIGGLOOG

	Absolute	Dominant	Indicator	Dominance Test worksheet:
ree Stratum (Plot sizes: (DO)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC:
Picea Marlana	25	Y	FACW	Total Number of Dominant Species Across All Strata: % Dominant Species that are OBL, FACW, or FAC: 100
				70 Bollimant opedes that are obe, 1710vi, of 1710.
				Established States and
		3		Prevalence Index worksheet:
Total Cove	er: <u>25</u>		-	Total % Cover of: Multiply by:
50% of total cov	er: 12.5 20)% of total cov	er: <u>5</u>	OBL species: X 1 = O
apling/Shrub Stratum (7.60)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 57 X 2 = 114 FAC species 5 X 3 = 165 FACU species X 4 = 4
Rhodofendrum groenlandieum	20	Y	FAC	UPL species
Vaccinium Vitis-idaea	18	Y	FAC	Column Totals: 113 (A) 283 (B)
Alaus viridis fraticosa	1:	1	FAC	PI = B/A = 2.5
vaccinium uliginosum	10		FAC	
Salix pulcha	-5		FACIL	
Spirea stevenii			FACU	
	T		FACO	
Rosa acicolaris			PAL U	
Rosa acicolaris Betla Naya			FAC	
Betvla Nana Pices Mariana	15	Υ		, , , , , , , , , , , , , , , , , , ,
Bets la Nana Picea MARIAMA Total Cove 50% of total cove	er: <u>35,5</u> 20)% of total cov	FACL	
Betyla Nana Picea Mariana Total Cove 50% of total cove	er: <u>35,5</u> 20		FAC L) er: 14, 2	Hydrophytic Vegetation Indicators:
Betyla Nana Picea Mariana Total Cove 50% of total cove	er: <u>35,5</u> 20	Dominant Species? (Y/N)	FACL	Hydrophytic Vegetation Indicators:
Betyla Nana Picea Mariana Total Cove 50% of total cove GETATION (use scientific names of plan arb Stratum (76)	er: 35,5 20 hts) Absolute	Dominant Species?	FAC L/	Dominance Test is > 50% Prevalence Index is ≤ 3.0
Bets la Nana Picea Mariana Total Cove 50% of total cove EGETATION (use scientific names of plane) Ezuisetum (76) Ezuisetum sylvaticum	er: 35,5 20 hts) Absolute	Dominant Species?	FAC L/Pac L/	Dominance Test is > 50%
Bet la Nana Picea Mariana Total Cove 50% of total cove Eget ATION (use scientific names of planer b Stratum (761) Equisefum sylvaticum Rubis chargemacus	Absolute % Cover	Dominant Species?	FAC LIVER: 14, 2 Indicator Status FAC	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data
Betvla Nana Picea Mariana Total Cov. 50% of total cov. EGETATION (use scientific names of plane) Eguisetum (76) Eguisetum Sylvaticum Rybis chargemorus. Petacites frigidus	Absolute % Cover	Dominant Species?	FAC LIPAC LIPAC Indicator Status FAC EACLED	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data Notes)
Bet la Nana Pices Mariana Total Cove 50% of total cove EGETATION (use scientific names of plane) Equisefum Sylvaticum Rubis chargemacus.	Absolute % Cover	Dominant Species?	FAC LINGUISTAND FAC FAC W	Dominance Test is > 50% Yerevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data Notes) Problematic Hydrophytic Vegetation¹ (Explain)
Betvla Nana Pices Mariama Total Cove 50% of total cove EGETATION (use scientific names of planet by Stratum (76)) Equisefum sylvaticum Rubis charaemarus Petasites frigidus Grass so	Absolute % Cover	Dominant Species?	FAC LINGUISTAND FAC FAC W	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unle
Betvla Nana Picea Marlana Total Cov. 50% of total cov. EGETATION (use scientific names of plane) Equisetum (76) Equisetum Sylvaticum Rubis chargemarus. Retasites frigidus Gass so	Absolute % Cover	Dominant Species?	FAC LINGUISTAND FAC FAC W	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unle disturbed or problematic. % Bare Ground
Bets la Naya Picea Mariana Total Cove 50% of total cove EGETATION (use scientific names of plan erb Stratum (76) Equisefum sylvaticum Rubus charaemarus. Petasites frigidus Grass so	Absolute % Cover	Dominant Species?	FAC LINGUISTAND FAC FAC W	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unle disturbed or problematic. % Bare Ground
Betila Nana Pices Mariana Total Cov. 50% of total cov. EGETATION (use scientific names of planer Stratum (76) Equisetum Sylvaticum Rybis chargemacus. Petasites Frigidus Grass So	Absolute % Cover	Dominant Species?	FAC LINGUISTAND FAC FAC W	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unle disturbed or problematic. Bare Ground Cover of Wetland Bryophytes Total Cover of Bryophytes
Betvla Nana Pices Mariana Total Cove 50% of total cove EGETATION (use scientific names of planeth Stratum (76) Equisefum Sylvaticum Rubus chargemacus Retasites Frigidus Grass 50	Absolute % Cover	Dominant Species?	FAC LINGUISTAND FAC FAC W	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unle disturbed or problematic. Bare Ground % Cover of Wetland Bryophytes

SOIL PROFILE DESCRIPTION: (De	scribe	to the depth peoded						
Depth Matrix	SCHOOL	to the depth needed	to docum	nent the ir	ndicator or co	nfirm the absen	ce of indicators.)	
		Redox Features						
(inches) Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
0; 6-4				-			Dry Feather moss	
De 4-5					1		Dame organics	
BWI 5-9 104R3/1	90	101R4/4	6	con	M RC	S:17	1	
		104× 3/3	3	con	m RC		100	
	-1	104124/,	1	Dep	M		E Car Carlotte	
ulf 9-16 Same as Bwi	Lbu	frozen			-	Silt	Wed.	
Type: C=Concentration, D=Depletion	on, RN	M=Reduced Matrix, C	S=Covere	ed or Coa	ted Sand Gra		n: PL=Pore Lining, M=Matrix.	
HYDRIC SOIL INDICATORS			This was		· 家語機	INDICATORS	FOR PROBLEMATIC HYDRIC SOILS	
Histosol or Histel (A1)		Alaska Gleyed	(A13)	N		Alaska Color	Change (TA4) ⁴	
Histic Epipedon (A2)		Alaska Redox	(A14)	N		Alaska Alpine Swales (TA5)		
Black Histic (A3)		Alaska Gleyed	Pores (A	15) _//				
Hydrogen Sulfide (A4)	· ·				Alaska Gleyed without 5Y Hue or Redder Underlying			
Thick Dark Surface (A12)	1		1.1			Other (Explain	n in Notes) cape position must be present unless	
Hydric Soil Present (Y/N):								
	Н -	-1 - 4	-			7		
Notes: Thisotropic 50i) Negative XX			ufficient)	s	ECONDARY	INDICATORS (2 or more required)	
Notes: Thisotropic 50;) Negative XX T	ORS (a		,	V	ECONDARY Vater-stained eaves (B9)	INDICATORS (2 or more required) Stunted or Stressed Plants (D1)	
Notes: Thisotropic 50;) Negative XX HYDROLOGY PRIMARY INDICATO Surface Water (A1)	Su Inu	any one indicator is surface Soil Cracks (B6 indation Visible on Ae	i) _ N	_ K	Vater-stained eaves (B9)	INDICATORS (Stunted or Stressed Plants (D1)	
Notes: Thisotropic 50;) Negative CXX HYDROLOGY PRIMARY INDICATO Surface Water (A1) High Water Table (A2)	Su Inu (B7	any one indicator is surface Soil Cracks (B6 indation Visible on Ae	erial Imag	gery D	Vater-stained eaves (B9) _ rainage Patte	erns (B10) Nospheres along	Stunted or Stressed Plants (D1)	
Notes: This otropic 50; Ne gative CX H HYDROLOGY PRIMARY INDICATO Surface Water (A1) High Water Table (A2) Saturation (A3)	Sur Inu (B7 Co	rface Soil Cracks (B6 Indation Visible on Ae Indation Visible on Ae Indation Visible on Ae	erial Imag	dery D	Vater-stained eaves (B9) rainage Patte exidized Rhizo	erns (B10) Nospheres along	Stunted or Stressed Plants (D1) Geomorphic Position (D2)	
Notes: This otropic 50; Ne gative CX H HYDROLOGY PRIMARY INDICATO Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	Sullinu (B7 Co	rface Soil Cracks (B6 indation Visible on Ae arsely Vegetated ncave Surface (B8)	erial Imag	gery D C Li P Ir	Vater-stained eaves (B9) rainage Patter exidized Rhizz riving Roots (Coresence of R	erns (B10) ospheres along C3) educed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic	
Notes: This otropic 501) Negative CX HYDROLOGY PRIMARY INDICATO Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Su Inu (B7 Sp Co Ma Hy Od	rface Soil Cracks (B6 indation Visible on Ae 7) arsely Vegetated ncave Surface (B8) rrl Deposits (B15) drogen Sulfide	erial Imag	gery D C P Ir	Vater-stained eaves (B9)	erns (B10) ospheres along C3) educed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: This of ropic 501) Negative CXX HYDROLOGY PRIMARY INDICATO Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Su Inu (B) Sp Co Ma Hy Od Dry Wa	rface Soil Cracks (B6 Indation Visible on Ae	erial Imag	gery D C P Ir	Vater-stained eaves (B9)	erns (B10) ospheres along C3) educed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: This of ropic 501) Negative CXX HYDROLOGY PRIMARY INDICATO Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Su Inu (B) Sp Co Ma Hy Od Dry Wa	rface Soil Cracks (B6 Indation Visible on Ae	erial Imag	gery D C P Ir	Vater-stained eaves (B9)	erns (B10) ospheres along C3) educed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: This otropic 501) Negative CXX HYDROLOGY PRIMARY INDICATO 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)	Sur Inu (B7 Sp Co Ma Hy Od Dry Wa Ottl	any one indicator is surface Soil Cracks (B6 andation Visible on A67) arsely Vegetated ncave Surface (B8) ard Deposits (B15) drogen Sulfide or (C1) y-Season ater Table (C2) her (Explain in Notes)	erial Imag	gery D C P Ir	Vater-stained eaves (B9)	erns (B10) ospheres along C3) educed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: This otropic 501) Negative CXX HYDROLOGY PRIMARY INDICATO Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Fron Deposits (B5)	Sur Inu (B7 Sp Co Ma Hy Od Dry Wa Ottl	rface Soil Cracks (B6 Indation Visible on Ae	erial Imag	gery D Li P Ir S	Vater-stained eaves (B9)	perns (B10)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	
Notes: This otropic 501) Negative CXX HYDROLOGY PRIMARY INDICATO 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)	Sur Inu (B7 Sp Co Ma Hy Od Dry Wa Ottl	any one indicator is surface Soil Cracks (B6 andation Visible on A67) arsely Vegetated ncave Surface (B8) ard Deposits (B15) drogen Sulfide or (C1) y-Season ater Table (C2) her (Explain in Notes)	erial Imag	gery D Li P Ir S	Vater-stained eaves (B9)	erns (B10) ospheres along C3) educed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, M= Matrix
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved_ Scrub Shrub-Deciduous-Needle-leaved_ Scrub Shrub-Deciduous-Broad-leaved_ Scrub Shrub-Evergreen-Needle-leaved_ Emergent-Non-persistent_ Emergent-Persistent_ Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species) High (>25)
Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Open Small Scattered Patches Continuous Cover
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
COUL MARIANIES
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Inlet/Pe
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 y
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading pH Reading Law Page ability Stratified Deposits
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Basin Topographic Gradient (M): Low Gradient (<2%)
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)
Watershed Land Use: 0-5% Rural
Size: Small (<10 acres) Medium (10-100 acres) Large (>100 acres)

Crew Chief QA/QC check:

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Featur	re ID: W106巻 YC006 Field Target: 271 Date: 6-28-16
	items not checked, please provide detailed explanation in the notes section of data form.
1.	Site Description
	Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook?
2.	Vegetation
	At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
	Vegetation names are entered legibly for all strata present?
	Cover calculations are complete and correct? All dominant species have been determined and recorded per strata?
	✓ Indicator status is correct for each species?
	Dominance Test and Prevalence Index have been completed?
3.	Soil
	Soil profile is complete?
	Appropriate hydric soil indicators are marked?
4.	Hydrology
	Appropriate hydrology indicators are marked?
	Surface water, water table, and saturation depths are recorded if present?
5.	Functions and Values
	Vegetation, soil, hydrologic variables, and landscape variables complete if site is a wetland?
6.	Field Logbook
	Notes have been recorded at each site, including general description, sketch, and
	accuracy of pre-mapped wetland boundary as appropriate? Each logbook page is initialed and dated?
7.	Maps
	☑ Wetland boundaries have been corrected if necessary?
	Maps are initialed and dated?

8. Photos

- Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 soil pit, 1 soil plug)?
- Two photos were taken for each Observation Point (vegetation/site overview)?

x halen Volver	X Walen Jalpen 6-30-4
Wetland Scientist (print)	Signature / Date
X J Brownlee	X 0 - 6.2816
Field Crew Chief (print)	Signature / Date