	DOCKET NO. CP17000	DOC NO: USAKE-PT-SRREG-00-
	RESOURCE REPORT NO. 2	000006-000
Alaska LNG	Appendix G	April 14, 2017
Project	Part 11 of 19	REVISION: 0
	PUBLIC	

Part 11 of 19 of Appendix G of Resource Report No. 2

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 Scrub Shrub-Evergreen-Needle-leaved Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) 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%) Example 100%
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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 OpenK 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: Silty Mineral: Clayey
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
Mineral: Gravelly Mineral: Sandy Mineral: Clayey HYDROLOGIC VARIABLES HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet
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/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet 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/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inl
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Mineral: GravellyMineral: SandyMineral: SiltyMineral: Clayey HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No Outlet Intermittent Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No Outlet
Mineral: GravellyMineral: SandyMineral: SiltyMineral: Clayey HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No Outlet
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Mineral: Gravelly

 \leq Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized

Size: Medium (10-100 acres)

Small (<10 acres)

Crew Chief QA/QC check:

GPS Technician QA/QC check:

Large (>100 acres)

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Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85LH046 Field Target: (5163 Date: 7-23-15

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?

8YON

- I Vegetation names are entered legibly for all strata present?
- Dover 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

- I Soil profile is complete?
- D 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)?
- NA□ Two photos were taken for each Observation Point (vegetation/site overview)?

Signature / Date Wetland Scientist (print)

7-23 15 Utessic Brown Chief (print) Signature / Gate Х

Field Crew Chief (print)

SITE DESCRIPTION				
Survey Type: Centerline 👗 Acces	ss Road (explain) Other	(explain)	Field Target: 151/02	Map #: 94 Map Date: 6-18-15
Date: 7-23-15	Project Name & No.: Alaska	LNG 60418403	Feature Id:	WESLHON7
Investigators: Jessie Bi	rowniee, kaler	> Volpe	~	Team No.: W85
State: Alaska	Region: Alaska	Milepost:	473,8	
Latitude: (04,56517-1	Long	itude: - 1419.1		Datum: WGS84
Logbook No.: 2	N	5 Picture No.:	P-W85LHOU	7-001 thru 004
SITE PARAMETERS				
Subregion: TANANA-KUSK	prim lowland	Landform (hil	llslope, terrace, hummock	s, etc.): Terrece
Slope (%): 0-3		Local relief (c	concave, convex, none):	CONVER
Pre-mapped Alaska LNG/NWI classifica	tion: 101,102; L) Evidence of \	Wildlife Use: MON	
Are climatic/hydrologic conditions on the Yes No (if no expla	site typical for this time of year ain in Notes)	? Are "N Yes	ormal Circumstances" pre	sent: blain in Notes.)
Are Vegetation, Soil, or Hyd	Irology Significantly Distu	rbed? No_X	(If yes, explain in Notes	A second and the
Are Vegetation, Soil, or Hyd	Irology Naturally Problem	atic? No <u>×</u>	(If yes, explain in Notes	.)
SUMMARY OF FINDINGS			and the set of the	
Hydrophytic Vegetation Present? Yes	No	Is the Sampled A	Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	NoX	Wetland Type:	U	1. 1. Au
Wetland Hydrology Present? Yes	NoX	Alaska Vegetation	n Classification (Viereck):	101,102
Notes and Site Sketch: Please include D corridor. fall closed Brust of for rose. FT moun with cut trees of	Pic Gla, Pop B.	al Bet Neo	1110	A state

W85LH047

VEGETATION (use scientific names of plants	3)			
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:
1. Populus balsamifere	25	Y	FACU	Total Number of Dominant Species Across All Strata:
2. Picea Clave A	25	Y	FACU	borninant species that are OBL, FAGW, of FAC:
3. Betula neorlaskana	15	V	FAC	
4.	5. 5	· · · ·		Prevalence Index worksheet:
Total Cover 50% of total cover		0% of total cov	ver: <u>13</u>	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum (Z(a))	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 0 X 2 = 0 FAC species 20 X 3 = 00 FACU species 07 X 4 = 428
1. Rosa acicularis	50	Y	FACU	UPL species 🔿 X 5 = 🔿
2. Linnara borcalis	R		FACJ	Column Totals: 127 (A) 488 (B)
3. Cornus stalonifera	5		FAC	PI = B/A =
4. viburnum edule	5		CACU	
5.				
6.				a de la companya de l
7.			だ	
8.				
9.				
Total Cover: 50% of total cover	31_ 20	0% of total cov	ver: <u>12.4</u>	
VEGETATION (use scientific names of plants				A REAL PROPERTY AND A REAL
Herb Stratum (<u>76)</u>	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Equisadum pratense	. 7-		FACW	$\frac{7}{\sqrt{2}}$ Prevalence Index is ≤ 3.0
2. Cornus canadensis	1		FACU	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Calamagrostis canadeusi	57		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Chamerion angostifium	7		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unles
5.				disturbed or problematic.
6.	10	1		
7.				% Bare Ground
8.		2 N = 2	2.1	% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.				% Cover of Water Hydrophytic Vegetation Present (Y/N):
Total Cover: 50% of total cover		0% of total cov	'er:	Notes: (If observed, list morphological adaptations below):

SUL PROFI		Describe	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	Loc ²	Texture	Notes	
0-2.5					1.1.14			Dry proximics	
2,5-7	8.54 3/1	100		-			siltlean		
7-9		-	1. A	2					
9-11	101R 4/3						sittlean		
11-12	2	-					- In isan		
12-20	10YR4/3		2.54 %		12	prov	Sitt acry	SPelie	
V.P.			10 YR 4/3		C	M		1	
¹ Type: C=Co	oncentration, D=Deple	etion, RM	-Reduced Matrix, CS	S=Cov	ered or Co	ated Sand (Grains. ² Location:	PL=Pore Lining, M=Matrix.	
HYDRIC SOI	L INDICATORS	12.12	A Strange Strange	1.50%	a la	DE LA COLO		OR PROBLEMATIC HYDRIC SOI	
Histosol or H	istel (A1)N		Alaska Gleyed	(A13)	V			nange (TA4) ⁴ _W	
Histic Epiped	on (A2)		Alaska Rédox (A14)	N		Alaska Alpine Swales (TA5)		
Black Histic (A3)		Alaska Gleyed	Pores	(A15))	Alaska Redox w		
Hydrogen Su	Hydrogen Sulfide (A4) Alaska Gleyed without 5Y Hue or Redder Underly								
Thick Dark Surface (A12)							Other (Explain i	n Notes)	
⁴ Give details	oroblematic. of color change in No	tes.	. 1			gy, and an	appropriate landscap	pe position must be present unless	
Hestrictive La	ayer (if present): Type	∋: <u></u>	De De	əpth (ii	nches):	X			
Hydric Soil F	Present (Y/N):	/	event						

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or 1	more required)
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)
Sediment Deposits (B2)	Hydrogen Sulfide	Salt Deposits (C5)	FAC-Neutral Test (D5)
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	S. 6 9 9
Algal Mat or Crust (B4)	Other (Explain in Notes):		
Iron Deposits (B5)			
Surface Water Present (Y/N): 🙌	Depth (in):	1	
Water Table Present (Y/N): Depth (in):		Wetland Hydrology Present (Y/N): _	
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:	
Notes:		A	

a.

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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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Persistent Aquatic Bed Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent	d _ Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub Dwarf shrub (<0.5m)	(0.5-2m) bmerged
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): EvenHighly UnevenMode	erately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) Image: Comparison of the	High Density (60-
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover	6-75% 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 Many N/A	
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts Open Small Scattered Patches Continuous Cover	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)	Al and a second
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe	nge
	A CONTRACTOR OF
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric	ACTIVITY AND A STATE
Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey	1 × 4
HYDROLOGIC VARIABLES	No. of Concentration
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Peren	t Inlet/No Perennial
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 Created	Soils Sediment
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounce	ed (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs	44 - AL
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow	3
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits	Reading
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 S	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 Below_	
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)	ce)
Watershed Land Use: 0-5% Rural5-25% Urbanized25-50% Urbanized>50% Urbanized	
Size: Small (<10 acres) Medium (10-100 acres) Large (>100 acres)	

GPS Technician QA/QC check:

Crew Chief QA/QC check:

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Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W8544047 Field Target: 15162 Date: 7-23-15

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?

May

- 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

- Discrete 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 义 soil pit, 1 soil plug)?

 $N \not \models \Box$ Two photos were taken for each Observation Point (vegetation/site overview)?

Voller X Valer Signature / Date per 7-23-15 Wetland Scientist (print)

X Jessie Brownlee X Jessie Brown Chief (print) 7-23.15

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SITE DESCRIPTION					
Survey Type: Centerline Access Road (explain) Other (explain)	explain)	Field Target:	Map #: 58 Map Date: 6. 13		
Date: 7/30/15 Project Name & No.: Alaska	LNG 60418403	Feature Id	W8544048		
Investigators: TEGER Brownlee, Abiac	up Fish	rer	Team No.: W85		
State: Alaska Region: Alaska	Milepost:	42.4.8			
Latitude: 65° 16.45 66"N Longit	ude: 148°C	10 25.28"6	Datum: WGS84		
Logbook No.: () 2 Logbook Page No.: 24	Picture No.:	P_W8SAY048	-VEG_VEG_PIT_PIUC		
SITE PARAMETERS					
Subregion: Pay Mountains	Landform (hi	llslope, terrace, hummock	s, etc.): Hillside		
Slope (%): 3-5	Local relief (d	concave, convex, none):	Flat		
Pre-mapped Alaska LNG/NWI classification: U A 2	Evidence of V	Wildlife Use: M 00 =	rescat		
Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (if no explain in Notes)	Are "N Yes	ormal Circumstances" pre	sent: plain in Notes.)		
Are Vegetation, Soll, or Hydrology Significantly Disturb	ed? No	//			
Are Vegetation, Soil, or Hydrology Naturally Problemat	ic? No	(If yes, explain in Notes	s.)		
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes,No	Is the Sampled Area within a Wetland? Yes No				
Hydric Soll Present? Yes NoX	Wetland Type:	U			
Wetland Hydrology Present? Yes No	Alaska Vegetation	n Classification (Viereck):	IAZ		
Notes and Site Sketch: Please include Directional & North Arrow, Centerli corridor. Mature Pie Marthforest w/ trees ~ 20 with thick feather MOSS, Frast ~ 1: otherwise Reviewed upland status and soil profile w/ 5e who aqued with upland call. 4B 7.30.15	-35' tall Z" dcep	, Little diversi but No sign	ty in understory.		



Page 1 of 4

VEGETATION (use scientific names of plants	5)			
Tree Stratum (Plot sizes: 100-F+)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A)
1. Picea Marian	35	4	Fach	Total Number of Dominant Species Across All Strata: 5 (B)
2.*				% Dominant Species that are OBL, FACW, or FAC: $\underline{\$O}$ (A/B)
3.				and the state of the second second second
4.				Prevalence Index worksheet:
Total Cover	35	· · ·		Total % Cover of: Multiply by:
50% of total cover	: 20	% of total cov	er:	OBL species:X 1 =
Sapling/Shrub Stratum (26 FF)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $43 \times 2 = 86$ FAC species $31 \times 3 = 93$ FACU species $14 \times 4 = 56$
1. Spiraea stevenii	9		FacU	UPL speciesX 5 =
2. Rhododendrum aroenla	ndicin 15	. Y	Fac	Column Totals: 68 (A) 339 (B)
3. Varcinium uliainesur	Ī		Fac	PI = B/A = 7.67
4. Jaccinium vitis-idage	3		Fac	· · · · · · · · · · · · · · · · · · ·
5. Pasa pricularia	2		Facl	
6. Picea Mariana	6	Y	facw	K in an approximation of the second secon
Titicea alauca	20		Facu	
8.				
9.				and the state of the second states in the
Total Cover 50% of total cover		% of total cov	er: 6.2	a l'information
VEGETATION (use scientific names of plants	s)	20 10 10		
Herb Stratum ($-\frac{1}{26+1}$	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1 Equisetur sulvation	13	Y	Fac	Prevalence Index is ≤ 3.0
2. Rubis chamalmoris	2		Fach	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Geocaulan lividium	7	У	Faci	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Acctoarostislatifolia	T		Fach	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Calamagostis Lepophica	7		Fac	disturbed or problematic.
6.	ditt.			
7.	3			% Bare Ground
8.	2	H	·	% Cover of Wetland Bryophytes
9.	e l			<u> </u>
10.		0		% Cover of Water
Total Cover 50% of total cover		% of total cov	er: 4,4	Hydrophytic Vegetation Present (Y/N):/ Notes: (If observed, list morphological adaptations below):

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SOIL	1 <u>.</u>	1	Date F	eature	ID	<u>n</u> 310		Soil Pit Required (Y/N)
SOIL PROFI	LE DESCRIPTION: (Describe	to the depth neede	d to doo	cument the	indicator or	confirm the absence	e of indicators.)
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-8	- X -							
8-9				- 63				
7-12	10YR-3/3	100	21 A.		1953	100 magazin	Silfloom	· · · · · · · · · · · · · · · · · · ·
12-24	10YR4/3	95	IOYR S/4	5	C	M	Siltloam	very faint concertrations"
and the set					1.0			
				41			3	· · · · · · · · · · · · · · · · · · ·
6	1 Same		•					
Type: C=Co	oncentration, D=Deple	ətion, RM	=Reduced Matrix, C	CS=Cov	ered or Coa	ated Sand G	Grains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SO	L INDICATORS			N. P. L.P.		The All S	INDICATORS	FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or H	istel (A1)		Alaska Gleyed	I (A13)	N		Alaska Color C	Change (TA4) ⁴
Histic Epiped	on (A2)	-	Alaska Redox	(A14)_	N	n de	Alaska Alpine	Swales (TA5)
Black Histic (A3)	- Eller	Alaska Gleyed	Pores	(A15) _ N		Alaska Redox	with 2.5Y Hue
-lydrogen Su	lfide (A4)			1	4,634		Alaska Gleyed	without 5Y Hue or Redder Underlying
Thick Dark Surface (A12)						in Notes)		
disturbed or p	r of hydrophytic vege problematic. of color change in No		e primary indicator	of wetla	and hydrolo	gy, and an a	appropriate landsca	ape position must be present unless
	ayer (if present): Typ		Frast	Depth (i	nches):/	2		30 April
		1		_	-			and the second
1	Present (Y/N):/	e						

HYDROLOGY PRIMARY INDICATO	ORS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or n	nore required)		
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)		
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10) _N	Geomorphic Position (D2) _N		
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)		
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)		
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:			
Algal Mat or Crust (B4) Other (Explain in Notes):		A Company of the second			
Iron Deposits (B5)	14 A.	1.27	the second these		
Surface Water Present (Y/N): N	Depth (in):		1 4		
Water Table Present (Y/N): Depth (in):		Wetland Hydrology Present (Y/N):			
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:			
Notes:	10 State 1	8	and all all all		

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 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): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (80-100%) 80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered 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) Image: the second s
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 Inlet/Perennial Outlet Perennial Inlet/Perennial
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Outlet Perennial Outlet Perennial Inlet/No Outlet Perennial Outlet Pe
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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/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perenninlet/Perenninlet/Perenninlet/Perennial Inlet/Perenninlet/Perennial
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Iniet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletNo Inlet/Intermittent Intermittent Interval Status Intermittent Interval Status Intermittent Interval Status Internal Inlet/Interval Stat
Iniet/Outlet Class (P): No Iniet/Outlet No Inlet/Intermittent Outlet Intermittent Iniet/Intermittent Outlet Intermittent Iniet/Intermittent Iniet/Intermittent Outlet Perennial Outlet Perennial Iniet/No Outlet Perennial Iniet/Intermittent Outlet Perennial Iniet/No Outlet Perennial Iniet/Intermittent Iniet/Intermittent Iniet/Perennial Outlet Perennial Iniet/No Outlet Perennial Iniet/Intermittent Iniet/Intermittent Iniet/Perennial Outlet Perennial Iniet/No Outlet Perennial Iniet/No Outlet Perennial Iniet/Intermittent Iniet/No Outlet Perennial Outlet Perennial Iniet/No Outlet Perennial Outlet Perennial Outlet Perennial Iniet/No Outlet Perennial Outlet Perennial Iniet/No Outlet Perennial Outlet Perennial Iniet/No Outlet Perennial Spring Perennial Spri

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Juin Brow

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>W8111048</u> Field Target: <u>15195</u>

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?
- $MA \square$ 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?
- Discrete Surface water, water table, and saturation depths are recorded if present?

5. Functions and Values

Image: 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)?
- N/A □ Two photos were taken for each Observation Point (vegetation/site overview)?

X Х 2.15 -1 Thessie Scounde Signature / Date Wetland Scientist (print)

Х

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION						Cal
	ss Road (explain)	Other (expla		Field Targe		Map #: 58 Map Date: 6+18-1
Date: 7/30/15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W8341049
Investigators: Jessie Bro	anler, Aloig	ayle ti	sher			Team No.: <i>W85</i>
State: Alaska 🚓 🦻	Region: Alaska U	\mathbf{V}	Milepost:	424.9		
Latitude: 65°10-41,18	N)	Longitude	14804	10' 24.	75"W	Datum: WGS84
Logbook No.: 02	Logbook Page No.:	24	Picture No.:	P_W851	AY049/	VEG-VEG-PIT-PLUG
SITE PARAMETERS						
Subregion: Ray Mountains	5		Landform (hil	llslope, terrace	, hummock	s, etc.): Swale
Slope (%): 3-5			Local relief (c	concave, conv	ex, none): 🥳	concare
Pre-mapped Alaska LNG/NWI classifica	tion: U.IA3		Evidence of V	Wildlife Use	Bear	Den, squirrels
Are climatic/hydrologic conditions on the Yes No(if no εxpl	site typical for this time ain in Notes)	of year?	Are "N Yes X	ormal Circum	stances" pre (If no, exp	
Are Vegetation, Soil, or Hyd	Irology Significant	tly Disturbed?	No_>	(If yes, expl		
Are Vegetation, Soil, or Hyd	Irology Naturally F	Problematic?	No X	(If yes, expl	ain in Notes	.)
SUMMARY OF FINDINGS		lle have in t			ilyii, L	and the second
Hydrophytic Vegetation Present? Yes_	X No	Is t	he Sampled A	Area within a	Wetland?	Yes NoX
Hydric Soll Preşent? Yes_	NoX		tland Type:	U		1
Wetland Hydrology Present? Yes	K No		ska Vegetatior	n Classificatio	n (Vlereck):	11 B /
Notes and Site Sketch: Please include D corridor. Swale feature that h Soils show signs of r Numerovs hydrology in from the very steep the surrounding IC	epeated = co vicators w/si banks. Vec	during s insisten ediment of plot braw in a	flooding deposi size r RUSB	elt oro events ts & dr. into po	orthing bit lac ainge f t sloa olygon.	in events. k an indicator. satterns forming

X

~50++	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes:	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC: $\frac{4}{4}$ Total Number of Dominant Species Across All Strata: $\frac{4}{4}$
Almus virinis sap. whit	105a 60	Y	Fac	Total Number of Dominant Species Across All Strata:
· Alhus viritis sap. Int. · Picea glauca	4		Facl	
3.	1			
4		-		Prevalence Index worksheet:
Total Cove				Total % Cover of: Multiply by:
50% of total cove		0% of total cov		OBL species: O X1 = O FACW species: Slo X2 = 172
Sapling/Shrub Stratum (6)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $\overline{O(o)} \times 2 = 172$ FAC species $\overline{72} \times 3 = 210$ FACU species $4 \times 4 = 16$
. Ribestriste	9	Y	Fac	UPL speciesX 5 =
2. Vaccinium vites-idada			Fac	Column Totals: 162 (A) 404 (B)
3. Rosa acicularos	T			PI = B/A =
4.	- A.	-		
5.	-	100		
6.			- 11.12	and the second se
7.				and the second se
8.				
8. 9.	- 10			
8. 9. Total Cove		% of total cov	er: 2	
8. 9.	d	0% of total cov	er:	
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan	or: <u>5</u> 20)% of total cov	er:	
8. 9. Total Cove	ts) Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan	br: <u>5</u> 20	ie wara		Dominance Test is > 50%
8. 9: Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum ()	ts) Absolute	Dominant Species?	Indicator	- → Dominance Test is > 50% - → Prevalence Index is ≤ 3.0
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum ()	ts) Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50%
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (2671) 1. Equisetum protense	ts) Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50% $\xrightarrow{\vee}$ Prevalence Index is ≤ 3.0 $\xrightarrow{\mathbb{N}}$ Morphological Adaptations ¹ (Provide supporting data in
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (2674) 1. Equisetum protense 2. A conitum delphinilfo	ts) Absolute % Cover 18 (ium) 68	Dominant Species?	Indicator Status Fac W Fac Fac Fac	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain)
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (2671) 1. Equisetum protense 2. A conitum delphinii Fo 3. Acctagrostis latifolia 4. Mertensia paniculata	ts) Absolute % Cover 18 (ium) 68	Dominant Species?	Indicator Status Fac W Faq	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (2674) 1. Equisetum protense 2. A conitum delphinii Fo 3. Acctagrostis latifolia 4. Mertensia paniculata 5. Equistitum aciense	Absolute % Cover 18 1.000 68 1	Dominant Species?	Indicator Status Fac W Fac Fac Tac SAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 I Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
8. 9: Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (<u>2674</u>) 1. Equisetum protense 2. A conitum delphiniifo 3. Acctagrostis latifolia 4. Mertensia paniculata 5. Equistitum acciense	Absolute % Cover 18 1.000 68 1	Dominant Species?	Indicator Status Fac W Fac Fac Tac	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 I Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (2674) 1. Equisetum protense 2. A conitum delphinii Fo 3. Acctagrostis latifolia 4. Mertensia paniculata 5. Equistitum aciense	Absolute % Cover 18 1.000 68 1	Dominant Species?	Indicator Status Fac W Fac Fac Fac FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unles disturbed or problematic.
 8. 9. 9. Total Coversion 50% of total coversions of total coversion of total coversion of total coverses VEGETATION (use scientific names of plan Herb Stratum (_267 ±)) 1. Equisefum protense 2. A conitum delphinii For 3. Arctagrostis htifotia 4. Mertensia paniculata 5. Equistion accentse 6. Gymnocarpium dropter 7. Trantatisempres 	Absolute % Cover 18 1.000 68 1	Dominant Species?	Indicator Status Fac W Fac Fac Fac FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic. 15 % Bare Ground ✓ % Cover of Wetland Bryophytes ✓ Total Cover of Bryophytes
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (2671) 1. Equisetum protense 2. A conitum delphinii Fo 3. Acctagrostis latitata 4. Mertensia paniculata 5. Equistium accense 6. Cymnocarpium dryopter 7. Thentaliseruppen 8.	Absolute % Cover 18 1.000 68 1	Dominant Species?	Indicator Status Fac W Fac Fac Fac FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic. 15 % Bare Ground ✓ % Cover of Wetland Bryophytes ✓ Total Cover of Bryophytes ✓ % Cover of Water
8. 9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (2671) 1. Equisetum protense 2. A conitum delphiniifo 3. Acctagrostis latitata 4. Mertensia paniculata 5. Equistium accense 6. Cymnocarpium dryopter 7. Thentaliseruppen 8. 9.	Absolute % Cover 18 10/2 68 1 7	Dominant Species?	Indicator Status Fac W Fac Fac Fac FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic. 15 % Bare Ground ✓ % Cover of Wetland Bryophytes ✓ Total Cover of Bryophytes

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SOIL BROFIL				Contraction of the Contraction o	ture l		-	10 11 11 11 11 11 11 11 11 11 11 11 11 1	Soil Pit Required (Y/N)
	1	IN: (De	escribe	to the depth needed t		ument the i	indicator or co	onfirm the absence	e of Indicators.)
Depth (inches)	Matrix		be f	Redox Features		Turnel	1	Tartura	News
	Color (moist)	10.00		Color (moist)	%	Type ¹	Loc ²	Texture	Notes
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-	100	10.00		toyR 4/1	2	Dep	MY IN		
And and a state of the state of		100		- 1743 	1.23	1.11.11			
197	1000	A Part			100		1 2 2 10		
×	13.57		13		100	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CAN DO DO DO		
		-			12	1		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
¹ Type: C=Cor	⊥ centration. D=C)epleti	on, BN	I /I=Reduced Matrix, CS	=Cov	ered or Cor	ated Sand Gr	ains ² Location:	PL=Pore Lining, M=Matrix.
	INDICATORS	opieti		- neadood maint do			alou ound un	The OTTO DOCTORNAL PROPERTY AND	FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or His	CENCIPAL DOCUMENTS	CAC.		Alaska Gleyed (/	A13)	N	A CONTRACTOR OF A CONTRACTOR A C	Alaska Color Cl	ALCONTRACTOR AND ALCONTRACTOR AND ALCONTRACTOR AND A
Histie Epipedo		_	1	Alaska Redox (A	_	N		Alaska Alpine S	
Black Histic (A	:[1	10.00	Alaska Gleyed P		(A15) N		Alaska Redox v	
	1	-		Alaska Gleyeu P	0185	(A15) <u>N</u>	_		without 5Y Hue or Redder Underlying
Hydrogen Sulf		_	1	estimate the second		Stign and	-	Layer	
Thick Dark Su			10/01	The State of the second	had	1.11		Other (Explain i	n Notes) N pe position must be present unless
disturbed or pr ⁴ Give details o	roblematic. <u>f color change ir</u> /er (if present):	n Note	s. ,			nches):			
	shaw repeat the distinct		5/gni in p	if All same col	l e lor,	text, 9 x	with laye	rs or organ	nies throughout entire
HYDROLOGY	PRIMARY INDI	CATC	DRS (a	ny one indicator is suff	licient	t) S	ECONDARY	INDICATORS (2 0	or more required)
Surface Water	(A1) <u>N</u>			face Soil Cracks (B6) _	-	Le	/ater-stained eaves (B9)	N	Stunted or Stressed Plants (D1)
High Water Ta	ble (A2) N		Inui (B7	ndation Visible on Aeria	al Ima	igery D	rainage Patte	orns (B10) Y	_ Geomorphic Position (D2) Y
Saturation (A3)	<u>N</u>		Spa Cor	arsely Vegetated ncave Surface (B8)	N		xidized Rhizo ving Roots (C	spheres/along C3) <u>N</u>	Shallow Aquitard (D3)
Water Marks (E	31)		Mar	1 Deposits (B15)			resence of Re on (C4)	educed	Microtopographic Relief (D4)
Sediment Depo	osits (B2)			trogen Sulfider	-	S	alt Deposits (C5) N	FAC-Neutral Test (D5)
Drift Deposits (B3) <u>N</u>			-Season ter Table (C2)		Ne	otes:	1. I.S.	- Anna Alta A
Algal Mat or. Cr	ust (B4)	1.13	Oth	er (Explain in Notes):	хП				ABON MAY SHARE
Iron Deposits (I	B5)		100	Le martin		26			, of the ment of the second
Surface Water	Present (Y/N):	N		Depth (in):	100				
Water Table Pr	esent (Y/N):	N		Depth (in):		Wetl	and Hydrolo	gy Present (Y/N)	:_ <u>Y</u>
Saturation Pres (includes capilla	ent (Y/N): ary fringe)	N	-	Depth (in):		EC:_	- 13	Ser -	
Notes: Swale	feature th	at re	eper:	tedly floods d	uri,	ng spri	ing meit	576	AND WE AND

AQUATIC SITE ASSESSMENT DATA FORM

1

VEGETATION VARIABLES P= Plot, M	l= Matrix
Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	ckingForested-Deciduous-Needle-leavedForested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leavedScrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leavedEmergent-Non-persistentEmergent-
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥1r	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) n) Short herb (<1m) Moss-Lichen Floating 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% Scattered/Peripheral Cover 26-75% Scattered or d or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plants	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
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
1275	
Soil Factors (P): Soil Lacking Mineral: Gravelly Mineral: Sandy	Histosol:FibricHistosol:HemicHistosol: Sapric Mineral: SiftyMineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet	No Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Outlet
wet: Perm. Flooded, Intermittently Exposed,	
Evidence of Sedimentation (P): No Eviden Created	ce 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 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	ircumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)
	Gradient (<2%) High Gradient (≥2%) ops or Springs Seeps Observed Intermittent Spring Perennial Spring
	a fit a second second
LANDSCAPE VARIABLES (M)	
Wetland Juxtaposition: Wetland Isolate Only Connected Above Connected	d Upstream & Downstream Unknown
Wetland Land Use: High Intensity (i.e., a	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) Medi	um (10-100 acres) Large (>100 acres)
Crew Chief QA/QC check: Jessie Brounder	GPS Technician QA/QC check:

wood

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: WSULHOU9 Field Target: (5/96

Date: 7/20/15

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? FOIM

2. Vegetation

- At least 80% of onsite vegetation has been keyed to species, or collected for later identification?
- K Vegetation names are entered legibly for all strata present?
- K 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

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

6. Field Logbook

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

Brownlee Х Х Signature / Date Wetland Scientist (print) Х Field Crew Chief (print) Signature / Date

SITE DESCRIPTION				
Survey Type: Centerline_X Acce	ss Road (explain) Other	(explain)	Field Target: 15497	Map #: 40 . Map Date: 6. 18.18
Date: 7/3()/15	Project Name & No.: Alaska	LNG 60418403	Feature Id:	W85LHDSO
Investigators: Tessie Br	ownles throw	46 Fisho	1	Team No.: W85
State: Alaska	Region: Alaska	Milepost:	425.3	
Latitude: (5) (1) 26.0	32 N. Longi	tude: 148°	40'51,24"W	Datum: WGS84
Logbook No.: 2	Logbook Page No.: 24	Picture No.	P-W85AYOSC	D_VEG_VEG_PIT_DI
SITE PARAMETERS	a second have been		In- State State	
Subregion: Day Mount	ain	Landform (hi	llslope, terrace, hummocks	s, etc.): shoulder slope
Slope (%): 3-5	and the second se		concave, convex, none):	Flat
Pre-mapped Alaska LNG/NWI classifica	ition: () / A Z	Evidence of	Wildlife Use: Mada	trachs
Are climatic/hydrologic conditions on the		5.62	ormal Circumstances" pre	sent:
Yes No (if no expl Are Vegetation, Soil, or Hyd	ain in Notes) drology Significantly Disturi	Yes_		plain in Notes.)
Are Vegetation, Soil, or Hyd		~ ~	(If yes, explain In Notes)	
SUMMARY OF FINDINGS	drology Naturally Problema		_ (If yes, explain in Notes	•)
Hydrophytic Vegetation Present? Yes_	XNo	Is the Sampled	Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	No <u>X</u>	Wetland Type:	U	
Wetland Hydrology Present? Yes_	<u>X</u> <u>No</u>	Alaska Vegetatio	n Classification (Viereck):	IAZ.
Notes and Site Sketch: Please include D corridor. Motore Pic Mar of Thick Feather mosso often 30 minutes Baggar	per forest 20-4 Water stonely seep LZ	o' fill n Ing in above	ith low divers - Prost but in	itz in understory operceptible amount
WESCH	who equed with uplan	nd call. J	18 9.30.15	
ISLAN ST				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	No.			n.

Page 1 of 4

VEGETATION (use scientific names of plants)			
Tree Stratum (Plot sizes: 100 ff)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species, Across All Strata: <u>5</u> (B)
1. Picea Mariana	- 99	Y	Fada	% Dominant Species hat are OBL, FACW, or FAC: 80%(A/B)
2.		/		* Dominant Species that are OBL, FACW, of FAC.
Э.		1.5.		
4.		-	_	Prevalence index worksheet:
Total Cover: 50% of total cover:		% of total cov	ər:	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum (226 H)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $69 \times 2 = 138$ FAC species $25 \times 3 = 76$ FACU species $5 \times 4 = 20$
1. Knododendrum tomento	sum 4		Fach	UPL speciesX 5 =
2. Vaccinium uliainosum	9	×	Fac	Column Totals: <u>99</u> (A) <u>233</u> (B)
alaccinium vitis-idrea	4		Fac	PI=B/A=39
4. Picea Mariana	10	Ý	Fach	
5. Gran stevenin	2		Farl	
6. Rhododenchrumaroen	andicum	Y	Fae	and the second s
7		·		1
8.			91 V.	14 m
9.	72			and the second s
Total Cover:			71	The second se
50% of total cover:	19 20	% of total cov	er: 7,0	
VEGETATION (use scientific names of plants)		allahara -	
Herb Stratum (_26 f+)	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species?	Status	Dominance Test is > 50%
1. Geriraulan lividium	3	(Y/N)	Fac()	X Prevalence Index is ≤ 3.0
	1		X	Morphological Adaptations ¹ (Provide supporting data in
2. Crimmacrostis lapponi	a.]		toc	Notes)
4.				¹ Indicators of hydric soil and wetland hydrology must be present unless
5.				disturbed or problematic.
6				
7.				% Bare Ground
8.				% Cover of Wetland Bryophytes
9.				98 Total Cover of Bryophytes
10.				% Cover of Water
t	6			Hydrophytic Vegetation Present (Y/N):
Total Cover:			12	Notes: (If observed, list morphological adaptations below):
50% of total cover:	20	% of total cov		
				the state of the s

Depth	Matrix		Redox Features		Same Lin	10 N.	confirm the absence	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
3-5			· · · · · · · · · · · · · · · · · · ·	S WATER				
5-7						Sec.		
7-9	10YR 3/2	100			-		gravelly siltion	N
7-18	104R4/3	100	A second second				armolis cittla	
8-22	107R4/3	100	1		1	1	Very gravell	siltloom & frozen
12.1	a film	10-	aproved a second se			1.00		and the second
CONTRACTOR OF THE OWNER OF THE OWNER	ncentration, D=Deple	otion, RN	I=Reduced Matrix, C	CS=Cover	ed or Coa	ated Sand G	The state of the second s	PL=Pore Lining, M=Matrix.
	LINDICATORS		No said in the lot in	Sinter	P.M.M.	1. 1991	C. V.MSACKARTHERMAN CONTRA	OR PROBLEMATIC HYDRIC SO
Histosol or Hi	10 P	1. 1	Alaska Gleyed		N	-	Alaska Color Ch	
Histic Epipedo			Alaska Redox		N	Jam		wales (TA5)
Black Histic (/		-	Alaska Gleyed	l Pores (A	15) <u>N</u>			vith 2.5Y Hue N
lydrogen Sul	fide (A4)	1 . A	-				Layer	without 5Y Hue or Redder Underly
Thick Dark Su	urface (A12)					18	Other (Explain i	n Notes)
lydric Soil P	yer (if present): Type resent (Y/N):			4 1	1	~ 4		12 10 00 0 10
lydric Soil P	resent (Y/N):			oth. N	leg X	x th	roughout. T	hixotropic souls,
Notes: Homo	resent (Y/N):	Hle	change to dep		0	1	roughout. 1 Y INDICATORS (2 (
Notes: Homo	resent (Y/N): N gonows spil w/1 (PRIMARY INDICAT	HIL I	change to dep	ufficient)	0 s	1	Y INDICATORS (2 d	
Hydric Soil P Notes: Homo Scarely , HYDROLOGN	resent (Y/N): gonous soil w/1 (PRIMARY INDICAT r (A1)N	FORS (a	ny one indicator is s face Soil Cracks (Be	ufficient)	0 S L	ECONDAR Vater-stained eaves (B9)	Y INDICATORS (2 d	or more required) Stunted or Stressed
Hydric Soil P Notes: Homo Saravely HYDROLOGN Surface Water Ta	resent (Y/N): gonous soil w/1 (PRIMARY INDICAT r (A1)N	TORS (a Sur Inu (B7 Spa	ny one indicator is s face Soil Cracks (Be	ufficient) s)N erial Image	U S V L Pry D	ECONDAR Vater-stained eaves (B9)		or more required) Stunted or Stressed Plants (D1)
Hydric Soil P Notes: Homo Saravely HYDROLOGN Surface Water Ta	resent (Y/N):	TORS (a Sur Inu (B7 Spa Cor Mai	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ae arsely Vegetated icave Surface (B8)	ufficient)) _N erial Image	U S M Pry D Li P	ECONDAR Vater-stained eaves (B9)	Y INDICATORS (2 of d	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) _
Hydric Soil P Notes: Homo Savely HYDROLOGY Surface Water High Water Ta Saturation (AS Vater Marks (resent (Y/N):	TORS (a Sur Inu (B7 Spa Cor Mai	ny one indicator is s face Soil Cracks (Be ndation Visible on Ae ursely Vegetated neave Surface (B8)	ufficient)) _N erial Image	U S W D S S S S S S S S S S S S S S S S S	ECONDAR Vater-stained eaves (B9) rrainage Pat exidized Rhiz iving Roots resence of I	Y INDICATORS (2 of d	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
Hydric Soil P Notes: Homo Savely HYDROLOGY Surface Water High Water Ta Saturation (AS Vater Marks (resent (Y/N): N gancus 5 × 1 w/1 Y PRIMARY INDICAT r (A1) N able (A2) N b) N B1) N cosits (B2) N	FORS (a Sur Inu (B7 Spa Cor Mau - Hyc Odd	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ac ursely Vegetated icave Surface (B8) 1 Deposits (B15)	ufficient)) _N erial Image	U S S S S S	ECONDAR Vater-stained eaves (B9) trainage Pat txidized Rhiz iving Roots resence of I on (C4)	Y INDICATORS (2 of d	Dr more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soil P Notes: Homo Sarrace Water HydroLOGN Surface Water High Water Ta Saturation (AS Vater Marks (Sediment Dep	resent (Y/N): N gancus 5>1 w/1 / PRIMARY INDICAT N r (A1) N able (A2) N able (A2) N B1) N cosits (B2) N (B3) N	TORS (a Sur Inu (B7 Spa Cor Mau - Hyc Odd Dry Wa	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ac arsely Vegetated ncave Surface (B8)_ 1 Deposits (B15) rogen Sulfider or (C1) -Season	ufficient)) _N erial Image /	U S S S S S	ECONDAR Vater-stained eaves (B9) rainage Pat ixidized Rhiz iving Roots resence of I on (C4) alt Deposits	Y INDICATORS (2 of d	Dr more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soil P Notes: Homo Savely HYDROLOGY Surface Water High Water Ta Saturation (AS Vater Marks (Sediment Dep Drift Deposits	resent (Y/N): N gancus 5>1 w/1 r (A1) N able (A2) N able (A2) N able (A2) N able (A2) N able (A2) N (B1) N able (A2) N rust (B4) N able (A2) N	TORS (a Sur Inu (B7 Spa Cor Mau - Hyc Odd Dry Wa	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ae arsely Vegetated icave Surface (B8) 1 Deposits (B15)	ufficient)) _N erial Image /	U S S S S S	ECONDAR Vater-stained eaves (B9) rainage Pat ixidized Rhiz iving Roots resence of I on (C4) alt Deposits	Y INDICATORS (2 of d	Dr more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soil P Notes: Homo Area Vely HYDROLOGY Surface Water High Water Ta Saturation (AS Vater Marks (Sediment Dep Drift Deposits Higal Mat or C ion Deposits (resent (Y/N): N gancus 5>1 w/1 r (A1) N able (A2) N able (A2) N able (A2) N able (A2) N able (A2) N (B1) N able (A2) N rust (B4) N able (A2) N	TORS (a Sur Inu (B7 Spa Cor Mau - Odd Dry Wa Oth	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ae arsely Vegetated icave Surface (B8) 1 Deposits (B15)	ufficient)) _N erial Image /	U S S S S N S N	ECONDAR Vater-stained eaves (B9) rrainage Pat ixidized Rhiz iving Roots resence of I on (C4) alt Deposits otes:	Y INDICATORS (2 of d	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Hydric Soil P Notes: Homo Area Vely HYDROLOGN Surface Water High Water Ta Saturation (AS Vater Marks (Sediment Dep Drift Deposits Higal Mat or C ron Deposits for Surface Water	resent (Y/N):	TORS (a Sur Inu (B7 Spa Cor Ma Hyc Odd Dry Wa Oth	ny one indicator is s face Soil Cracks (Be ndation Visible on Ae ursely Vegetated neave Surface (B8) 1 Deposits (B15) 1 Deposits (B15) 1 Deposits (B15) 1 Deposits (B15) 1 Deposits (B15) 1 Deposits (C1)	ufficient)) _N erial Image /	U S S S S N S N	ECONDAR Vater-stained eaves (B9) rrainage Pat ixidized Rhiz iving Roots resence of I on (C4) alt Deposits otes:	Y INDICATORS (2 of d	or more required) 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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Persistent Aquatic Bed 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): 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 <a> <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover <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 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/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial Outlet
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporaril, Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Solls 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 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%) 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 Below
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)A_A
Crew Chief QA/QC check: Jessie Browld GPS Technician QA/QC check: With Brage 4 of 4

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85LH050 Field Target: 15197

Date

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? Form

2. Vegetation

- It is the set the set the set of identification?
- Vegetation names are entered legibly for all strata present?
- Cover calculations are complete and correct?
- I 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

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

8. Photos

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

Х 1 3 essie Brounles Signature / Date Wetland Scientist (print) Signature / Date Field Crew Chief (print)

SITE DESCRIPTION					NO SHOW	
Survey Type: Centerline Acc	ess Road (explain)	Other (expl	ain)	Field Targ	et: 15186	Map #: <u>68</u> Map Date: 6.18.1
Date: 7/3//15	Project Name & No.:	Alaska LNG	60418403	1	Feature Id	W85LHOSI
Investigators: DRSSE Dr	ownlee, Abi,	gayle	Fisher			Team No.: W85
State: Alaska	Region: Alaska	00	Milepost:	441.8		
Latitude: 64° 56 31.06	((N)	Longitude	:14800	149.1	2"W	Datum: WGS84
Logbook No.: 02	Logbook Page No.: 4	25	Picture No.:	9-22/85	LHOSI	-VEG_YEG_PITPIC
SITE PARAMETERS		MAN STREETS	Win Swith		H. Hereiter	
Subregion: Janang - Kusko	Kwimtowland	0	Landform (hi	llslope, terrace	, hummock	s, etc.): Lowland
Slope (%): 0-3				concave, conv		flat
Pre-mapped Alaska LNG/NWI classific	ation: 254113 1	102110-	Evidence of	Wildlife Use:	Moose	frolle i
Are climatic/hydrologic conditions on th Yes No (if no exp	e site typical for this time plain in Notes)		Are "N Yes_	ormal Circums	tances" pre	sent: blain in Notes.)
Are Vegetation, Soil, or Hy		ly Disturbed?	No_X	_(If yes, expla	ain in Notes	
Are Vegetation, Soil, or Hy	drology Naturally F	Problematic?	No_X	_ (If yes, expl	ain in Notes	.)
SUMMARY OF FINDINGS			e a fanit		A novemb	
Hydrophytic Vegetation Present? Yes_	No	ls t	the Sampled A	Area within a	Wetland?	Yes No
Hydric Soil Present? Yes_	X No	We	atland Type:	PS54/	IB	
Wetland Hydrology Present? Yes_	No	Ala	ska Vegetatior	n Classification	(Viereck):	11A2, 11A3
Notes and Site Sketch: Please include I corridor.						
Stunted and dear Betil	I Ricea glaw	ca w	rollog	A wit	h wh	derstan of
Betula alandulos	a Trees Ir	2-000	1 I II	D		6 Feather moss
with Frost C 14? 5	mall amount of	ofunding	+ tall.	Dense outs	de of	Plat Moss
	0	0			10	VER AIRSON OF ST
S margine and						second states of the
Mar Print Part and	1					and a strength of the
Jed	and the second					A Standard Stranger
Mr. California						and the second sec
			1			
						and a second second
						1 C C C C C C C C C C C C C C C C C C C
2.1			1.1.1.1.1.1			Ch.
						SD/
						apr

VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot sizes: 100H)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status Fact	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 4 (A) Total Number of Dominant Species Across All Strata: 5 (B)
1. Vicea algura 2.			taer	% Dominant Species that are OBL, FACW, or FAC:(A/B)
3.		1.2.1		
4.				Prevalence Index worksheet:
Total Cove	r:			Total % Cover of: Multiply by:
50% of total cove	r: 20	% of total cov	er:	OBL species:X 1 =
Sapling/Shrub Stratum (26 (++-)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 0 $X 2 =$ 20 FAC species: 141 $X 3 =$ 423 FACU species: 182 $X 4 =$ 72
1. Salit pulchra	4		Fach	UPL species <u> </u>
2. Salix tichardsoni.	1		Fach	Column Totals: 169 (A) 515 (B) PI = B/A = 3.04
3. Betula ataneulo 5a 4. Phododendrum arcenta	30 ndiwn 20	Y.	For	Should
5. Vaccinium Vitistidaia	66	Y	Fac	Rosa acicularis T Ful
6. Vaccinium ubrinosum	3	1.	Fuc	and the second
7. Alnus viridis ssp. Frutico	56 T		Fac	
8. Betula neoalaskana	T	- 190 - P	Feel	1 at an
9. picea alauca	7		Facl	
J Total Cove				
50% of total cove	r: 62.5 20	% of total cov	er: 25	
VEGETATION (use scientific names of plant	s)			San State of the
Herb Stratum (26 FF)	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
An Press of the law	% Cover	Species? (Y/N)	Status	Dominance Test is > 50%
1. Petricites Friendus	4		Fach	Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
2. Cornus conadensis	1		FacU	Notes)
3. Equisatur arvense	3		Fac	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Calamoarostis canaden	ins 202	1	Faci	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
5. Purola aseritolia	3		Facl	
6 Pubus sp.	T		-	
7. Purola arantifolia	1		Fac	% Bare Ground
8. Rubus change more	5 1		Fach	% Cover of Wetland Bryophytes
9. Cile magrostis Lapponi	con 3		FAG	Total Cover of Bryophytes
10. Mertensia paniculato	T		Fac	Hydrophytic Vegetation Present (Y/N):
1 Total Cove				Notes: (If observed, list morphological adaptations below):
50% of total cove	r: <u>\8</u> 20)% of total cov	ver: <u>7,2</u>	Pices glassa studed with many standin dead or with very few spots of growth u
				left. Standing dead prea is also 8%

1

SOIL PROFIL	LE DESCRIPTION: (I	Describe	e to the depth neede	d to docum	nent the	indicator or	confirm the absend	ce of indicators.)
Depth	Matrix	7.1	Redox Features					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-6	7.5YR 3/2	100						Damp feather moss
6-8	10-1R 2/1	100				2	Sec. and	Damporganics
8-9	7.5YR 2.5/2	100				8 S	Silt loam	per porties
9-14	2.544/1	35	7.5YR 4/4	20		n 1962E	Silt 100m	7.5YR 9/16rganics)~5%
1 3 4	704R 4/1 1	50			A	100		() (C (((((((((((((((((
14-21	IOYA 4/1	350		(S) (1)			Siltloam	Ice lanses starting ~ 16"
184	R.514/1 1	25	7.5412 4/40	25			1.3/11 (GR/M	acce renses starting the
¹ Type: C=Co	ncentration, D=Deple				d or Coa	ated Sand G	arains. ² Location	: PL=Pore Lining, M=Matrix.
International state of the state of the	LINDICATORS		PEOF T LEAST				1	FOR PROBLEMATIC HYDRIC SO
Histosol or His	- der and the second		Alaska Gleyed	d (A13)	N		and the second sec	Change (TA4) ⁴
Histic Epipedo		-	Alaska Redox		NT N			and the second
1.1.1		-					Alaska Alpine	the second se
Black Histic (A			Alaska Gleyed	d Pores (A	15) /		and the second se	with 2.5Y Hue marginal
Hydrogen Sulf	fide (A4)						LayerN	without 5Y Hue or Redder Underlyi
Thick Dark Su	urface (A12) N						Other (Explain	in Notes)
Hydric Soll P Notes: Neg (XX throughout But was close	F. Sh se. Co	rong Con throug	Lat. 7 hole ~		pic sol	(slightly).	Docant make A3 or The 1 indicators with AZ en
Hydric Soil P Notes: Neg (J 2 9 4 Using (HYDROLOGY	resent (Y/N): Y XX throughout But wash clos 3PJ to throw PRIMARY INDICAT	F. St. se, Co 1 spi	rong Con throug nuld have dug 15 in -	hole ~	hixotra '30 a.	ECONDAR	Y INDICATORS (2	
Hydric Soil P Notes: Neg (J 2 9 4 Using (HYDROLOGY	resent (Y/N): Y XX throughout But wash clos 3PJ to throw PRIMARY INDICAT	- <i>Str</i> se, Co 1 <i>sp</i> : ORS (a Sur	ing Con throug In I have dug Is in - Iny one indicator is s face Soil Cracks (Be	hole ~ hole ~ sufficient) 6) _ N	hixotra '30 a. S U			· · · · · · · · · · · · · · · · · · ·
Hydric Soil P Notes: Neg () 2 9 4 Using (HYDROLOGY Surface Water	resent (Y/N): Y XX throughau But wash closed 3PJ to throw Y PRIMARY INDICAT r (A1) N able (A2) N	P SH Se Co Sors (a Sur Inui (B7	ing Con throug Is in - Is in - iny one indicator is s face Soil Cracks (Be indation Visible on Ar	tort. 7 hole ~ sufficient) 6) _N eñaj Image	hixotra 30 ar 30 m La	ECONDAR (ater-stained aaves (B9) rainage Pat	Y INDICATORS (2	or more required)
Hydric Soil Pi Notes: Neg (J J J J J G Using E HYDROLOGY Surface Water Ta	resent (Y/N): Y X X throughout But was clos 3PJ to throw (PRIMARY INDICAT (A1) N able (A2) N	ORS (a	ing Con throug Is in - iny one indicator is s face Soil Cracks (Be indation Visible on Ad	tort. 7 hole ~ sufficient) 6) _N eñaj Image	hixatra 30 a, 30 m U u y D	ECONDAR (ater-stained aaves (B9) rainage Pat	Y INDICATORS (2 d /	or more required) Stunted or Stressed Plants (D1)
Hydric Soll P Notes: Neg () 2 9 7 9 Using (HYDROLOGY Surface Water High Water Ta Saturation (A3	resent (Y/N): Y $X \propto Hroughand But wash closed 3 PJ to throw (PRIMARY INDICAT r (A1) N able (A2) N (Margiral)$	ORS (a Sur I spi ORS (a Sur Inui (B7) Spa Cor	ing Con throug LS in - ing one indicator is s face Soil Cracks (Be indation Visible on Ad arsely Vegetated	tort. 7 hole ~ sufficient) 6) _N eñaj Image	hixotra 30 a, 30 a, U U U U	ECONDAR (ater-staine paves (B9) rainage Pat	Y INDICATORS (2 d	or more required) Stunted or Stressed Plants (D1)
Hydric Soll P Notes: Neg () G Using (HYDROLOGY Surface Water High Water Ta Saturation (A3 Water Marks (I	resent (Y/N): Y XX throughout But was closed 3PJ to throw (PRIMARY INDICAT r (A1) N able (A2) N b) Y (Margiral) B1) N	CORS (a Sur Inuu (B7) Spa Cor Mau	ing Con throug Is in iny one indicator is s face Soil Cracks (Be indation Visible on Ar arsely Vegetated incave Surface (B8)	tort. 7 hole ~ sufficient) 6) _N eñaj Image	hi×atra 30 a, 30 a, Uu Vu Vu D Li	ECONDAR (ater-staine aves (B9) rainage Pat xldized Rhi: ving Roots resence of I	Y INDICATORS (2 d /	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic /
Hydric Soil Pr Notes: Neg (3 4 2 3 4 4 0 2 3 4 5 0 1 2 3 4 5 1 2 3 4 5 0 1 2 3 4 1 1 2 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	resent (Y/N): Y $X \times Hroughouse But washe closed 3 PJ to throw (PRIMARY INDICAT r (A1) N able (A2) N b) Y (Margiral) B1) N osits (B2) N$	ORS (a Sur Inuu (B7 Odd Mau Hyd Odd Dry	ing Con throug Log have dug Is in - iny one indicator is s face Soil Cracks (Be indation Visible on Ad arsely Vegetated incave Surface (B8) 1 Deposits (B15) _f Irogen Sulfide	tort. 7 hole ~ sufficient) 6) _N eñaj Image	hixotra 30 a, S U U U U U U U U U U U U U U U U U U	ECONDAR dater-staine eaves (B9) rainage Pat xidized Rhiz ving Roots resence of f on (C4)	Y INDICATORS (2 d /	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soil Pr Notes: Neg (2020 4020 4020 4020 4020 4020 4020 402	resent (Y/N): Y $X \times Hroughous But washe closed 3 PJ to three (PRIMARY INDICAT r (A1) N able (A2) N (A1) N (B1) N (B2) N (B3) N$	CORS (a Sur Inuu (B7) Spa Cor Mai Hyc Odd Dry Wa	ang Con throug Long Con throug Long have dug Is in - iny one indicator is s face Soil Cracks (Be ndation Visible on Ar arsely Vegetated ncave Surface (BB) 1 Deposits (B15) _f trogen Sulfide or (C1) -Season	Lat. 7 hole ~ sufficient) 6) 6) 6) efigj Image	hixotra 30 a, S U U U U U U U U U U U U U U U U U U	ECONDAR Vater-stained eaves (B9) rainage Pat xidized Rhiz ving Roots resence of I on (C4)	Y INDICATORS (2 d /	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soil Pr Notes: Neg (2020 4020 4020 4020 4020 4020 4020 402	resent (Y/N): Y $X \times Hroughous But was Closed But was Closed PT to throw (PRIMARY INDICAT r (A1) N able (A2) N MMMMMMMM$	CORS (a Sur Inuu (B7) Spa Cor Mai Hyc Odd Dry Wa	ang Con throug La have dug Is in	Lat. 7 hole ~ sufficient) 6) 6) 6) efigj Image	hixotra 30 a, S U U U U U U U U U U U U U U U U U U	ECONDAR Vater-stained eaves (B9) rainage Pat xidized Rhiz ving Roots resence of I on (C4)	Y INDICATORS (2 d /	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soil Pr Notes: Neg (2) 4 Using E HYDROLOGY Surface Water High Water Ta Saturation (A3 Water Marks (I Sediment Depo Drift Deposits (Algal Mat or Cr ron Deposits (resent (Y/N): Y $X \times Hroughous But was Closed But was Closed PT to throw (PRIMARY INDICAT r (A1) N able (A2) N MMMMMMMM$	ORS (a Sur Inur (B7) Spa Cor Mar Hydr Odd Dry Wa Oth	ang Con throug La have dug Is in	Lat. 7 hole ~ sufficient) 6) 6) 6) efigj Image	hixotra 30 a, S U U U U U U U U U U U U U U U U U U	ECONDAR Vater-stained eaves (B9) rainage Pat xidized Rhiz ving Roots resence of I on (C4)	Y INDICATORS (2 d /	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soil Pr Notes: Neg (2) 4 Using E HYDROLOGY Surface Water High Water Ta Saturation (A3 Water Marks (I Sediment Depo Drift Deposits (Algal Mat or Cr ron Deposits (resent (Y/N): Y X & Hraughan $B + Hraughan B + Hraughan P = 1 + 0 thrauP = 1 + 0 thrauP = 1 + 0$ thrau P = 1 + 0 thrau P =	ORS (a Sur Inui (B7) Spa Cor Mai Hyc Odd Dry War Oth	ang Con throug have dug in have dug in have dug in have dug face Soil Cracks (Be ndation Visible on Ad arsely Vegetated neave Surface (B8) in Deposits (B15) trogen Sulfide or (C1) -Season ter Table (C2) er (Explain in Notes)	Lat. 7 hole ~ sufficient) 6) 6) 6) efigj Image	hi×atra 30 a, 130 a, 13	ECONDAR Vater-staine eaves (B9) rainage Pat xldized Rhi: ving Roots resence of I on (C4) alt Deposits otes:	Y INDICATORS (2 d /	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)^

AQUATIC SITE ASSESSMENT DATA FORM

W85LHOS 7.31.15 **VEGETATION VARIABLES** P= Plot, M= Matrix Primary Vegetation Type (P): Vegetation Lacking_____ Forested-Deciduous-Needle-leaved___ Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Forested-Evergreen-Needle-leaved _____ Scrub Shrub-Deciduous-Needle-leaved ____ Emergent-Non-persistent Emergent-Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Aquatic Bed Persistent Percent Cover (P): Tree (>5 dbh, >6m tall) Dwarf shrub (<0.5m) $\underline{60}$ Tall herb (>1m) Short shrub (0.5-2m) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) U 23 Short herb (<1m) Moss-Lichen 100 Floating O Submerged Number of Wetland Types (M): ____ Evenness of Wetland Type Distribution (M): Even _____ Highly Uneven _____ Moderately even X Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-Very High Density (80-100%) 80%) X <25% Scattered/Peripheral Cover_____ 26-75% Scattered or Interspersion of Cover & Open Water (P): 100% Cover or Open Water_ N/A Peripheral Cover >75% Scattered or Peripheral Cover____ Plant Species Diversity (P): Low (< 5 plant species) _____ Medium (5-25 species) ____ X _ One or Few_ Presence of Islands (M): Absent (none) 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) X Vegetative Interspersion (P): Low (large patches, concentric rings)_ Moderate (broken irregular rings) High (small groupings, diverse and interspersed)_ Flat_ X HGM Class (P): Slope 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 No Inlet/Intermittent Outlet_____ No Inlet/Perennial Outlet Inlet/Outlet Class (P): No Inlet/Outlet Intermittent Inlet/No Intermittent Inlet/Intermittent Outlet_____ Perennial Inlet/No Outlet_____ Perennial Outlet Perennial Inlet/Perennial Outlet_ Inlet/Intermittent 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 Fluvaguent 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 ______
 Return Interval >5 yrs ______
 Return Interval >5 yrs ______

Degree of Outlet Restriction (P): No Outflow _____ Restricted Outflow _____ Unrestricted Outflow _____

 Water pH (P): No surface water
 X
 Circumneutral (5.5-7.4)
 Alkaline (>7.4)
 Acid (<5.5)</td>
 pH Reading

 Surficial Geologic Deposit Under Wetland (P):
 High Permeability Stratified Deposits
 Low Permeability Stratified Deposits

 Glacial Till/Not Permeable
 X

 Basin Topographic Gradient (M):
 Low Gradient (<2%)</td>
 ✓
 High Gradient (≥2%)

 Evidence of Seeps and Springs (P): No Seeps or Springs
 ✓
 Seeps Observed
 Intermittent Spring

LANDSCAPE VARIABLI	LES (M)	
Wetland Juxtaposition: Only Connected Above_		
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 acr	cres) Medium (10-100 acres) Large (>100 acres)AA	12

Crew Chief QA/QC check:

GPS Technician QA/QC check:

Jusie Brainlee

Holu

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: 1985 Field Target: 15/86

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? $\sqrt{2}$ 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?
- In 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?
- D 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 NA□ Two photos were taken for each Observation Point (vegetation/site overview)?

Wetland Scientist (print) Signature / Date

X Jessie Х Brownilee

Field Crew Chief (print)

Signature / Date

ate: 7/3(/(S	ess Road (explain) Project Name & No.: Ounlee Ab Region: Alaska	Other (explanation)	92	Field Targe	rt: <u> 5 1 % 5</u> Feature Id:	
nvestigators: <u>Jessie</u> Bi tate: Alaska	rounlee, Ab	Alaska LNG	60418403		Feature Id:	
tate: Alaska	1	rigade	Film			
	Region: Alaska		-1 prue	and the second		Team No.: W85
atitude: 64°56'29,78	Audia	00	Milepost:	441.8		Selected p f
	"N	Longitude	: 148°4	1'52.13	7"6	Datum: WGS84
ogbook No.: ())	Logbook Page No.:	25	Picture No.:	P-W8	SLHO	52-VEG_VEG_AT_R
ITE PARAMETERS				W. Alex	8.07.1	A Mary Valler H & Street
ubregion: Tanana- Kusleaku	vim Low lands		Landform (hill	Islope, terrace	, hummocks	, etc.): Swale
lope (%): 0-3	- 7 M		Local relief (c	oncave, conve	ex, none):	
re-mapped Alaska LNG/NWI classifica	ation: PSSI/EMI	B 1(2.11	A Evidence of V			
re climatic/hydrologic conditions on th es No (if no exp	ne site typical for this time plain in Notes)	of year?		nmal Circums	tances" pres	
re Vegetation, Soil, or Hy	vdrology Significant	ly Disturbed?	No_X	_(If yes, expla	in in Notes)	5
e Vegetation, Soil, or Hy	drologyNaturally P	oroblematic?	No_×	_ (If yes, expla	ain in Notes.	A March and A
JMMARY OF FINDINGS			S. M. M. W.	141-542	1.44	
vdrophytic Vegetation Present? Yes_	<u> </u>	is t	the Sampled A	rea within a V	Wetland?	Yes No
vdric Soil Present? Yes_	XNo	We	etland Type:	PEMI	SSIB	2.
etland Hydrology Present? Yes_	No	Ala	aska Vegetation	Classification	(Viereck):	111A2,1C3,
the surrounding ich minutes the imaging. When the surrounding ich minutes the imaging. Wale feature that do the PEMIE south to REMIE to the worth Much downed trees in Feature. But land dr. With slight elevation in either side.	inding PEMIE the PEMIE the AMIE the AMIE the AMIE the AMIE the AMIE the AMIE the AMIE the AMIE the AMIE the AMIE	U:1	7N C2	e, Distances f	P A J J J F	Photo Locations, and Survey

IN

Tree Stratum (Plot sizes:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:
1 10	B	(Y/N)	Ell	Total Number of Dominant Species Across All Strata:
. Vicea alaura	7	1	Facu	% Dominant Species that are OBL, FACW, or FAC:
2.				share to see the same like being the set of the like harden
3				
4.		10 0	1	Prevalence Index worksheet:
Total Cov 50% of total cov		odded 0% of total cov	er:	Protein % Cover of: Multiply by: OBL species:
Sapling/Shrub Stratum (ff)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 12 X 2 = 2 FAC species 10^{-1} X 3 = 312^{-1} FACU species 7 X 4 = 8^{-1}
1. Betula neoahstana	6	Y	Fac	UPL speciesX 5 =
2. Salix glavca	6	Y	Faci	Column Totals: 117 (A) 349 (B)
OT co de la	2		Fact	PI = B/A = 3.9%
4. Salix alcularis	2		Fach	
5.			1.004	
6.				and the second
7.	-			
8.				the second se
	3		Zu	
8. 9. Total Cov	ver: 22		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and the second sec
9.	11 F1	0% of total cov	ver: 4.4	
9. Total Cov 50% of total cov	ver: <u> </u> 20	0% of total cov	ver: 4.4	
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla	ver:/ 20	199	ver: 4.4	Hydrophytic Vegetation Indicators:
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla	ver: <u> </u> 20	Dominant Species? (Y/N)		Hydrophytic Vegetation Indicators: Dominance Test is > 50%
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla	ver:/2(ints) Absolute % Cover	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0
D. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (ACH) 1+ Calamago St. 5 (Owndo	ver:/2(ints) Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50% Prevalence Index is ≤ 3.0
P. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (ACH) 1+ Calamagostics (anado 2. Canadostics (anado 2. Canadostics (anado	ver:/ 20 ints) Absolute % Cover	Dominant Species?	Indicator Status Fac Fac	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
2. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (2014) 1= Calamagost 5 (analo 2. Canisetom proteinge 3. Chameron angust folion	ver:/ 20 ints) Absolute % Cover	Dominant Species?	Indicator Status Fac	X Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (ACA) 1. Calamagrostics (analo 2. Causeton proteinge 3. Chomeron angustifolive 4. Rubis arcticos	ver:/ 20 ints) Absolute % Cover	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Y	X Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (ACA) 1. Calamagost & Canado 2. Causeton proteinge 3. Chomeron angust folive 4. Rubis arcticos 5. Rubis arcticos 5. Rubis arcticos	ver:/ 20 ants) Absolute % Cover Absolute % Cover Absolute % Cover Absolute % Cover Absolute % Cover Absolute % Cover Absolute % Cover Absolute % Cover	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac Fac	X Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) Indicators of hydric soil and wetland hydrology must be present unless
9. Total Con 50% of total con 50% of total con VEGETATION (use scientific names of pla Herb Stratum (26 H.) 12 Calamagost 5 (anade 2. Caniseton proteinge 3. Chameren angust folive 4. Rubis arcticos 5. Phola grand folia 6. Conarun palust co	ver:/ 20 ants) Absolute % Cover ansis @0 1 1 1 1 1 1 1 3	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac SBL	X Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) Indicators of hydric soil and wetland hydrology must be present unless
9. Total Cov 50% of total cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (26 ft.) 1= Calamagost. 5 (anado 2. Canseton protectinge 3. Chameron angust. folion 4. Russis arcticus 5. Russis arcticus 5. Russis arcticus 5. Russis arcticus 6. Conarun palust. co 7. Acon. tun de prini.	ver:/ 20 ants) Absolute % Cover ansis @0 1 1 1 1 1 1 1 3	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac Fac	X Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic.
9. Total Con 50% of total con 50% of total con VEGETATION (use scientific names of pla Herb Stratum (ACA) 1= Calamagostic (anade 2. Cansetin proteinse 3. Chameron angustifolium 4. Rubis arcticus 5. Pholo grandifolia 6. Conarun palustico	ver:/ 20 ants) Absolute % Cover ansis @0 1 1 1 1 1 1 1 3	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac SBL	Commence Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic.
2. Total Con 50% of total con VEGETATION (use scientific names of pla Herb Stratum (ACH.) 1. Calamarcostis (analo 2. Canisetin proteinge 3. Chameron angustifolive 4. Russ arcticos 5. Ruga analifolia 6. Conarun palustre 7. Aconitum de princint 8. 9.	ver:/ 20 ants) Absolute % Cover ansis @0 1 1 1 1 1 1 1 3	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac SBL	X Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic.
9. Total Con 50% of total con VEGETATION (use scientific names of pla Herb Stratum (ver:// 20 ants) Absolute % Cover 0n<1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac SBL	X Dominance Test is > 50% Y Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes

SOIL	A COLORADO AND A COLO		Date F	Sector Sector Sector	WESLI	and the second list	12.4		
SOIL PROFIL	E DESCRIPTION	Deparih	and the second s	eature I			Lettres 2 all	Soil Pit Require	ed (Y/N)
D	E DESCRIPTION: (Matrix	Describe	Bodey Frat	d to doc	ument the	indicator or	confirm the absend	e of indicators.)	
Depth (Inches)			Redox Features	-		1		1. A.	and a
	Color (moist)	%	Color (moist)	%	Турө ¹	Loc ²	Texture	Notes	4
6-3		-					2	ALC: NO	and the second
3-6	20111	01	0		1.00			1996 S	A State
6-30	2.544/1	98	2.54 5/4	2	(OA	m	silt loan	Con only & interface u	lorganic laye
10-24	54 1/1	100			7		siltloam		
		11.		2.5		11.7		A CONTRACTOR OF THE	T. Mite And
-		12.13	A State State		-			1. 1.	
Times C. Can			224	X		TOR DO	-		a :
Type: C=Con	ncentration, D=Deple	etion, RN	I=Reduced Matrix, C	CS=Cove	red or Coa	ated Sand G	rains. ² Location:	PL=Pore Lining, M=Matrix	ĸ. 🦷
Contraction of the second second	INDICATORS	100	C.H. M. R. S. S. S.	19	1.1	nx te S	INDICATORS	FOR PROBLEMATIC HYD	RIC SOILS3
Histosol or Hist		1.11	Alaska Gleyec	I (A13) _	N		Alaska Color C	hange (TA4) ⁴	1.1
Histic Epipedor			Alaska Redox	(A14)	N	-C	Alaska Alpine S	Swales (TA5)	alter alter
Black Histic (A:	3) <u> </u>		Alaska Gleyed	Pores (A15) N	11 - A (* 5	Alaska Redox	with 2.5Y Hue	THE REAL PROPERTY AND
Hydrogen Sulfi	ide (A4)			4. 20 3	1		the discount of the second sec	without 5Y Hue or Redder	Underlying
Thick Dark Sur	face (A12)	-		1.1	1	-	LayerN	and the state of t	
		ation, or	A primary indicator	of wotlon	d budrolo	ur and an a	Other (Explain	in Notes) pe position must be presen	1.10
			o primary indicator	or wettar	α Ηγαιοιοί	yy, and an a	ppropriate landsca	pe position must be presen	t unless
Give details of Restrictive Lave	f color change in Not er (if present): Type	es.	Frast r			ort	And the second		TT SILY S
riseineure Luye	or (in present). Type	·/	TIDAT	Jeptn (ind	ches):	24			C. S. C. C.
Hydric Soil Pre	esent (V/N). Y		A CONTRACTOR			ALC: NO			1045-1
						110			
Notes: Paciti		w gho	A mineral	. No c	oncentra	hons due	to ablertat	te @ such as the	1
	ive XX three season and the	100		100	and the second s	15		le C surface thron o make soils,	ghost
HYDROLOGY	ive XX three season and then PRIMARY INDICAT	100		100	and the second s	15	INDICATORS (2 0		ghort
HYDROLOGY I Surface Water (PRIMARY INDICAT	ORS (an Surfa	y one indicator is su ace Soil Cracks (B6)	ufficient)	SE W	15			ghort
HYDROLOGY F Surface Water (PRIMARY INDICAT	ORS (an Surfa	y one indicator is su	ufficient)	SE W.	CONDARY		or more required) Stunted or Stressed	
HYDROLOGY F Surface Water (High Water Tabl	PRIMARY INDICAT	ORS (an Surfa Inuna (B7) Spar	y one indicator is su ace Soil Cracks (B6)	ufficient)	ery Dr.	ECONDARY ater-stained aves (B9) ainage Patte idized Rhizo ing Roots (C	INDICATORS (2 d	or more required) Stunted or Stressed Plants (D1)	(D2)
HYDROLOGY F Surface Water (High Water Tabl Saturation (A3) Water Marks (B1	ive XX three PRIMARY INDICAT (A1) X X X X X X X X X	ORS (an Surfa Inuna (B7) Spar Conc Marl	y one indicator is su ace Soil Cracks (B6) dation Visible on Ae sely Vegetated eave Surface (B8) Deposits (B15)	ufficient)	ery Dr Ox Liv Pro	ECONDARY ater-stained aves (B9) ainage Patte	INDICATORS (2 d	or more required) Stunted or Stressed Plants (D1) Geomorphic Position	(D2)
HYDROLOGY F Surface Water (High Water Tabl Saturation (A3) Water Marks (B1	ive XX three PRIMARY INDICAT (A1) X X X X X X X X X	ORS (an Surfa Inuna (B7) Spar Conc Marl	y one indicator is su ace Soil Cracks (B6) dation Visible on Ae Sely Vegetated eave Surface (B8) Deposits (B15) ogen Sulfide	ufficient)	ery Dr. Ox Liv Pro	ECONDARY ater-stained aves (B9) ainage Patte idized Rhizo ing Roots (C asence of Re	INDICATORS (2 d	or more required) Stunted or Stressed Plants (D1) Geomorphic Position Shallow Aquitard (D3 Microtopographic	(D2)
HYDROLOGY I Surface Water (High Water Tabl Saturation (A3) Water Marks (B1 Sediment Depos	ive XX three season and then PRIMARY INDICAT (A1) (A1) (A2) 1) sits (B2)	ORS (an Surfa Inuna (B7) Spar Conc Mari Hydra Odor Dry-S	y one indicator is su ace Soil Cracks (B6) dation Visible on Ae Sely Vegetated eave Surface (B8) Deposits (B15) ogen Sulfide	ufficient)	ery Dr. Ox Liv Pri Iro Sa	ECONDARY ater-stained aves (B9) alnage Patter idized Rhizc ing Roots (C esence of Re n (C4)	INDICATORS (2 d	Dr more required) Stunted or Stressed Plants (D1) Geomorphic Position Shallow Aquitard (D3 Microtopographic Relief (D4)	(D2)
HYDROLOGY I Surface Water (High Water Tabl Saturation (A3) Water Marks (B ¹ Sediment Depos	ive XX three season and then (A1) (A1) (A1) (A2) (A2) (A2) (A2) (A2) (A2) (A3)	ORS (an Surfa Inum (B7) Spar Conc Marl Hydra Odor Dry-S Wate	y one indicator is su ace Soil Cracks (B6) dation Visible on Ae sely Vegetated cave Surface (B8) Deposits (B15) ogen Sulfide (C1) Season	ufficient) 	ery Dr. Ox Liv Pri Iro Sa	ECONDARY ater-stained aves (B9) ainage Patter idized Rhizc ing Roots (C esence of Re n (C4) It Deposits (INDICATORS (2 d	Dr more required) Stunted or Stressed Plants (D1) Geomorphic Position Shallow Aquitard (D3 Microtopographic Relief (D4)	(D2)
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	ive $X X$ three PRIMARY INDICAT (A1) (A1) (A1) (A2) 1) sits (B2) (B2) (B4) (B4) (Y/N): Y	ORS (an Surfa Inuna (B7) Spar Conc Marl Hydra Odor Dry-S Wate Other	y one indicator is su ace Soil Cracks (B6) dation Visible on Ae sely Vegetated cave Surface (B8) Deposits (B15) Ogen Sulfide (C1) Season r Table (C2)	ufficient) 	ery Dr Ox Liv Pro Sa No	ECONDARY ater-stained aves (B9) ainage Patter idized Rhizc ing Roots (C esence of Re n (C4) It Deposits (C tes:	INDICATORS (2 d	Dr more required) Stunted or Stressed Plants (D1) Geomorphic Position Shallow Aquitard (D3 Microtopographic Relief (D4) FAC-Neutral Test (D5	(D2)
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AQUATIC SITE ASSESSMENT DATA FORM

W85LHOSZ 7-31-15

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 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) Tall herb (≥1m) Short herb (<1m) Moss-Lichen Floating Submerged
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%) Every High Density (80-100%) Ever
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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) X Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Variabeled Soil Factors (P): Soil Lacking Histosol: Fibric Histosol: Hemic Mineral: Gravelly Mineral: Silty Mineral: Gravelly Mineral: Silty
HYDROLOGIC VARIABLES
iniet/Outlet Class (P): No Inlet/Outlet <u>//</u> No Inlet/Intermittent Outlet No Inlet/Perennial Outlet <u>Intermittent Inlet/No</u> Outlet <u>Intermittent Inlet/Intermittent Outlet</u> <u>Intermittent Inlet/Perennial Outlet</u> <u>Perennial Inlet/No Outlet</u> <u>Perennial Inlet</u>
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. FloodedX
Evider.ce 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 K. Return Interval 1-2 yrs Return Interval 2-5 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 5.04
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Glacial Till/Not Permeable
Besin Topographic Gradient (M): Low 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 Only Connected Below
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) A /

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85/H052

Field Target:

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

1. Site Description

- ${f Q}'$ 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?
- Sover calculations are complete and correct?
- > All dominant species have been determined and recorded per strata?
- Dindicator 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

- Depropriate 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

- Ø 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)?

Х 0 Signature / Date Wetland Scientist (print)

7.31.15 Х Brownlee Х

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION		ANE DOD			- Al Carl		
Survey Type: Centerline \times Acces	ss Road (explain)	Other (expla	aln)	Fleid Targe	et:15184	Map #: 68 Map Date: 6.1815	
Date: 7/3//15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W8514053	
Investigators: Jessie Bro	unlee, this	aute F.	sher		2	Team No.: W85	
State: Alaska	Region: Alaska 💛	J	Milepost:	441.8			
Latitude: 64°56'32.78	<i>"N</i>	Longitude	148.41	59.81	W	Datum: WGS84	
Logbook No.:	Logbook Page No.:	25	Picture No.:	.P_W850	HOS3.	VEG_VEGJAT_PLUG	
SITE PARAMETERS	And The Party of the All	COV 115	An Viel Int				
Subregion: Janana= Kus	Kolivin Loi	Jarde	Landform (hill	Islope, terrace	e, hummocks	s, etc.): lewland	
Slope (%): 0-3	191		Local relief (c	oncave, conv	ex, none): d	Plat	
Pre-mapped Alaska LNG/NWI classifica	tion: PFO4B, 1A	2	Evidence of V	Vildlife Use:	NO		
Are climatic/hydrologic conditions on the YesNo(if no expl	slte typical for this time ain In Notes)	of year?	Are "No Yes	ormal Circums		sent: blain in Notes.)	
Are Vegetation, Soil, or Hyd	Irology Significanti	y Disturbed?	No X	(If yes, expl	ain in Notes)		
Are Vegetation, Soil, or Hyd	rology Naturally P	roblematic?	No_X	_ (If yes, expl	lain in Notes	.)	
SUMMARY OF FINDINGS	8 8 M 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Ball Silve		de anti-		
Hydrophytic Vegetation Present? Yes_	No	Is ·	Is the Sampled Area within a Wetland? Yes No				
Hydric Soil Present? Yes_	No	We	etland Type:	U			
Wetland Hydrology Present? Yes_	<u> </u>	— Ala	aska Vegetation	n Classificatlo	n (Viereck):	IAZ	
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Mahree open Pic Glaforest w/ trees 30-46' till, understory & rose and Cal Can. Veg & Soils do not make indicator and hydrology does only based on 2 weak secondaries. Small R45B was on edge & mored Polygon and drawn on Map							

Page 1 of 4

Tree Stratum (Plot sizes: 100 ff. 1. Picea glauca 2. Alhus viridis ssp. forfice	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
A lack of the con		(Y/N)	Juno	No. of Dominant Species that are OBL, FACW, or FAC: (A
"Almons which's ssin. fouture	35	Y	Fac	Total Number of Dominant Species Across All Strata:
	pa 3	1.	tac	% Dominant Species that are OBL, FACW, or FAC: (A/E
3.				
4.				Prevalence Index worksheet:
Total Cove	r:{%		11	Total % Cover of: Multiply by:
50% of total cove	r: <u>\</u> 20	% of total cov	ver: 7.6	OBL species:X 1 =
Sapling/Shrub Stratum (26 H)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: χ χ $2 = 4$ FAC species 55 χ $3 = 165$ FACU species 62 χ $4 = 348$
· Rosa acicularia	12	Y	Fac	UPL speciesX 5 =
Vaccinium vitis-dae	2		Fac	Column Totals: 119 (A) 402 (B)
Betula negalaskan		Y	Facili	PI = B/A = 3.60
. Bhododendrum tomento		1	Farld	and a second
· Phochdondrum aroun	1 1 211	1	Fac	
Picea Marica	1 y		Facl	
Salix pulchra	Í		Facul	
lr.	1) =2 ³ h	101 20	A set and the set of the
		·		the second second second
Total Cove	r: 4(e	
50% of total cove	r: <u>205</u> 20	% of total cov	er: 6.7	
EGETATION (use scientific names of plant	s)		19. J. 182.	WHAT IS AN ARROW TO A MARKED
lerb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Cornus canadensis	10	У	Fach	Prevalence Index Is ≤ 3.0
2. (namerion and ust. Fal	-		Facl	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Rubus arcticus	2		Fac	Problematic Hydrophytic Vegetation ¹ (Explain)
+ Equisetum acvenso	2		Fac	¹ Indicators of hydric soil and wetland hydrology must be present unless
. Calangarostis canadon	5 29	Y	Fac	disturbed or problematic.
3.				
				% Bare Ground
3.	-		4	Cover of Wetland Bryophytes
Э.				Total Cover of Bryophytes
0.				Water Wydrophytic Vegetation Present (Y/N):
Total Cover	: 40		1	Notes: (If observed, list morphological adaptations below):
	. 20 00	% of total cove	ar f	
50% of total cover	20	70 OI LOLAI COVI	U	

SOIL	, 요즘 아이는 영국적 다		DateF	eature I	D			Soil Pit Required (Y/N)
SOIL PROFI	LE DESCRIPTION:	(Describe	to the depth neede	ed to doc	ument the	indicator or co	onfirm the absence	e of indicators.)
Depth	Matrix		Redox Features					1 434
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-3	and the second second							Dry feather moss
3-5						Contraction of the	10	Dry organics
5-13	10%R 4/2	105	7.5 YR 2.3/3	10	con	MRC	-Silfloan	Diting 2 Band from 9-11
÷ .			2.51 3/1	5	Dep	m		
13-15		(- I - I -	10 - 10 - 10 - 10				The -	ornamics + charcoal
15-21	2.575/a	85	7.5124/6	15	Con	M	Silt loom	Matrix color is PM related, PG
	1.	1			100 million (1997)	-	1. 2. 2.	structure,
¹ Type: C=Co	oncentration, D=Depl	etion, RN	I=Reduced Matrix,	CS=Cov	ered or Co	ated Sand Gr		: PL=Pore Lining, M=Matrix.
HYDRIC SOI	LINDICATORS			Red and	17.017 C		INDICATORS	FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or H			Alaska Gleye	Alaska Gleyed (A13)			Alaska Color Change (TA4) ⁴	
Histic Epiped	lon (A2)		Alaska Redo	x (A14) _	N	1	Alaşka Alpine	Swales (TA5)
Black Histic (A3)		Alaska Gleye	d Pores	(A15)	<u> </u>	the second se	with 2.5Y HueN
Hydrogen Su	lfide (A4)	-		124	2.5	5	Alaska Gleyed Layer	without 5Y Hue or Redder Underlying
Thick Dark Surface (A12) N							Other (Explain	in Notes)
disturbed or µ ⁴ Give details Restrictive La	or of hydrophytic veg problematic. of color change in N ayer (if present): Typ Present (Y/N):	otes pe: fros		Depth (i	nches):_/	2-13	- \	ape position must be present unless

HYDROLOGY PRIMARY INDICATOR	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)			
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained N Leaves (B9) N	Stunted or Stressed Plants (D1)		
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)		
Saturation (A3)	Sparsely Vegetated Concave Surface (B8) N	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)		
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	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)N	1 and part of		Setting a set of		
Surface Water Present (Y/N):	Depth (in):		V		
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):			
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:			
Notes:	2 January A.	-1218	S. C. S. X. S.		

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 Forested-Deciduous-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): 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%) Event
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover <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 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 Pringe 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/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennia
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%)
Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring Perenn
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Only Connected Below
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)A

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID:

Field Target: 15184

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

1. Site Description

 \mathcal{M}_{A} Site description, site parameters and summary of findings are complete? \mathcal{M}_{A} 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?
- D 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

- T 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

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

< 3 a

Signature / Date Wetland Scientist (print) 7.31.15 Browner

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION				And the second second
Survey Type: Centerline Acce	ss Road (explain) X Oth	er (explain)	Fleid Target: 15313	Map #: 89 Map Date: 6/15
Date: 7/31/15	Project Name & No.: Alas	ska LNG 60418403	Feature Id	WESTHORY
Investigators: Jessie Bro	sunlee, Abiaa	ule Fichor		Team No.: N85
State: Alaska	Region: Alaska	Milepost:	467.8 (off	ROW
Latitude: 6403835.60	Lo	ngltude: 1490 (12.43.84	Datum: WGS84
Logbook No.:	Logbook Page No.:	S Picture No.	PANSSLHOB	4 NEG_VEG-PT-PLU
SITE PARAMETERS		And Detroit of the		1,2002120411-1P01
Subregion: Law Mary	ntains	Landform (hl	llislope, terrace, hummock	s, etc.): Lowland
Slope (%): 0.3	CT LOW 5			Flat
Pre-mapped Alaska LNG/NWI classifica	tion: () 1R2			tropping
Are climatic/hydrologic conditions on the		ar? Are "N	lormal Circumstances" pre	sent:
Yes No (if no expl Are Vegetation, Soil, or Hyc	ain in Notes) Irology Significantly Dis	Yes_	/	plain in Notes.)
Are Vegetation, Soil, or Hyd			(If yes, explain in Notes	and the second
SUMMARY OF FINDINGS		matic? No	(If yes, explain in Notes	.)
Hydrophytic Vegetation Present? Yes_	X No	Is the Sampled A	Area within a Wetland?	Yes No
Hydric Soil Present? Yes	XNo	Wetland Type:	PFOIB	
Wetland Hydrology Present? Yes	<u>× </u>	Alaska Vegetation	n Classification (Viereck):	IBZ .
Notes and Site Sketch: Please include D corridor. Tall open Bet Neo for besides for Cal Can frost @ 24. Hydrology water with depressions helicopter the forest. Map was used to up when topo to draw	est with a few . Forest is wet a had water table at with little to Nog showed large pat	Pic Gla. Lou despite veg. "6" Forest rowth & vater cheo of st rownding co	Soils were own Soils were own floor showed S r stained leaves maling water	isity understory 20" g organics of igns of long standing on Fly by in
				OIL

Page 1 of 4

VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot sizes: 100-44)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B)
1. Betula regalast	ana so	Y	Fach	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: (A/B)
2. Picea Maura	13	Y	Fael	% Dominant Species that are OBL, FACW, of FACAD
3.	199	-		
4.		-		Prevalence Index worksheet:
Total Cover 50% of total cover		% of total cov	er: Dif	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum (26 ft)	Absolute % Cover	Dominant Špecies? (Y/N)	Indicator Status	FACW species: $5 \times 2 = 10$ FAC species $36 \times 3 = 366$ FACU species $36 \times 4 = 109$
1. Salix Julchor	4		Fach	UPL speciesX 5 =
	iosa 6	4	Fac	Column Totals: 153 (A) 480 (B)
3. Pirea alauch	G.	Y	tail	PI = B/A = 3, 14
4. Betula neoalastane	4	Z	Facu	
5. Betula alandulosa		1.1.2	Fac	
6. Salix videordsonii	v Yes	n=	Fich	and the second sec
7.			-	. 7.0
8.	2.12.1	1		and the second
9.		1		12 million and an annual
Total Cover 50% of total cove	V	% of total cov	er: <u>4</u> ,	
VEGETATION (use scientific names of plant	s)	The state	22010	
Herb Stratum (Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤ 3.0
1. Colamoarostis canad	ensis60	Y	Fac	\mathcal{N} Morphological Adaptations ¹ (Provide supporting data in
2. Rubus arcticul	2	Sheer a	Farl	Notes)
3. Chamerion anaust.	-dium 2		Fact	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Cornus canadensis	T		Facu	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. >	(1.1	disturbed or problematic.
6.	-192		1, 15	
7.				% Bare Ground
8.				% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.		-		% Cover of Water Hydrophytic Vegetation Present (Y/N):
Total Cove	<u> </u>		,	Notes: (if observed, list morphological adaptations below):
50% of total cove	r: <u>34.5</u> 20	% of total cov	ver: 13.8	
T 2" "*				

		-	7:31-15	10	W85L	4054		Y	
SOIL			CARD NAME	ature I	11.2		19 B. J. MA	Soil Pit Required (Y/N)	
SOIL PROFIL	E DESCRIPTION: (Describe	to the depth needed	to doc	ument the in	dicator or o	confirm the absence	e of indicators.)	
Depth	Matrix		Redox Features						
(inches)	Color (moist)	%	Color (moist)	.%	Type ¹	Loc ²	Texture	Notes	
0-20			6					organics (thick & dense	
					1 A.S. "	2.00	1. N. N.	1 Compart Danse	
		1.	1.2	1915	- Sub-row	1	7	- 3 m - m	
in the second	in .			100	3			2	
1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-							10	19 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
and the second	10.00		A 11				- Starte - Marine	895 Sell 9	
					1 APR	1000		The second se	
Type: C=Con	centration, D=Deple	etion, RN	-Reduced Matrix, C	S=Cove	ered or Coat	ed Sand G	rains. ² Location:	PL=Pore Lining, M=Matrix.	
YDRIC SOIL	INDICATORS			1.5.0	NET 331		The second s	OR PROBLEMATIC HYDRIC SOILS	
listosol or Hist	tel (A1)	-	Alaska Gleyed	Alaska Gleyed (A13)			Alaska Color Change (TA4) ⁴		
listic Epipedor	n (A2)		Alaska Redox-	Alaska Redox (A14)			Alaska Alpine Swales (TA5)/		
lack Histic (A:	3)		Alaska Gleyed	Alaska Gleyed Pores (A15)			Alaska Redox with 2.5Y Hue _ N		
lydrogen Sulfi	de (A4)	1					Alaska Gleyed without 5Y Hue or Redder Underlying		
hick Dark Sur	face (A12)					1 2 2 2 2	Other (Explain in Notes)		
isturbed or pro	of hydrophytic vege oblematic. f color change in No		ne primary indicator o	of wetla	nd hydrology	/, and an a	ppropriate landscap	pe position must be present unless	
lestrictive Lay	er (if present): Type	e: hros	5 <u>7</u> D	epth (ir	nches): 📿	9		the second states	
ydric Soil Pro	esent (Y/N):			·	Ø n I	л ₁₂	s		
lotes:				8	1.1.1.1		4	Ping	
	All		1.00						
		18							

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)			
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)		
High Water Table (A2)	Inundation Visible on Aerial Imagery	Drainage Patterns (B10)	Geomorphic Position (D2)		
Saturation (A3)	Sparsely Vegetated	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)		
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)		
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:			
Algal Mat or Crust (B4)	Other (Explain in Notes):	da in the second			
Iron Deposits (B5)	1 . A . W.		The second second		
Surface Water Present (Y/N):	Depth (in): 4-5	· · · · · · · · · · · · · · · · · · ·	1		
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):	<u>y</u>		
Saturation Present (Y/N):	Depth (in):	EC: 200	5.2pH		
Notes:		1			

AQUATIC SITE ASSESSMENT DATA FORM

	7.31.15	WOSLHOSY	- A
VEGETATION VARIABLES P= Plot, I	Λ= Matrix		
Primary Vegetation Type (P): Vegetation L Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	Scrub Shrub-Deciduous-Needle-leaved	Scrub Shrub-Deciduou	us-Broad-leaved
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥1	63 Sapling (<5 dbh, <6m tail) 9 m) 65 Short herb (<1m) 4	Tall shrub (2-6m) Moss-LichenO Floatin	Short shrub (0.5-2m) gSubmerged,
Number of Wetland Types (M):	Evenness of Wetland Type Distributio	n (M): EvenHighly Unev	enModerately even 🧖
Vegetation Density/Dominance (P): Sparse 80%) Very High Density (80-100%)	(0-20%) Low Density (20-40%)	Medium Density (40-6	0%) High Density (60-
Interspersion of Cover & Open Water (P): Peripheral Cover >75% Scattered	100% Cover or Open Water of or Peripheral CoverX N/A	<25% Scattered/Peripheral Cove	r 26-75% Scattered or
Plant Species Diversity (P): Low (< 5 plant	species) Medium (5-25 species	s)X High (>25)	
Presence of Islands (M): Absent (none)			
Cover Distribution of Dominant Layer (P): Open Small Scattered Patches	No Veg Solitary, Scattered Sta Continuous Cover	ems 1 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 interspers	patches, concentric rings) Mo ed)	derate (broken irregular rings)	
HGM Class (P): Slope Flat	Lacustrine Fringe Depression	nal Riverine	Estaurine Fringe
SCIL VARIABLES	CAN DE SMITH STATE		
Soil Factors (P): Soil Lacking	Histosol:Fibric Histosol:Hemic Mineral: Silty Mine	Histosol: Sapric ral: Clayey	
HYDROLOGIC VARIABLES			
Inlet/Outlet Class (P): No Inlet/Outlet X Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial I	Outlet Intermittent Inlet/Perenn		
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, 3	onally Flooded, Temporarily Flooded, Satu Semiperm. Flooded	urated	
Evidence of Sedimentation (P): No Eviden	ce Observed Sediment Observe	ed on Wetland Substrate	Fluvaquent Soils Sediment
Micrcrelief of Wetland Surface (P): Absent	Poorly Developed (6in.)	Well Developed (6-18in.)	Pronounced (>18in.)
Frequency of Overbank Flooding (P): No O Return Interval >5 yrs	verbank Flooding X Return Interv	al 1-2 yrs Return Inte	erval 2-5 yrs
Degree of Outlet Restriction (P): No Outflow		Unrestricted Outflow	
Water pH (P): No surface water C			pH Reading <u>5.20</u>
Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable	P): High Permeability Stratified Deposits_	Low Permeability Stra	tified Deposits
Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See	Gradient (<2%) High Gradient (Derespiel Casing
Evidence of Geeps and Springs (F). No See	ps or Springs Seeps Observed	Intermittent Spring	Perennial Spring
LANDSCAPE VARIABLES (M)	STATISTICS STRUCTURE	Vienter Providence	
Wetland Juxtaposition: Wetland Isolate		connected Only Conn	ected Below
Wetland Land Use: High Intensity (i.e., a	ag) Moderate Intensity (i.e., fo	restry) Low Intensity	(i.e. open space)
Watershed Land Use: 0-5% Rural	5-25% Urbanized 25-50%	% Urbanized >50% L	Irbanized
Size: Small (<10 acres) Medi	um (10-100 acres) Large (>100	acres) AA o	1

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.

Feature ID: WESLHOSS Field Target: 15313

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

1. Site Description

 \square Site description, site parameters and summary of findings are complete? \square 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?
- D 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?
- Dindicator status is correct for each species?
- Dominance Test and Prevalence Index have been completed?

3. Soil

- Discrimination Solid profile is complete?
- Appropriate hydric soil indicators are marked?

4. Hydrology

- Appropriate hydrology indicators are marked?
- Discrete 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

- Ø 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)? 1. o po

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

15 Signature / Date Wetland Scientist (print)

31.15 X < Brownlee 7. endie

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION			A. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. S.	Sand Street of S	
1	ss Road (explain)	Other (expla	ain)	Field Targ	et: 5169	Map #: <u>\$7_</u> Map Date: <u>6-18-1</u>
Date: 4 11/15	Project Name & No.:	1	4 100			WESLHOSS
0111	i ounles,	Abian	10	Lac		Team No.: W 8 5
State: Alaska	Region: Alaska	ange	Milepost:	469.5	5	W 8 S
Latitude: 64.037 14,44"	N	Longitude	:149005	13.81		Datum: WGS84
Logbook No.: (7]	Logbook Page No.:	26	Picture No.:			WEG NEG_PIT
		ole		1-1	65/14055	AFONCO-MI
SITE PARAMETERS	Inst. for the state	1. 10. 10. 10.			W ALL	
Subregion: Tanama - Kuskol	Kwim lowlands		n	_		s, etc.): Louised
Slope (%): 0-3			Local relief (c	_	. 1	
Pre-mapped Alaska LNG/NWI classifica	122112,002	32,110	Evidence of V	-	· · · · · · · · · · · · · · · · · · ·	
Are climatic/hydrologic conditions on the Yes <u>No</u> (if no expl	e site typical for this time ain in Notes)	of year?	Are "No Yes		stances" pre (If no, exp	sent: blain in Notes.)
Are Vegetation, Soil, or Hyd	drology Significant	ly Disturbed?	No_;>_	_(If yes, exp	lain in Notes)	
Are Vegetation, Soil, or Hyd	drology Naturally P	roblematic?	No_>	_ (If yes, exp	plain in Notes	.)
SUMMARY OF FINDINGS		Startes	25 Swales		matter	
Hydrophytic Vegetation Present? Yes_	No	Is	the Sampled A	area within a	a Wetland?	Yes No
Hydric Soil Present? Yes_	No	w	etland Type:	PFOI	SSIA	and the second
Wetland Hydrology Present? Yes_	No	Ala	aska Vegetatior	n Classificatio	on (Viereck):	183,1132
corridor. Bet Neo Woodland a hydrotogy indicators. Polygon is likely v	with dense win Soilstands rep Mosale but	dans long quater majori	of ful subvation	l shrul n from t is u	s. Mary 12" to	depth.
W. Sonta Company						
				4		
	12					
						4.
	• x	4	1 ⁻¹⁴⁷ 1	14.0		DAL

VEGETATION (use scientific names of plant	State of the state			
Tree Stratum (Plot sizes: 106-FF_)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: $\frac{4}{15}$ (A)
1. Betula negalaskana	15	7	tacil	Total Number of Dominant Species Across All Strata: $\frac{9}{2}$ (B)
2. Picea Mauca	3	- 10 M	Fael	% Dominant Species that are OBL, FACW, or FAC: $\underline{\mathscr{SO}}$ (A/B)
3.				한 것 같은 것 같은 것 같은 것 같이 많 것 같이 것 같이 것 같이 것 같이 것 같이 것 같이 것
4.	-			Prevalence Index worksheet:
Total Cover	18			Total % Cover of: Multiply by:
50% of total cover	r: <u>9</u> 20	% of total cov	er: <u>3.6</u>	OBL species: $X_1 = \frac{7}{7}$
Sapling/Shrub Stratum (Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $19 \times 2 = 38$ FAC species $74 \times 3 = 222$ FACU species $9 \times 4 = 36$
1. Murica gale	43		OBL	UPL species X 5 =
2. Ros acicularis	5	Y	Facil	Column Totals: 109 (A) 299 (B)
3. Salix pulchra	12	Y	Fach	PI = B/A = 2,85
4. Chanaiedaphae calue	plata 5	Y	Fach	
5. Chadadendrum groenland	tim 2.	2-11	Fac	
6. Betula alandulosa	4	199 - Y	Fac	a water and the product data and the product of the
7. Picea alterca			Facl	
8. Vaccinium uliginosum	3		Fac	
9. Salix richardsoni	1 2		Fach	and the second strategy and the second
Total Cover 50% of total cover	110	% of total cov	er: 7,4	
VEGETATION (use scientific names of plant:			in particula	and the state of the
Herb Stratum (26145	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species? (Y/N)	Status	Dominance Test is > 50%
1. Calamagrostis canade	nsis 56	Y	Fac	Prevalence Index is ≤ 3.0 ¹⁷
2 Purola Vage into Lives	T		Facil	Morphological Adaptations ¹ (Provide supporting data in Notes)
3Erou. setur pratense	T		Fach	Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must be present unless
5.	i Le ci			disturbed or problematic.
6.	4.			
7.				% Bare Ground
8.	1. W. C. C.		$- \in V$	% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.		i. 0.		% Cover of Water
Total Cover	: 50			Hydrophytic Vegetation Present (Y/N):
50% of total cover	:_25_ 20	% of total cov	er 26	Notes: (If observed, list morphological adaptations below): Dead willow & BetNEO ~ 5% collectionely

Oi Bu Bg

			Date Fe	ature II				Soil Pit Required (Y/N)
OIL PROFIL	E DESCRIPTION: (Describe	to the depth needed	to docu	ument the	indicator or co	onfirm the absend	ce of indicators.)
Depth	Matrix		Redox Features			Real to all		
inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-4			- AL			1 1		Dry arganics w/Hin band of Auvial Se
1-12	107R 3/2	50				10.110	Siltloam	repeated fluxed organics + sediment the
1-10	2.54 5/1	35	10YR 5/4	15	CON	MRC	21111000	Televice Construction Provident In
2-24	2.57 5/1	85	IOYR 4/4	15	Con	MRC	Siltleam (De	
x-x1	010/ //	-01	10115 14	12	(101	3/11/10/14 (0)	
		-		1	-		12.00	, walk to a
-				-				
vne: C=Co	ncentration, D=Depl	etion, BM	I /I=Reduced Matrix, C	S=Cove	ared or Co	ated Sand Gr	ains. ² Location	: PL=Pore Lining, M=Matrix.
Contraction of the local division of the loc	L INDICATORS				0220 201	July I may	110	FOR PROBLEMATIC HYDRIC SOILS3
e se avia e preside	stel (A1)		Alaska Gleyed	(413)	N	and the second second		Change (TA4) ⁴
			Alaska Redox		N	-		Swales (TA5)
	on (A2)					1		with 2.5Y Hue
	A3)	_	Alaska Gleyed	Pores	(A15) <u>IV</u>			without 5Y Hue or Redder Underlying
lydrogen Sul	lfide (A4)		No. of the local sector		141		Layer	
hick Dark Su	urface (A12) N						Other (Explain	n in Notes)
One indicato	r of hydrophytic veg	etation, o	ne primary indicator	of wetla	nd hydrolo	ogy, and an a	ppropriate landsc	ape position must be present unless
estrictive La ydric Soll P	ever (if present): Type Present (Y/N): γ	1. m		Depth (in		10.000	ation Q 12	3" and deeper during grown
estrictive La	Present (Y/N):	1. m				10.000	ation Q 12	3" and deeper during grows
Notes: Neg	Present (Y/N): Y XX through 2311 is slightly	out : this		oil bu	t show	o schri		3" and deeper during grown 2 or more required)
lestrictive La lydric Soll P lotes: Neg cram 0 5	Present (Y/N): Y XX through 2311 is slightly	thing	Margmal se trophic	ufficient	1 5kor	o schri	INDICATORS (the second s
Interior Soll P Intes: Mego Intes: Mego Interior Soll P Interior Soll P Interior Soll P Interior Soll P	Present (Y/N): Y XX through sil is slightly Y PRIMARY INDICA or (A1)	at in ind	Margmal So trophic any one indicator is s rface Soll Cracks (B6 indation Visible on Ad	oil 60 ufficient	1 stor	SECONDARY Water-stained Leaves (B9)	INDICATORS (2 or more required) Stunted or Stressed
Restrictive La Rydric Soli P Notes: Meg Caran Og RYDROLOG Surface Wate Righ Water Ta	Present (Y/N): Y K& through and is slightly Y PRIMARY INDICA or (A1) able (A2)	ATORS (a	Margmal So trophic any one indicator is s rface Soll Cracks (B6 indation Visible on Ad	oil 60 ufficient	A show	SECONDARY Water-stained Leaves (B9)	r INDICATORS (2 or more required) Stunted or Stressed Plants (D1)
Indes: Angle Control C	Present (Y/N): γ χ χ χ χ γ PRIMARY INDICA γ (A1) γ able (A2) γ γ	ATORS (a Inu (B7 Co	Margmal So Strophra any one indicator is s rface Soll Cracks (Be indation Visible on Ad 7) arsely Vegetated	ufficient aufficient a)A arial Ima	/ stor	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz	r INDICATORS (I terns (B10) tospheres along (C3) Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Restrictive La Rydric Soli P Notes: Neg RyDROLOG Burface Wate Righ Water Ta Baturation (A: Vater Marks	Present (Y/N):	ATORS (a Sun Britishing Spi Co Ma Hyd	Margmal School S	ufficient aufficient a) _ A arial Ima	/ skor	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F	terns (B10) cospheres along C3) Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic/
Restrictive La Aydric Soli P Notes: Neg Average Solid AYDROLOG Surface Water High Water Ta Saturation (A: Vater Marks Sediment Dep	Present (Y/N):	ATORS (a Sun Britishing Spi Co Ma Hyu Od Do	Margmal So Hrophic any one indicator is s rface Soll Gračks (BG indation Visible on Ar arsely Vegetated incave Surface (BB) rl Deposits (B15)	ufficient aufficient a) _ A arial Ima	/ show	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4)	terns (B10) cospheres along C3) Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Aestrictive La Aydric Soll P Notes: Meyor AryDROLOG Burface Wate Burface Wate High Water Ta Baturation (AS Sediment Dep Drift Deposits	Present (Y/N): Y XXX Hrange Y PRIMARY INDICA or (A1) ////////////////////////////////////	ATORS (a Sun British Sun British Spi Co Ma Ma Dry Wa	Margmal Sc Hrophic any one indicator is s frace Soll Gracks (BG indation Visible on Ar arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1)	oil 60 ufficient s) orial Ima	/ show	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits	terns (B10) cospheres along C3) Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
estrictive La ydric Soll P lotes: New Jo YDROLOG urface Wate igh Water Ta aturation (A: /ater Marks ediment Dep rift Deposits Igal Mat or C	Present (Y/N): Y XXX Hrange Y PRIMARY INDICA or (A1) ////////////////////////////////////	ATORS (a Sun British Sun British Spi Co Ma Ma Dry Wa	Margmal Sc Hrophic any one indicator is s frace Soll Gracks (BG indation Visible on Ar arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1)	oil 60 ufficient s) orial Ima	/ show	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits	terns (B10) cospheres along C3) Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Aestrictive La Aydric Soll P Jotes: Josephilie Autors: Josephilie Auto	Present (Y/N): Y XXX Hrange Y PRIMARY INDICA or (A1) ////////////////////////////////////	ATORS (a Sun British Sun British Spi Co Ma Ma Dry Wa	Margmal Sc Hrophic any one indicator is s frace Soll Gracks (BG indation Visible on Ar arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1)	oil 60 ufficient s) orial Ima	/ show	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits	terns (B10) cospheres along C3) Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soll P Notes: Market HydroLOG Surface Wate High Water Ta Saturation (A: Water Marks Sediment Dep Drift Deposits Algal Mat or O ron Deposits Surface Wate	Present (Y/N): Y XXX Harring Y PRIMARY INDICA or (A1) Y able (A2) Y (B1) N (B1) N (B3) N (B3) N Crust (B4) N (B5) N	ATORS (a Sun British Sun British Spi Co Ma Ma Dry Wa	Margmal Sc trophic Sc any one indicator is s rface Soll Cracks (Be indation Visible on Ad arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1) 	oil 60 ufficient s) orial Ima	/ show	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits Notes:	terns (B10) cospheres along C3) Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM

W85LHOSS

8.1.15

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 Forested-Deciduous-Needle-leaved Emergent-Non-persistent Emergent-
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%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover <a>>75% Scattered or <a>>75% Scattere
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
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface) Moderately Abundant (25-50% 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 Mineral: Gravelly Mineral: Sandy Mineral: Gravelly Mineral: Silty
HYDROLOGIC VARIABLES
Intel/Outlat Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/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 Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created Fluvaquent Soils Sediment Fluvaquent Soils Sediment 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 yrs
Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Water pH (P): No surface water X 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%)
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)

Crew Chief QAVQC 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.

Feature ID: WESI-HOSS Field Target: (964

Date:

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? N/AD A detailed site sketch is included in logbook?

2. Vegetation

- X 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

- Depropriate 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

N

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)?

Х Signature / Date Wetland Scientist (print)

8.1.15 X X rowaley

Field Crew Chief (print)

Signature / Date

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and the second second	A sector and a sec	Cardin Cardina	Contraction of the local division of the loc	Constant and an owned in the	And a second
SITE DESCRIPTION	Mar Carlin Vic		and developments	16.17/7	87 hlel
Survey Type: Centerline Acces	s Road (explain)	Other (exp	lain)	Field Target: 19 70	Map #: 87 Map Date: 618 13
Date: 6/1/15	Project Name & No.:	Alaska LNC	G 60418403	Feature Id:	W8524056
Investigators: Jessie B	rounder, 1	biga	10 FS	NOT I	Team No.: (189
State: Alaska	Region: Alaska	0.	Milepost:	469.3	
Latitude: 64°37'21.8	3 "N	Longitude	e: 1490 (05'10.94	Datum: WGS84
Logbook No.:	Logbook Page No.:	26	Picture No.:	P-W851+056	NG VEG-PIT_PLOS
SITE PARAMETERS	12 - 12 - 16 - 16 - 16	1. 1. 1. 1.	ALL DE	and the second second	
Subregion: Tanana - Kuskok	win lowland	2	Landform (hi	llslope, terrace, hummock	s, etc.): lowland
Slope (%): ()-3			Local relief (concave, convex, none):	Flat
Pre-mapped Alaska LNG/NWI classificat	tion: PF-01/55	SIC	Evidence of	Wildlife Use: 🔊 Wa	sps.
Are climatic/hydrologic conditions on the Yes No (if no expla	site typical for this time ain in Notes)	of year?	Are "N Yes	lormal Circumstances" pre No (If no, ex	esent: plain in Notes.)
Are Vegetation, Soil, or Hyd	rology Significant	tly Disturbed	? No 🗡	(If yes, explain in Notes	
Are Vegetation, Soil, or Hyd	rology Naturally F	Problematic?	No X	(If yes, explain in Notes	5.)
SUMMARY OF FINDINGS					WEATER AND
Hydrophytic Vegetation Present? Yes_	No	ls	s the Sampled	Area within a Wetland?	YesX No
Hydric Soil Present? Yes_	XNo	_ v	Vetland Type:	PFOI/SSIA	2m Real Provide State
Wetland Hydrology Present? Yes_	<u> / No</u>	A	laska Vegetatio	on Classification (Viereck):	182,1182
B Bet Clard + The ground undulated aseas where wate Water sample taken pH & S. le. Based on	ly Fronthe 1 Forest ~ 40- willow. Poly stightly with would not	plants schos	n. Soils s ly fece is likely showing 5 & WI	how steps of s inday ind cod a mogate. slight prefer slight prefer	industry mee for higher



VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot sizes: 100 f.f.)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>5</u> (A)
1. Viceo aldura	0-6	Y	Fail	Total Number of Dominant Species Across All Strata: (B)
2. Botala noodaska	nr.7	Y	Fac	% Dominant Species that are OBL, FACW, or FAC:(A/B)
3. LACING VARGING	5	/	Fach	
4.		-		Prevalence Index worksheet:
Total Cove 50% of total cove		% of total cov	er: 6 , 7	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $\sqrt{7} \times 2 = \sqrt{9}$ FAC species $73 \times 3 = \sqrt{9}$ FACU species $\sqrt{6} \times 4 = \sqrt{9}$
1. Phododendrum groen 2. Betula glanderlos 3. Botula repalaskan	Intern 7	Y	Fac	UPL species $X = $ Column Totals: $X = $ PI = B/A = 3, 5 = (B)
4. P. COG CALONICO	2	0.5 8	Fac	$\mathbf{P} = \mathbf{D} \mathbf{A} = \underline{\mathbf{P} \cdot \mathbf{P} \boldsymbol{\omega}}$
5: Alnus viribe ssp. Fatico 6. Salix pilchra 7. Chanaedaphne caly	enletes	Y	Fach	
8. J				
9. Total Cover			_	and the second second second second
50% of total cover		% of total cov	er: <u>7,4</u>	
VEGETATION (use scientific names of plant	5)		100	
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Rubis arcticus	B	(111)	Fac	Prevalence Index is ≤ 3.0
2. COCOUS CONDERSIS	3 3	-1-2 71	Facu	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Chanceron anaustito	hum 1		Fac	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Calama arostis canador	5330	Y	Fac	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Equiselum arvense	T		Fac	disturbed or problematic.
6.				
7.			-	% Bare Ground
8.	2			% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.				⁽³⁾ % Cover of Water
Total Cover	42	*:		Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):
50% of total cover	: 21 209	% of total cov	er: <u>6,4</u>	notes, (n'observeu, list morphological adaptations below).

SOIL			Date Fe	eature I	D	T Stort P	The state of the	Soil Pit Required (Y/N)
SOIL PROF	ILE DESCRIPTION: (Describe	e to the depth needed	d to doc	ument the	indicator or co	nfirm the absenc	e of indicators.)
Depth	Matrix		Redox Features					-unit -as daun
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-3		-		-				Dry organics
3-11	2544/1	- 415					the start	repeated fluvial departs of sadim progenics cloop mineral @ 40%.
1 1/-	545/1	75	7.5YR 4/4	10	Corl	MRC	SilltIran	4
1-16	107R 1/1	15	7.2/6 /4	-10	COPI	(#1_) >=	Sillipan	
6-21	IDYR 9%	75	7. SYR 4/4	10	Con	MRC	siltloom	
	54-5/1	15	11210 11			The lot	10 A 1 A 1	
Type: C=C	oncentration, D=Depl	etion, RM	M=Reduced Matrix, C	CS=Cov	ered or Co	ated Sand Gra	ains. ² Location	: PL=Pore Lining, M=Matrix.
YDRIC SO	IL INDICATORS						INDICATORS	FOR PROBLEMATIC HYDRIC SOILS
listosol or H	listel (A1)	110	Alaska Gleyed	(A13)	N		Alaska Color C	Change (TA4) ⁴
listic Epiped	don (A2)		Alaska Redox	(A14) _	1_	,	Alaska Alpine	Swales (TA5)
Black Histic	(A3) <u>N</u>		Alaska Gleyed	Pores	(A15) _/V			with 2.5Y Hue _/
lydrogen Su	ulfide (A4)		is Synam	-	1		Alaska Gleyed	without 5Y Hue or Redder Underlying
hick Dark S	Surface (A12) N						Other (Explain	in Notes)
ydric Soil	ayer (if present): Typ Present (Y/N):	/	1		nches):			
lydric Soil	17 P	/	1				13wl just -	frezen.
ydric Soil otes: Nega	Present (Y/N):	l o vghai	F. Soil horizo	n 21-	-24 is	Sant 40		frezen. Por more required)
lydric Soil lotes: Nege	Present (Y/N):	toughou	F. Soil horizo	n 21- sufficien	-24 is	Sant 40	INDICATORS (2	Charles Andre
Hydric Soil Notes: Nega HYDROLOG Surface Wat	Present (Y/N): cell v.c. V.X. Flip , BY PRIMARY INDICA er (A1)	oughos NTORS (A Su Inu	A. Soil horizo any one indicator is s rface Soil Cracks (Br undation Visible on A	n 21- sufficien 6) _ /	- 24 is	Sant 40 SECONDARY Water-stained	INDICATORS (2	e or more required)
Hydric Soil Notes: Nega HYDROLOG Surface Wat High Water T	Present (Y/N):	TORS (i Su - (B) Sp	A. Soil horizo any one indicator is s rface Soil Cracks (Br undation Visible on A	n 21- sufficien 6) _ /	- 24 is t) \$ agery [Sant 40 SECONDARY Nater-stained Leaves (B9) Drainage Patte	INDICATORS (2	e or more required) Stunted or Stressed Plants (D1)
Hydric Soil Notes: Nega HYDROLOG Surface Wat High Water 1 Saturation (A	Present (Y/N):	ATORS (1 Su - (B Sp Co	A. Soil horizo any one indicator is s rface Soil Cracks (Be indation Visible on A 7)ansely Vegetated	n 21- sufficien 6) _ /	- 24 is t) \$ agery [L L L	Sand 40 SECONDARY Water-stained Leaves (B9) _ Drainage Patter Drainage Patter	INDICATORS (2 erns (B10)/ ospheres elong C3)/	2 or more required) Stunted or Stressed Plants (D1)
Hydric Soil Notes: Nega HYDROLOG Surface Wat High Water T Saturation (A	Present (Y/N):	ATORS (A Su B Sp Co Ma Hy	A. Soil horizo any one indicator is s rface Soil Cracks (Be indation Visible on A 7) arsely Vegetated incave Surface (B8)	n 21- sufficien 6) _ /	- 24 is t) \$ agery [- 1 5	Sent 40 SECONDARY Nater-stained Leaves (B9) Drainage Patter Dxidized Rhizo Living Roots (C Presence of Re ron (C4) Salt Deposits (INDICATORS (2 Prins (B10)/ pospheres along C3) educed	2 or more required) Stunted or Stressed Plants (D1) M Geomorphic Position (D2) Y Shallow Aquitard (D3) Y Microtopographic C (3)
Hydric Soil Notes: Nega HYDROLOG Surface Wat High Water T Saturation (A	Present (Y/N):	ATORS (1 Su Inu B Co Ma Hy Occ	A. Soil horizo any one indicator is s rface Soil Cracks (Be indation Visible on A 7) arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide	n 21- sufficien 6) _ /	- 24 is t) \$ agery [- 1 5	Sand 40 SECONDARY Water-stained Leaves (B9) Drainage Patter Drainage Patter Draina	INDICATORS (2 Prins (B10)/ pospheres along C3) educed	2 or more required) Stunted or Stressed Plants (D1)
Hydric Soil Notes: Jega HYDROLOG Surface Wat High Water T Saturation (A Water Marks Sediment De	Present (Y/N): $_$	ATORS (Su B B Co Ma Co Dr Wa	A, Soil horizo any one indicator is s rface Soil Cracks (Be indation Visible on A 7) arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide lor (C1) y-Season	n 21- sufficien 6) r/ r/	- 24 is t) \$ agery [- 1 5	Sent 40 SECONDARY Nater-stained Leaves (B9) Drainage Patter Dxidized Rhizo Living Roots (C Presence of Re ron (C4) Salt Deposits (INDICATORS (2 Prins (B10)/ pospheres along C3) educed	2 or more required) Stunted or Stressed Plants (D1)
Hydric Soil Notes: Nega HYDROLOG Surface Wat High Water T Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or	Present (Y/N):	ATORS (Su B B Co Ma Co Dr Wa	any one indicator is s rface Soil Cracks (Be indation Visible on A 7) arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	n 21- sufficien 6) r/ r/	- 24 is t) \$ agery [- 1 5	Sent 40 SECONDARY Nater-stained Leaves (B9) Drainage Patter Dxidized Rhizo Living Roots (C Presence of Re ron (C4) Salt Deposits (INDICATORS (2 Prins (B10)/ pospheres along C3) educed	2 or more required) Stunted or Stressed Plants (D1)
Hydric Soil Notes: Nega HYDROLOG Surface Wat High Water T Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or	Present (Y/N):	ATORS (Su B B Co Ma Co Dr Wa	any one indicator is s rface Soil Cracks (Be indation Visible on A 7) arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	n 21- sufficien 6) r/ r/	- 24 io t) \$ agery [- 1 - 1 - 5 - 1 - 5 - 1 - 5 - 1 - 5 - 1 - 1 - 5 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Sand 40 SECONDARY Water-stained Leaves (B9) Drainage Patter Drainage Patter Dridized Rhizo Living Roots (C Presence of Re ron (C4) Salt Deposits (Notes:	INDICATORS (2 	2 or more required) Stunted or Stressed Plants (D1)
Hydric Soil Notes: Nega HYDROLOG Surface Wat High Water T Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposits Surface Wat	Present (Y/N): \checkmark cd/ ω \mathcal{M} cer (A1) \mathcal{M} fable (A2) \mathcal{M} a) \mathcal{M} c(B1) \mathcal{M} s (B1) \mathcal{M} crust (B2) \mathcal{M} s (B5) \mathcal{M}	ATORS (Su B B Co Ma Co Dr Wa	A, Soil horizo any one indicator is s rface Soil Cracks (Bd indation Visible on A 7)	n 21- sufficien 6) r/ r/	- 24 io t) \$ agery [- 1 - 1 - 5 - 1 - 5 - 1 - 5 - 1 - 5 - 1 - 1 - 5 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Sand 40 SECONDARY Water-stained Leaves (B9) Drainage Patter Drainage Patter Dridized Rhizo Living Roots (C Presence of Re ron (C4) Salt Deposits (Notes:	INDICATORS (2 Prins (B10)/ pospheres along C3) educed	2 or more required) Stunted or Stressed Plants (D1)

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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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent- Persistent Aquatic Bed Scrub Shrub-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) 32 Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): 3 Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even X
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 80%) Very High Density (80-100%) K
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <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) X 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 Lacking Histosol: Fibric Histosol: Hemic Histosol: Sapric
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: SiltyX Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet <u>X</u> 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/No Outlet Perennial Inlet/Perennial Inlet/Perennia
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-Tolli.) Pronounced (2-Tolli.)
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 X Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)
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%) High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs ✓ Seeps Observed Intermittent Spring Perennial Spring

Wetland Juxtaposition: Only Connected Above_	Wetland Isolated Connected Ups	Wetlands within tream & Downstream_	400m, Not Connected Unknown	Only Connected Below	-
Wetland Land Use:	High Intensity (i.e., ag.)_	Moderate Inte	ensity (i.e., forestry)	Low Intensity (i.e. open space)	K
Watershed Land Use:	0-5% Rural	5-25% Urbanized	25-50% Urbanized	>50% Urbanized	
Size: Small (<10 ac	res) Medium (1	0-100 acres)	Large (>100 acres)	+ $($ $)$	
Crew Chief QA/QC check	Jusie Bronkley	GPS Techr	hician QA/QC check:	John	Page 4 of 4

Crew Chief QA/QC check: Jusin Bronkly

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID:

Field Target:

Date

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?
- M □ 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?
- \mathbb{A}^{\sim} Maps are initialed and dated?

8. Photos

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

Signature //Date Wetland Scientist (print)

X Jessie Browniee

Field Crew Chief (print)

Signature / Date

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SITE DESCRIPTION				nep hill I
Survey Type: Centerline X Acce	ss Road (explain) Othe	er (explain)	Field Target: 15181	Map #: No Ma Map Date: WIN
Date: 8/1/30	Project Name & No.: Alas	ka LNG 60418403	Feature Id:	WEILHOS7
Investigators: Dessie	Brownlee Abi	gayle Fish	er	Team No.: (285
State: Alaska	Region: Alaska	() () Milepost:	494.0	
Latitude: 6405450.	GNN Lor	ngitude: 1480	40'50.19"W	Datum: WGS84
Logbook No.: () 2	Logbook Page No.: 26	Picture No.	P-W851H0	ST.VEG_UEGY
		A REAL PROPERTY.		P
SITE PARAMETERS		Landform (h	illslope terrace hummock	s, etc.): Fost slate
Subregion: Yuken Tanana V	pland s		concave, convex, none):	
Slope (%):	tion:		Wildlife Use: + all	Flat
Pre-mapped Alaska LNG/NWI classifica Are climatic/hydrologic conditions on the	and the second se		Vormal Circumstances" pre	sent:
	lain in Notes)	Yes_		plain in Notes.)
Are Vegetation, Soil, or Hyd	drology Significantly Dis	turbed? No	(If yes, explain in Notes)
Are Vegetation, Soil, or Hyden	drology Naturally Proble	matic? No	(If yes, explain in Notes	
SUMMARY OF FINDINGS	and the State State	A State of the second second		
Hydrophytic Vegetation Present? Yes_	<u> </u>	Is the Sampled	Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	NoX	Wetland Type:	PU	
Wetland Hydrology Present? Yes_	No	Alaska Vegetatio	on Classification (Viereck):	147
tio Map For this s frost @ 12" Margine as Wet But I saw was wit.	ite, stunted Bla Reparatographing No Indications	ack sprice	torest. Dry e Spruce four lot From LE 44	Sür. it mapped 14.9 that It
the states of		Via V		
	教教会	AN A A A		
	A	116-11-	1. 1.	france in a little
Reviewed upland call & soll p stiff Dan La Plant who an upland call. \$15 9 30	gread with 5			
10. 12		t and the second	Since L'	(HI
Constanting the Vertication of		Constant of the		+ MI

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VEGETATION (use scientific names of plant	ts)			
Tree Stratum (Plot sizes: 100 ft)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B)
1. YICPO CHENCAT	1. 1. 1. 10			% Dominant Species that are OBL, FACW, or FAC: 100 (A/B)
2. Picea Mariana	20	1	FACW	
3.				
4.			-l	Prevalence Index worksheet:
Total Cove	r: <u>20</u>		J	Total % Cover of: Multiply by:
50% of total cove	r: <u>10</u> 20	% of total cov	/er:	OBL species:X 1 =
Sapling/Shrub Stratum (6()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: \bigcirc \bigcirc $X 2 = 1/2$ FAC species \bigcirc $X 3 = 29$ FACU species \bigcirc $X 4 = 32$
1. Thododendrum area	Jardicum G	and and a	Fac	UPL species X 5 =
2. Rosa acicularis	- 6		Facil	Column Totals: 97 (A) 243 (B)
3. Naccivium Intainos	12		Fac	PI = B/A = 2.5
4. Vaccinium Vitis-idaea	3		Fac	and the second
5. Ricea Marca	T		FACU	
opiced mariana	35	У	FACIN	and the second second second
7.				
8.			I link in	the second s
9.			11-1-1 X(L)	and the second second second second
Total Cover				the second s
50% of total cover	r: 25.5 20	% of total cov	ver: 10 • d	
VEGETATION (use scientific names of plant	s)		Constant.	
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Calamonarostis canada	hais 3		FAC	Prevalence Index is ≤ 3.0
2. Calamarostis Lapponica-	20	Y	FAC	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Retacites frididus	1		FA-CU)	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Cornus canodensis	2		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Parala arand Horn	F		fac	disturbed or problematic.
6. Equisetur protense	+		FACy)	
7. (% Bare Ground
8.				% Cover of Wetland Bryophytes
9.	1 10 1	5.5	() H.)	Total Cover of Bryophytes
10.			1.	Hydrophytic Vegetation Present (Y/N):
Total Cover	: 26			Notes: (If observed, list morphological adaptations below):
50% of total cover	: 13 20	% of total cov	er: <u>5,2</u>	Hotes. (In observed, not morphological adaptations below).
A STATE OF A STATE			Pres la	A LANGE TO A REAL PROPERTY OF A

Or

ABu

SOIL			Date F	eature II	W 85	1 10		Soil Pit Required (Y/N)
SOIL PROFIL	E DESCRIPTION: (Describe	e to the depth neede	d to doci	ument the	indicator or	confirm the absence	of indicators.)
Lange Inter	Matrix		Redox Features	1.0	1	100 1	-	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
		70		/0	Type			Dry feather MOSS
0-4		1		-	-	-		
4-le	1077	1.0		-			-111	Dry organics & charcoal
6-7	101R 2/2	100		-	15.5	-	Sittloam	Contract of the second
7-17-	10YR 4/3	78	10/12 4/4	:10	con	M	Silt form	
	INYR 3/2	10	8.542/1	3	Dep?	m	17	
12-22	IONR 3/2-	95	1048414	5	con	m	Silf loom	
and the second second			14 1 4 1 × 1 × 1				2	
	ncentration, D=Depl	etion, RM	M=Reduced Matrix,	CS=Cov	ered or Co	ated Sand C		PL=Pore Lining, M=Matrix.
HYDRIC SOI	LINDICATORS	The second	Service 18	11.2	1.1.1	1.61	and the second s	FOR PROBLEMATIC HYDRIC SOILS
Histosol or Hi	stel (A1)		Alaska Gleye	d (A13)	N/	-	Alaska Color C	hange (TA4) ⁴
Histic Epiped	on (A2)		Alaska Redo	x (A14) _	N		Alaska Alpine S	Swales (TA5)
Black Histic (A3)	1	Alaska Gleye	d Pores	(A15)	1	Alaska Redox	with 2.5Y Hue
Hydrogen Su	lfide (A4)				-	10	Alaska Gleyed	without 5Y Hue or Redder Underlying
Thick Dark S	urface (A12)			1.1	1.1.1		Other (Explain	in Notes)
⁴ Give details Restrictive La Hydric Soil F	of color change in Ne yer (if present): Typ Present (Y/N):	00: <u>Kast</u>	+ (very scl4) 	Depth (ii	nches):	17	-	
⁴ Give details Restrictive La Hydric Soil F	of color change in Ne yer (if present): Typ Present (Y/N):	00: <u>Kast</u>	+ (very selt)	Depth (ii	nches):	17		
⁴ Give details Restrictive La Hydric Soil F Notes: Mee	of color change in No ayer (if present): Typ Present (Y/N):	198: <i>Kræst</i>					AY INDICATORS (2	or more required)
⁴ Give details Restrictive La Hydric Soil F Notes: Mee	of color change in No ayer (if present): Typ Present (Y/N):			sufficien	t)		ed j	Stunted or Stressed
⁴ Give details Restrictive La Hydric Soil F Notes: Meg HYDROLOG Surface Wate	of color change in No iyer (if present): Typ Present (Y/N): Y PRIMARY INDICA or (A1)	ATORS (a Su - (B)	any one indicator is Inface Soil Cracks (E Indation Visible on 7	sufficien 36) N	t)	SECONDAR Water-staine Leaves (B9) Drainage Pa	ed	Stunted or Stressed Plants (D1) <u>Marce</u> wole) Geomorphic Position (D2) <u></u>
⁴ Give details Restrictive La Hydric Soil F Notes: Meg HyDROLOG Surface Water High Water T	of color change in No iver (if present): Typ Present (Y/N): Y PRIMARY INDICA or (A1) able (A2)	ATORS (a Su - (B Sp	any one indicator is rface Soil Cracks (E undation Visible on /	sufficien 36) Aerial Ima	i)	SECONDAF Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots	ed ttterns (B10) izospheres along b (C3)	Stunted or Stressed Plants (D1) (see Note) Geomorphic Position (D2) Shallow Aquitard (D3)
⁴ Give details Restrictive La Hydric Soil F Notes: HYDROLOG Surface Wate High Water T Saturation (A	of color change in No iver (if present): Typ Present (Y/N): Present (Y/N):	ATORS (a Su Inu (B) Co Ma	any one indicator is Inface Soil Cracks (E Indation Visible on 7 7) arsely Vegetated oncave Surface (B8) arl Deposits (B15)	sufficien 36) Aerial Ima	i)	SECONDAF Water-staine Leaves (B9) Drainage Pa Oxidized Rh	ed ttterns (B10) izospheres along b (C3)	Stunted or Stressed Plants (D1) // (see Note) Geomorphic Position (D2) //
⁴ Give details Restrictive La Hydric Soil F Notes: HyDROLOG Surface Wate High Water T Saturation (A Water Marks	of color change in No iver (if present): Typ Present (Y/N): Present (Y/N):	ATORS (a Su G G Ma Hy	any one indicator is rface Soil Cracks (E undation Visible on 7 7) varsely Vegetated uncave Surface (B8)	sufficien 36) Aerial Ima	t)	SECONDAF Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	ed atterns (B10) izospheres along a (C3) Reduced	Stunted or Stressed Plants (D1) (see Note) Geomorphic Position (D2)k Shallow Aquitard (D3)/ Microtopographic
⁴ Give details Restrictive La Hydric Soil F Notes: HYDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De	of color change in No iver (if present): Typ Present (Y/N): Present (A1)	ATORS (a Su Inu (B) Co Ma Ma Unu Unu	any one indicator is Inface Soil Cracks (E Indation Visible on 7 7) Marsely Vegetated Incave Surface (B8) arl Deposits (B15) rdrogen Sulfide	sufficien 36) Aerial Ima	t)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	ed atterns (B10) izospheres along a (C3) Reduced	Stunted or Stressed Plants (D1) (See Note) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
⁴ Give details Restrictive La Hydric Soil F Notes: Me HyDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposits	of color change in No iver (if present): Typ Present (Y/N): Present (A1)	ATORS (a Su Su Su Su Su Su Su Su Su Su Su Su Su	any one indicator is Inface Soil Cracks (E Indation Visible on A 7) arsely Vegetated oncave Surface (B8) and Deposits (B15) drogen Sulfide for (C1) y-Season	sufficien 36) Aerial Ima N N	t)	SECONDAF Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	ed atterns (B10) izospheres along a (C3) Reduced	Stunted or Stressed Plants (D1) (See Note) Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic Relief (D4)/
Restrictive La Hydric Soil F Notes: HYDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposits	of color change in No ayer (if present): Typ Present (Y/N): Present (P/N): Present (B1) Present (B2) Present (B4) Present (B4)	ATORS (a Su Su Su Su Su Su Su Su Su Su Su Su Su	any one indicator is Inface Soil Cracks (E Indation Visible on 7 arsely Vegetated Incave Surface (B8) arl Deposits (B15) rdrogen Sulfide for (C1) y-Season ater Table (C2)	sufficien 36) Aerial Ima N N	t)	SECONDAF Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	ed atterns (B10) izospheres along a (C3) Reduced	Stunted or Stressed Plants (D1) (see Note) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
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Saturation Present (Y/N): (includes capillary fringe) Notes: Not opplying DI started a stressed plants OK I believe the sprice are strated due to the Frest layer & 17 " and the thisotropic soils

Depth (in):

1

EC:____

AQUATIC SITE ASSESSMENT DATA FORM

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SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Silty Mineral: Clayey
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/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 Sedimer 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

Glacial Till/Not Permeable_

Basin Topographic Gradient (M): Low Gradient (<2% Evidence of Seeps and Springs (P): No Seeps or Springs_ Low Gradient (<2%)_ High Gradient (≥2%)

Seeps Observed_ Intermittent Spring_ Perennial Spring

LANDSCAPE VARIABL	ES (M)	a in the first line is		
Wetland Juxtaposition: Only Connected Above_		Wetlands within stream & Downstream	400m, Not Connected Unknown	Only Connected Below
Wetland Land Use:	High Intensity (i.e., ag.)_	Moderate Inte	nsity (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 acr	res) Medium (10-100 acres)	Large (>100 acres)	

Crew Chief QA/QC check: Jusie Brondel GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85L4057

Field Target: 1518(

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?
- D 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?

E Each logbook page is initialed and dated?

7. Maps

- ${\rm I\!I}^{\!\mathcal{Y}}$ 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)?

11 Wetland Scientist (print) Signature / Date

XI)essi

Field Crew Chief (print)

Signature / Date

Date: 6/1/15 Investigators: 6 State: Alaska Latitude: 6 Gybook No.: 6 SITE PARAMETERS Subregion: 6 Mono-Tamana Slope (%): Pre-mapped Alaska LNG/NWI classificate Are climatic/hydrologic conditions on the YesNo(if no explant Are Vegetation, Soil, or Hyde SUMMARY OF FINDINGS	Project Name & No.: Region: Alaska () Logbook Page No.: Logbook Page No.: tion: site typical for this time of ain in Notes) Prology Significantly	Longitude: 2 40 of year? y Disturbed?	60418403 Milepost: // Picture No.: Landform (hill Local relief (c Evidence of V Are "No Yes_	Islope, terrace concave, conv	Feature Id:	Team No.: WSS Datum: WGS84 lcg - Neg - Pit - plug s, etc.): T_{errage}
Investigators: State: Alaska Latitude: 64° 54'32,72' Logbook No.: 2 SITE PARAMETERS Subregion: 7,70,- Tanama Slope (%): 2 Pre-mapped Alaska LNG/NWI classificate Are climatic/hydrologic conditions on the Yes No (if no explate Are Vegetation, Soil, or Hyd SUMMARY OF FINDINGS	Region: Alaska () W Logbook Page No.: Uplands tion: e site typical for this time of ain in Notes) trology Significantly	Longitude: 2 40 of year? y Disturbed?	Milepost: // Milepost: // Picture No.: Landform (hill Local relief (c Evidence of V Are "No Yes_	P_W85LF Islope, terrace concave, conv Wildlife Use: cormal Circums	2010 1058_0 e, hummocks ex, none):	Team No.: WSS Datum: WGS84 lcg - Neg - Pit - plug s, etc.): T_{errage}
State: Alaska Latitude: 64° 54'32,72' Logbook No.: 7 SITE PARAMETERS Subregion: 7,60, - Tanana Slope (%): Pre-mapped Alaska LNG/NWI classificat Are climatic/hydrologic conditions on the Yes No (if no explation, Soil, or Hyde Are Vegetation, Soil, or Hyde SUMMARY OF FINDINGS	Region: Alaska	2 10 of year? y Disturbed?	Landform (hill Local relief (c Evidence of V Are "No Yes_	P_W85LF Islope, terrace concave, conv Wildlife Use: cormal Circums	e, hummocks ex, none):	Datum: WGS84 lcg - veg - Pit - plug s, etc.): T_{errage}
Latitude: 64° 54'32.72 Logbook No.: 7 SITE PARAMETERS Subregion: 7.60 - Tanana Slope (%):	Logbook Page No.: Logbook Page No.: Uplands tion: e site typical for this time of ain in Notes) trology Significantly	2 10 of year? y Disturbed?	Landform (hill Local relief (c Evidence of V Are "No Yes_	P_W85LF Islope, terrace concave, conv Wildlife Use: cormal Circums	e, hummocks ex, none):	icg-veg-Pit-plug s, etc.): Terrage
Logbook No.: O	tion: e site typical for this time of ain in Notes) Irology Significantly	2 10 of year? y Disturbed?	Picture No.: Landform (hill Local relief (c Evidence of V Are "No Yes_	Islope, terrace concave, conv Vildlife Use: ormal Circuma	e, hummocks ex, none):	icg-veg-Pit-plug s, etc.): Terrage
SITE PARAMETERS Subregion: Y.Kon - Tanama Slope (%): Pre-mapped Alaska LNG/NWI classificat Are climatic/hydrologic conditions on the YesNo(if no expla Are Vegetation, Soil, or Hyd Are Vegetation, Soil, or Hyd SUMMARY OF FINDINGS	tion: e site typical for this time of ain in Notes) Irology Significantly	of year? y Disturbed?	Landform (hil Local relief (c Evidence of V Are "No Yes_	Islope, terrace concave, conv Vildlife Use: ormal Circuma	e, hummocks ex, none):	s, etc.): Terrage
Subregion: Y, Kon - Tanama Slope (%): Pre-mapped Alaska LNG/NWI classificat Are climatic/hydrologic conditions on the Yes No (if no expla Are Vegetation , Soil , or Hyd Are Vegetation , Soil , or Hyd SUMMARY OF FINDINGS	tion: • site typical for this time o ain in Notes) Irology Significantly	y Disturbed?	Local relief (c Evidence of V Are "No Yes_	concave, conv Vildlife Use: ormal Circum	ex, none): 👔	Flat
Slope (%): Pre-mapped Alaska LNG/NWI classificat Are climatic/hydrologic conditions on the YesNo(if no explation Are Vegetation, Soil, or Hyd Are Vegetation, Soil, or Hyd SUMMARY OF FINDINGS	tion: • site typical for this time o ain in Notes) Irology Significantly	y Disturbed?	Local relief (c Evidence of V Are "No Yes_	concave, conv Vildlife Use: ormal Circum	ex, none): 👔	Flat
Slope (%): Pre-mapped Alaska LNG/NWI classificat Are climatic/hydrologic conditions on the YesNo(if no expla Are Vegetation, Soil, or Hyd Are Vegetation, Soil, or Hyd SUMMARY OF FINDINGS	tion: • site typical for this time o ain in Notes) Irology Significantly	y Disturbed?	Evidence of V	Vildlife Use: ormal Circum		Flat
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Are Vegetation, Soil, or Hyd Are Vegetation, Soil, or Hyd SUMMARY OF FINDINGS	Irology Significantly	_		- INO	stances" pres (If no. exp	sent: V Ilain in Notes.)
SUMMARY OF FINDINGS	Irology Naturally P	roblematic?	110 1		ain in Notes)	
SUMMARY OF FINDINGS	and the second sec	obiomation	No	_ (If yes, exp	ain in Notes.	.)
		di soli	the second second	The state	1 ^{−1} − 1	
Hydrophytic Vegetation Present? Yes	<u> べ No</u>	is t	the Sampled A	Area within a	Wetland?	Yes No
Hydric Soil Present? Yes_	×No	We	etland Type:	PSS	VEN	11 C
Wetland Hydrology Present? Yes	K No	— Ala	aska Vegetatio	n Classificatio	n (Viereck):	IIBZ, IIIAZ
Notes and Site Sketch: Please include D corridor.	Pirectional & North Arrow,	Centerline,				
econdor.	e A	Shaw 11	w/a	ganics " soint on exity of th	Flood E polygo	pten/frequent likely yearly ally be deposited. La plain/ferrace to multich is a mosaic. 11BZ
Cuerk						

Page 1 of 4

loont	Absolute	Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum (Plot sizes: 100 P+)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC:		
. Alinus Viridis	6		Fac	Total Number of Dominant Species Across All Strata:		
		1.1	inc	% Dominant Species that are OBL, FACW, or FAC:		
		1.1		and the second state of the second state of the second state of the		
			27	Prevalence Index worksheet:		
Total Cove	r:			Total % Cover of: Multiply by:		
50% of total cove	or: 20	0% of total cov	er:	OBL species: <u></u>		
Sapling/Shrub Stratum (2 4)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 3 $X 2 =$ 4 FAC species $1(2 \times 3 =$ 354 FACU species $(3 \times 4 =$ 52		
ALAUSVEDIS	25	Y	Faci	$IIPI \text{ species} \qquad \bigcirc \qquad X5 = \bigcirc$		
Spiraea stevenii	ĨO -	4	:lac()	Column Totals: 140 (A) 4/8 (B)		
· Salix pulchia	3.		FACW	PI = B/A = ? . 9 ? (5)		
· Jaccinium dial nosur	1 1		FAC			
· Betula neoabelaskana	2		FACJ			
and the second second	19			and the second		
		-				
		2017				
Total Cover						
		% of total cov	er: 84			
Total Cover	r: <u>21.5</u> 20	% of total cov	er: <u>84</u>			
Total Cover 50% of total cover	r: <u>21.5</u> 20	% of total cov	er: B.C.	Hydrophytic Vegetation Indicators:		
Total Cover 50% of total cover EGETATION (use scientific names of plant	r: <u>21.5</u> 20 s)	Dominant Species?	11 80.8	Hydrophytic Vegetation Indicators:		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum ()	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant	Indicator Status			
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (2671_)	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (2671) Calamagrostis canadena Gamacon palvete c	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	→ Dominance Test is > 50% → Prevalence Index is ≤ 3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes)		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>2671</u>) Calamagrostis canadens Gamacon palvate Macon palvate	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status	↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>2671</u>) Calamagrostis canadene Gamacom Palustice Current Palustice	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (2671) Calamacrostis canadene Gamacrostis canadene Gamacrostis canadene Gamacrostis canadene Gamacrostis canadene Gamacrostis canadene Gamacrostis canadene Gamacrostis canadene Gamacrostis canadene Gamacrostis canadene	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 ↓ Morphological Adaptations ¹ (Provide supporting data in Notes) ↓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>2671</u>)	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (2671) Calamarostis canadone Gamaction palustice Muss arcticus	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 ↓ Morphological Adaptations ¹ (Provide supporting data in Notes) ↓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless		
Total Cover 50% of total cover EGETATION (use scientific names of plant terb Stratum () 	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	⊥ Dominance Test is > 50% ⊥ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (_2671) : Calamagrostis canadene : Gamacom palvistice : Gamacom palvistice : Jubus aveticus : Jubus aveticus : Jubus aveticus	r: <u>21.5</u> 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	⊥ Dominance Test is > 50% ⊥ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. M % Bare Ground % Cover of Wetland Bryophytes		
Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>2671</u>) Calamaroctrs canadone (<u>amacting palvatice</u> <u>Lusus aveticus</u> <u>Vola sp</u>	r: 21.5 20 s) Absolute % Cover	Dominant Species?	Indicator Status Fac OBL	⊥ Dominance Test is > 50% ⊥ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. M % Bare Ground % Cover of Wetland Bryophytes % Total Cover of Bryophytes		

Ob Bw

SOIL	A STATE OF THE OWNER	1	DateFea	ature IC		LHOSY		Soil Pit Required (Y/N)		
SOIL PROFIL	LE DESCRIPTION: (Describe	to the depth needed	to docu	ment the	indicator or co	nfirm the absenc	A REAL PROPERTY OF A REAL PROPER		
Depth	Matrix		Redox Features			12				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes		
0.7	10.1R.4/1	80		100	de la composition de la compos		S. 64 10	repeated layers of orposited		
	2.544/1	20			- 1990 IV		- Car 2 119			
7-9	SY 3/1	85	ZISYR36	5	Con	W 2C		and the second second		
9-11		- P	7.54/23/4	10	con	MRC	1. 1. 0. 62			
11-21	513/1_	90	7.5YR 4/4	10	CON	Mipe				
	Contraction of the			22		1000		and a set of the set o		
¹ Type: C=Co	ncentration, D=Deple	ation BM	-Reduced Matrix CS		red or Cos	ated Sand Gra	ine ² Location:	PL=Pore Lining, M=Matrix.		
	L INDICATORS			-0008		alou Gana Gra	and the second se	FOR PROBLEMATIC HYDRIC SOILS ³		
Histosol or Hi		1. 1	Alaska Gleyed	(A13)	N		Alaska Color C			
Histic Epipede										
Black Histic (/	and the second second			Alaska Gleyed Pores (A15) N				Alaska Redox with 2.5Y Hue N		
Hydrogen Sul			and the second second	and the second				without 5Y Hue or Redder Underlying		
Thick Dark Su	urface (A12)	1.11			1.1		Other (Explain	In Notes)		
disturbed or p	r of hydrophytic vege roblematic. of color change in No		e primary indicator o	f wetlar	nd hydrolo	gy, and an app *	propriate landsca	pe position must be present unless		
Restrictive La	yer (if present): Type	9:h	De	epth (in	ches):		() (See Charles State of the Content of		
Hydric Soil P	resent (Y/N):	1			1		e	and the third and		
Notes: Sil :	shows signs of	frequen	t repeated t	-1000	ng	Soils		The Art I and Art I a		
		-	and a first	-	-		5	194 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
HYDROLOGY	PRIMARY INDICA	TORS (an	v one indicator le su	fficient)	G	ECONDARY	NDICATORS (2	or more required)		
Surface Water		1	ace Soil Cracks (B6)	. /		ater-stained	.1	Stunted or Stressed Plants (D1)		
High Water Ta	able (A2)	Inun (B7)	dation Visible on Aer	ial Ima	0004	rainage Patter		_ Geomorphic Position (D2)		

Sparsely Vegetated Concave Surface (B8) Saturation (A3) Shallow Aquitard (D3) Living Roots (C3) Microtopographic Relief (D4) Presence of Reduced Water Marks (B1) N Marl Deposits (B15) Iron (C4) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Salt Deposits (C5) FAC-Neutral Test (D5) Notes: Dry-Season Drift Deposits (B3) Water Table (C2) N Algal Mat or Crust (B4) Other (Explain in Notes): Iron Deposits (B5) Surface Water Present (Y/N): N Depth (in): Wetland Hydrology Present (Y/N): Water Table Present (Y/N): Depth (in): N Saturation Present (Y/N): Depth (in): EC: (includes capillary fringe) Notes: trequently (yearly rek floods

Oxidized Rhizospheres along

N

AQUATIC SITE ASSESSMENT DATA FORM

AQUATIC SITE ASSESSMENT DATATONIN WESCHOSE 8115
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 Image: Advance of the second
Percent Cover (P): Tree (>5 dbh, >6m tall) Rest and the structure 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%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <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)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) X High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional RiverineX_ Estaurine Fringe
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric
Soil Factors (P): Soil Lacking Histosol Fibric Histosol Fibric Histosol Fibric 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/Perennial Inlet
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Pluvaquent Solis Sediment
Created
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)
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
Vetland 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)
Crew Chief QA/QC check: Jessie Brownelle

Mayon

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85/H058

Field Target: 1518

Date:

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

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

8. Photos

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

Signature / Date Wetland Scientist (print) Х

X Jessic Brashle

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION		323635		N. H. S. W.	200 CLA	
Survey Type: Centerline Acces	ss Road (explain)	Other (expla	ain)	Field Targe	nt: 15167	Map #: <u>91_</u> Map Date: <u> </u>
Date: 8/2/15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W851H059
Investigators: Jessie Bro	unlee, Abia	eristo t	Sher		1.1	Team No.: WS5
State: Alaska	Region: Alaska	0	Milepost:	471.7	4	
Latitude: 6403540,6	,7"N	Longitude	: 14/90	06'50	:63W	Datum: WGS84
Logbook No.:	Logbook Page No.:	27	Picture No.:	17	10	UEG-NEG-PIT-FUNG
SITE PARAMETERS			Hartstell- 4	Martin Martin	Street State	
Subregion: Tranama - Kuskoku	In Couland	-st	Landform (hill	Islope, terrace	», hummocks	s, etc.): Tetrace / Slight swale
Slope (%): 0 - 3		Local relief (c			let to shak Hy concave	
Pre-mapped Alaska LNG/NWI classifica	tion: PG4 IF M	IB	Evidence of V	Wildlife Use:	Nonle	<i>d</i> , <i>O</i>
Are climatic/hydrologic conditions on the	01/2010	1-1-2	Are "No Yes	ormal Circums		sent: blain in Notes.)
		ly Disturbed?	No	(If yes, expl		
Are Vegetation, Soil, or Hyd	rology Naturally F	Problematic?	No_X	_ (If yes, expl	lain in Notes	.)
SUMMARY OF FINDINGS				- 雅	Mr. Contes	
Hydrophytic Vegetation Present? Yes_	NoX_	Is	the Sampled A	rea within a	Wetland?	Yes No
Hydric Soil Present? Yes_	NoX	w	etland Type:	U		AL
Wetland Hydrology Present? Yes_	No	— Ala	aska Vegetatior	n Classificatio	n (Viereck):	1 B2, 11 B2
Notes and Site Sketch: Please include D corridor. All Pop Bal sopp Lacks hydrology & flictuates to ZYM off	oling & mature soil indicat	fuel From	of with ster table	underste corre	ny 6 a nely 6	alder and willow. 28" and litely
	* 14		11.1			CAN

Page 1 of 4

VEGETATION (use scientific names of plants				
Tree Stratum (Plot sizes: 100 FF)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 2 (A)
1. Populus Dalsamiterr	4030	Y	Facl	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: 33 (A/B)
2. Balix alanca			Fac	
3.	1			
4.	1. 12			Prevalence Index worksheet:
Total Cover: 50% of total cover:		% of total cov	er: 62	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum (26 FF)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $X 2 =$ FAC species $48 \times 3 = 444$ FACU species $83 \times 4 = 332$
1. Rosa acicularis	3	7 -	Facl	UPL speciesX 5 =
2. Picker-glauca	3		Fact	Column Totals: 131 (A) 476 (B)
3. Alnus viridis son frutico	50 15	Y	Fac	PI = B/A = 3:63
4. Viburnum edula.	2		Facl	
5. Salix richardsonii	1		Fac	· · · · · · · · · · · · · · · · · · ·
6. Salix alauca	4	_	tai	
7. Salis alaxensis	4		Fac	
8. Populus balsomitera	\$2.22	7.	Fac	
Total Cover:	64			P. C.
50% of total cover		% of total cov	er: 12.8	the second s
A CROSS AND A CONTRACT OF				NAMES AND A DESCRIPTION OF A DESCRIPTION
VEGETATION (use scientific names of plants				
Herb Stratum (Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
		(Y/N)		$ Prevalence Index is \leq 3.0$
1. Rubus arcticus	2		Fact	Morphological Adaptations ¹ (Provide supporting data in
2. Equisitum arveilse	4		Fac	Notes)
3. Cornus canadensis	4		Fact	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Pyrola aserifolia	Ť	Y	Facu	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Purola grandifora	2		Fac	disturbed or problematic.
6. Calamacio des canadensis	17	Y	Fac	
7. Galium Sp.	T			% Bare Ground
8.				% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.				% Cover of Water
Total Cover:	36			Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):
50% of total cover:	<u>\</u> 20	% of total cov	er: 7.2	

Depth	Matrix	1	Redox Features						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Change (TA4) ⁴ Swales (TA5) with 2.5Y Hue/ I without 5Y Hue or Redder Underly	
0-6		H (4					1	Dry organic & W/2 pands of se	
6-7						2			
7-11.5	101R4/2	80	54 3/1	5			Silfloom	Bands thought ~ 301-	
- 223		1 4.2	7.51R\$14	15				0	
11.5-24	10-1R 1/2	57	101R 4/4	25	Com	M	Siltland	very platon structure	
	·	i i	54 5/1	18	Nep	M			
out.	all second	1227	in the second se					And the second second second second	
and the annual in the	ncentration, D=Depl	letion, RN	I=Reduced Matrix,	CS=Cov	ered or Co	ated Sand C	Grains. ² Location	: PL=Pore Lining, M=Matrix.	
HYDRIC SOIL	LINDICATORS	US. III	Sector Deleter	No. Call			INDICATORS	FOR PROBLEMATIC HYDRIC SOIL	
Histosol or His	stel (A1)		Alaska Gleye	ed (A13)	N		Alaska Color C	Change (TA4) ⁴	
Histic Epipedo	on (A2)		Alaska Redo	Alaska Redox (A14)			Alaska Alpine Swales (TA5)		
Black Histic (A	A3)N		Alaska Gleye	ed Pores	(A15)	<u> </u>			
Hydrogen Sul	fide (A4)					100	Alaska Gleyed	without 5Y Hue or Redder Underlying	
Thick Dark Su			100	. 32			Other (Explain		
disturbed or p	r of hydrophytic veg roblematic. of color change in N		ne primary indicato	or of wetla	and hydrolo	ogy, and an	appropriate landsca	ape position must be present unless	
Restrictive La	yer (if present): Typ	be: 🔨		Depth (in	nches):			Estate a	
	resent (Y/N):		in the second second				2	. South .	

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or m	ore required)
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)
Sediment Deposits (B2)N	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	C. All Street
Algal Mat or Crust (B4)	Other (Explain in Notes):		
Iron Deposits (B5)	the second second		Contraction of the
그는 것 같은 귀에 가지 않는 것 같은 것 같			
Surface Water Present (Y/N): N	Depth (in):		1
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):	N
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:	
Notes: Water table C. 28". start 3	Water table Probably flux	ctuates up to 24" where	the washed out sand

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 Scrub Shrub-Deciduous-Broad-leaved Persistent Aquatic Bed Emergent-Needle-leaved Emergent-Needle-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): Even Highly Uneven Moderately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) High Density (80-100%) 80%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a>25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover <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
Gover 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
500 A
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/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/
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 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%)
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Only Connected Below

Wetland Land Use: High Intensity (i.e., ag.)_		Moderate In	tensity (i.e., forestry)	Low Intensity (i.e. open space)	_
Watershed Land Use:	0-5% Rural	5-25% Urbanized 25-50% Urbanized		>50% Urbanized	:ed
Size: Small (<10 ad	res) 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.

Feature ID: NOSUH059 Field Target: 15/67 Date:

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

1. Site Description

 $\cancel{1}$ Site description, site parameters and summary of findings are complete? $\cancel{1}$ 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)?

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

X Signature / Date Wetland Scientist (print)

essie Brownlee Х Х

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	and the local state		4. Mar. 14	ten seatter		
Survey Type: Centerline 🗶 Acces	ss Road (explain)	Other (expla	in)	Field Targ	et:15166	Map #: 92-Map Date: 6-18-1
Date: 8/2/15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	WESLHOGA
Investigators: Jesse Brow	nee, Hoigaule	Fisher				Team No.: W85
State: Alaska	Region: Alaska	T	Milepost:	471.6	e	
Latitude: 64034 44	S" N	Longitude:	14900	6'116	12×4	Datum: WGS84
Logbook No.: 32	Logbook Page No.:		Picture No.:			
SITE PARAMETERS	Pol. State of the particular	Charles and	STRW/ MUL	the or serve	and the second second	글 :
Subregion: Tanang - Kuskoku	1/10 / 201/2011	da	Landform (hil	Islope, terrac	e, hummocks	s, etc.): Swale
Slope.(%): 6-3	Bin Cowfund					Indulating (mirero)
Pre-mapped Alaska LNG/NWI classifica	tion: PF()4/1	2				dropping
Are climatic/hydrologic conditions on the	site typical for this time	of year?	Are "No	ormal Circum	nstances" pre	sent:
Yes No (if no expl Are Vegetation, Soil, or Hyd	ain in Notes)	tly Disturbed?	No X		lir no, exp	plain in Notes.)
Are Vegetation, Soil, or Hyd		Problematic?	No X	2	plain in Notes	
SUMMARY OF FINDINGS	Notogy Naturally	riobiernader				······································
Hydrophytic Vegetation Present? Yes_	K No	Is 1	the Sampled A	Area within a	a Wetland?	Yes No
Hydric Soil Present? Yes_	X No	We	etland Type:	PFOIT	3	
Wetland Hydrology Present? Yes_	× No	Ala	iska Vegetatior	n Classificati	on (Viereck):	1BI 11B1
Notes and Site Sketch: Please include I corridor. Bet Neo Closed Freed Undustry includes Pic Undustry includes Pic Undustry able @ ~ 21-	Gla & Willows	t 30' bet wit	High mu L little 1	any of Sob co	which a	ne sapplingo.
					-	SH

VEGETATION (use scientific names of plants)			
Tree Stratum (Plot sizes: 1004)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 4 (A)
1. Betula necalaslana	4000-1	Y	Fac	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: 80 (A/B)
2. Picea glowca	3		Fael	W Dominant Species that are OBL, FACW, of FAC:(AVB)
3.				
4.	117			Prevalence Index worksheet:
Total Cover:			de	Total % Cover of: Multiply by:
50% of fotal cover:				OBL species:X 1 =
Sapling/Shrub Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $11 \times 2 = 22$ FAC species $79 \times 3 = 237$ FACU species $26 \times 4 = 104$
Ricel alaw co	. 8	1	Fac	UPL speciesX 5 =
2. Betila hearlachana	28	Y	Fac	Column Totals: 116 (A) 363 (B)
3. ROGE ACCULARS	12	Y	Faco	PI=B/A= 3.12
4 Viburnin edule.	-1		Farl	the second s
5. Salix pulchra	3		Fach	
6. Vaccinium uliainosum	T	and the Com-	Fric	and the second second second second
7. Allouis viridias	2		Fac	and the second sec
8. Rubus idaeus	7		FACU	
9.			dans.	and the of the second strategy and
Total Cover:				
50% of total cover	JF 20	% of total cov	rer: <u>()</u> rD	10 NO.
VEGETATION (use scientific names of plants)	R Lit TR	S. S. Salah	A REAL PROPERTY OF A REAL PROPERTY OF A
Herb Stratum (261)	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species? (Y/N)	Status	Dominance Test is > 50%
1. Fausetum pratense	8	Y	Fach	Prevalence Index is ≤ 3.0
2. Calamanosta canade	552	/	Fac	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Galium Usp.	T		-	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Cornus canadensis	1 -		Facl	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Rubisarcticus	1		Fac	disturbed or problematic.
6. Purola aspritólia			FacU	
7. Rurola grand floca	5		FAC	% Bare Ground
8. Chamerran angust folium	T		FacU	% Cover of Wetland Bryophytes
9. ILIS SETOSA	4	Y	Fac	Total Cover of Bryophytes
10.		1		Hydrophytic Vegetation Present (Y/N):
Total Cover:				Notes: (If observed, list morphological adaptations below):
50% of total cover:	9.5 20	% of total cov	er: 3.8	
7				and the second

WETLAND DETERMINATION DATA FORM 8.2.15 NR5LHO

Qi A

Bul

100

WESLHO60

SOIL	v nus dave name			eature II			A SAME	Soil Pit Required (Y/N)
SOIL PROFI	LE DESCRIPTION: (Describe	to the depth neede	d to doc	ument the	e indicator or co	nfirm the absend	ce of indicators.)
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-6								I" Rund of send went in middle of on so
6-8	101R 3/2	100	1				Siltloom	
Ba								
8-24	2:51 3/1	70	10VR 4/4	30	Com	MrRC	Silfloam	consistent Horizon to depth
						and sense the		
	and the second			-/N				
¹ Type: C=C	oncentration, D=Dep	letion, RM	I=Reduced Matrix,	CS=Cov	ered or C	Coated Sand Gra		n: PL=Pore Lining, M=Matrix.
HYDRIC SO	IL INDICATORS			2 5144	in ic		A REAL PROPERTY OF THE OWNER WATER	FOR PROBLEMATIC HYDRIC SOILS
Histosol or H	listel (A1)	3	Alaska Gleye	d (A13)	N		Alaska Color	Change (TA4) ⁴
Histic Epiped	don (A2)		Alaska Redo	x (A14)	N	- / 1	Alaska Alpine	e Swales (TA5)
Black Histic		ALC: N	Alaska Gleye	d Pores	(A15)	N		x with 2.5Y Hue
Hydrogen S	E.	1.1	-					ed without 5Y Hue or Redder Underlying
		-		-		-	Other (Explai	in in Notes)
Thick Dark S	Surface (A12)		ne primary indicato	r of weth	and hydr	ology, and an ar		cape position must be present unless
disturbed or	problematic.	jetation, o	the primary indicate	I OI WELL	and nyan	ology, and an op		
⁴ Give details	s of color change in N	lotes.	1	Death (inches):_	_		
Restrictive L	ayer (if present): Ty	pe:	4	Deptil (inches)			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Description N	1						
Hydric Soil	Present (Y/N):			1912	-	- /	1	and the second
Notes: Neg	ative XX through	ghout,	Slightly th	ixotro	phie	50.141		and the second s
0			0	-2 xm				
UNDODOLO	GY PRIMARY INDIC	ATOPS	any one indicator is	sufficier	nt)	SECONDARY	INDICATORS	(2 or more required)
HIDROLO	ST PRIMART INDIC				. 1	Water-stained		
Surface Wa	iter (A1)/	Su	Irface Soil Cracks (I	B6)/	<u></u>	Leaves (B9)		Stunted or Stressed Plants (D1)
	THE MAN H	In	Indation Visible on	Aerial Im	nagery		erns (B10)	Geomorphic Position (D2)
High Water	Table (A2)	— (B	7) <u> </u>	1			and the second	
Saturation ((A3) N	Sp	oncave Surface (B8	MIS	ee Note	Living Roots (ospheres along	Shallow Aquitard (D3)
						Presence of R		Microtopographic
Water Mark	(B1) <u>N</u>	Ma	arl Deposits (B15) _	N	-	Iron (C4)	N	Microtopographic Relief (D4)
			drogen Sulfide/			Salt Deposits	(C5) N	FAC-Neutral Test (D5)
Sediment D	Deposits (B2)		dor (C1)/		_		(00)	
Drift Depos	its (B3)		y-Season	¥V		Notes:	1	
		VV	ater Table (C2)		5			the strength and the
Algal Mat o	r Crust (B4)	O	ther (Explain in Not	es):			and the second	1 1 2 24
Iran Dancal	ita (P5)		6					1 Stream -
Iron Deposi		Contraction of the	And in case of the local diversion of the loc	Children and	1 Same	Contraction of the	1-1-12 - 12 K A. 20	CLASSIC DALLARD AND ADDRESS
0		1	Depth (in):	A POST AND	and the second			
Surface Wa	ater Present (Y/N):	1	Depth (in):			Wetland Hydro	logy Present ()	Y/N):
Water Tabl	e Present (Y/N): Y	N	Depth (in): 21-2	2	1	Wolland Hydro		
			1. Mar.		Tal I	317		1 15 11
Saturation	Present (Y/N): apillary fringe)	to she	Depth (in):	0 /	9	EC:		6.15 pH
		G Mi -	at another	with O	ent pla	uts growing	ginlow 5,	
prefer si	lightly higher N	mand	2, Saturat	Ion C	2 /4		0	nes r white J -
1 -12 - 11	0 0 mgm W	1000010-				23		13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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AQUATIC SITE ASSESSMENT DATA FORM

	8.2.15	U85LH	060		r
VEGETATION VARIABLES P= Plot, M	/= Matrix		R	and the second	
Primary Vegetation Type (P): Vegetation La Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	Scrub Shrub-Deciduous-Ne Scrub Shrub-Evergreen-	edle-leaved Needle-leaved	_ Emergent-Non-pers	is-Broad-leaved istent Emerge	nt-
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥1	<u> 43</u> Sapling (<5 dbh, < m) Short herb (<1	6m tall) <u> </u>	shrub (2-6m) 2 chen <u>S</u> Floatin	_ Short shrub (0.5-2m)_ g Submerged	8
Number of Wetland Types (M):	Evenness of Wetland Typ	e Distribution (M): Eve	en _ <u>X</u> _Highly Uneve	enModerately ever	۱ <u></u>
Vegetation Density/Dominance (P): Sparse 80%) Very High Density (80-100%)	(0-20%) Low Dens	sity (20-40%)	Medium Density (40-6	0%) High Densi	ty (60-
Interspersion of Cover & Open Water (P): Peripheral Cover>75% Scattered	100% Cover or Open Wate ed or Peripheral Cover	erX <25% Sca N/A	ttered/Peripheral Cove	er 26-75% Scal	ttered or
Plant Species Diversity (P): Low (< 5 plant	species) Medium	(5-25 species) <u>X</u>	High (>25)		
Presence of Islands (M): Absent (none)	One or Few	Several to Many	N/A	1.1	
Cover Distribution of Dominant Layer (P): Open Small Scattered Patches	No Veg Solitary Continuous Cover	Scattered Stems	1 or More Large	Patches; Parts of Site	
Dead Woody Material (P): Low Abundance Abundant (>50% of surface)	(0-25% of surface) <u>√</u>	_ Moderately Abundan	t (25-50% of surface)		1.
Vegetative Interspersion (P): Low (large High (small groupings, diverse and interspers	e patches, concentric rings)_ sed)	Moderate (br	oken irregular rings)		
HGM Class (P): Slope X Flat	_ Lacustrine Fringe	Depressional	Riverine	Estaurine Fringe	-
SOIL VARIABLES	a Salah Ra	- Transie			- 18 M
Seil Fasters (B): Seil Lacking	Histosol: Eibric H	listosol Hemic	Histosol: Sapric		

3011 Factors (F). 3011	Lacking		111010001.1		
Mineral: Gravelly	Mineral: Sandy	Mineral: Silty	X	Mineral: Clayey_	

Medium (10-100 acres)_

HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Perennial Inlet/Perennial Inlet/Pe
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perim. 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): Absent Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding Keturn Interval 1-2 yrs Return Interval 1-2 yrs Return Interval 2-5 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%)
Evidence of Seeps and Springs (P): No Seeps or Springs K 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 & DownstreamX 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)____

GPS Technician QA/QC check:

X Large (>100 acres)

Crew Chief QA/QC check: Justic Brownell 3213

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Field Target: 15166 Date: 812/16 Feature ID: WELHOGD

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 judentification?
- Vegetation names are entered legibly for all strata present?
- D 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?
- D Appropriate hydric soil indicators are marked?

4. Hydrology

- D Appropriate hydrology indicators are marked?
- D 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?

Exch logbook page is initialed and dated?

7. Maps

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

8. Photos

- C Four photos were taken for each Wetland Determination Data Form (2 vegetation, 1 1 M/A □ Two photos were taken for each Observation Point (vegetation/site overview)?

Х Wetland Scientist (print) Signature / Date

X Snoulce

Signature / Date

Х

8.2.15

Field Crew Chief (print)

SITE DESCRIPTION	1 - And 2 Down Street	a with the lot of the state of	198 an State and	And the second second
Survey Type: Centerline 📈 Ac	ess Road (explain)	Other (explain)	Field Target: 5165	Map #: <u>92</u> Map Date: <u>6.18.1</u>
Date: \$12/15	Project Name & No.:	Alaska LNG 60418403	Feature Id	W85LH061
Investigators: Jessic Broi	mbe Morraul	e Fishel		Team No.: U85
State: Alaska	Region: Alaska		471.9	
Latitude: 64° 35'28.50	//	Longitude: 1490	07'0.251"	Datum: WGS84
	Logbook Page No.:		: P_W85LH061	VEG_NEG_PIT_P
SITE PARAMETERS		We Have Line	Harris Million Providence	
Subregion: Tanana - Kusk	Kuin Iowland	ds Landform (h	illslope, terrace, hummocl	(s, etc.): Terrace
Slope (%): 0-3		Local relief ((concave, convex, none):	Flat
Pre-mapped Alaska LNG/NWI classif	cation: 1, 102,112		Wildlife Use: Nowe	P*
Are climatic/hydrologic conditions on Yes X No (if no e	the site typical for this time (plain in Notes)	of year? Are "M Yes_	Normal Circumstances" pr No (If no, ex	esent: (plain in Notes.)
Are Vegetation, Soil, or I	·	ly Disturbed? No	(If yes, explain in Note	
Are Vegetation, Soil, or I	łydrology Naturally P	Problematic? No	(If yes, explain in Note	s.)
SUMMARY OF FINDINGS		有一些 有加速度 "		
Hydrophytic Vegetation Present? Ye	s No	Is the Sampled	Area within a Wetland?	Yes No
Hydric Soil Present? Yes	No X	Wetland Type:	U	
Wetland Hydrology Present? Yes	s NoX_	Alaska Vegetatio	on Classification (Viereck)	1B2,11BZ
Notes and Site Sketch: Please includ corridor. But Neo open fores with a few pic gl No Signsof hydro	t w/ trees 304	10' tall. Dense u 2. V:6 Edu, 105	nderstory of No.	Sillow ~ 20 tall all in industry

Page 1 of 4

VEGETATION (use scientific names of plants	5)			
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:(A)
1. Betula neoalastan	8	Y	FACI	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: 57% (A/B)
2. Picea Alauca	4	Y	Fail	³ Dominant Species that are OBL, FACW, of FAC. <u>2778</u> (A/B)
3. Alous viold's me fontions	a 4	Y	FAC	
4. Salix belobiana	9	<u> </u>	FAC	Prevalence Index worksheet:
Total Cover:	•		, ,	Total % Cover of: Multiply by:
50% of total cover		% of total cov	1	OBL species: X1 =
Sapling/Shrub Stratum (40 fr))	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $3 \times 2 = 6$ FAC species: $3 \times 3 = 393$. FACU species: $87 \times 4 = 338$
1. Vorcinium Mitzidaea	65	7	tac	UPL speciesX 5 =
2. Kasa acicularis	38	У	Fact.	Column Totals: 216 (A) 727 (B)
3. Viburnum edule	15		Fad	PI=B/A= <u>5.457</u>
4. Alnus viridis septrat			Far	and the second sec
5. Betula readastian	8		FAG	
6. Miceon glavea	2	Contraction of the	Fact	1
8. She chartin Canadersis	and the second se		tae	A 10
9.	2 (OBL	
Total Cover:	156			
50% of total cover:		% of total cov	er: 3_	
	Contraction of the	Name and Address of the	THE OWNER WHEN THE OWNER	
VEGETATION (use scientific names of plants		Densisent	Indiantas	Index but a Versetation to discover
Herb Stratum ()	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
A A A A A A A A A A A A A A A A A A A		(Y/N)		Prevalence Index is ≤ 3.0
1. CORNUS COMODENSIC	22	Y	Facly	Morphological Adaptations ¹ (Provide supporting data in
2. Chamerron aneustitatin	M		Fac	Notes)
3. Mertensia pariculate			Facu	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Polemonium acutiflorum	1		Fac	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Leaune sp	T			disturbed or problematic.
6. Consetum arvense	_15		Fac	
7. Equisetum pratense	3		Fach	% Bare Ground
8. Pyrola acadditlora	1		Fac	% Cover of Wetland Bryophytes
9. ' () ()	-			Total Cover of Bryophytes
10.				Hydrophytic Vegetation Present (Y/N):
Total Cover:	41			Notes: (If observed, list morphological adaptations below):
50% of total cover:	21.5 20	% of total cove	er: 8.12	in observed, list merphological adaptations below).
50% of total cover:	20.5 20	% of total cove	er: <u>8.1</u> 2	

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-5								Dry organics
5-6	and the second second					16 0		
6-8	10YR 4/2	90	7.54R 3/3	10	Com	M	Siltloam	
8-10					1000			Dry organics
10-12	101R 4/2	90	IOYR 3/6	10	(on	M	veryfine condy lon	
12-22	101R 5/2	100		0			- wery fine sand	loan
22-24	10YR 5/2	100		0			Lonmy sand	and the second second second
	oncentration, D=Depl	etion, RM	I=Reduced Matrix,	CS=Cove	ered or Coa	ated Sand C	Grains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SO	L INDICATORS		And I wanted The lot	Same 12	Carles -	age and	INDICATORS F	OR PROBLEMATIC HYDRIC SOI
Histosol or H	istel (A1)		Alaska Gleye	d (A13)	N		Alaska Color Ch	nange (TA4) ⁴
Histic Epiped	lon (A2)	182	Alaska Redo	x (A14) _	N	,	Alaska Alpine S	wales (TA5)
Black Histic (A3)		Alaska Gleye	d Pores	(A15) N		Alaska Redox w	
Hydrogen Su	Ilfide (A4) <u>N</u>		N Designed	- 11			Alaska Gleyed v Layer	without 5Y Hue or Redder Underlyin
Thick Dark S	urface (A12) N			1	1.0		Other (Explain i	n Notes)
³ One indicate disturbed or p	or of hydrophytic vege		ne primary indicato			gy, and an	appropriate landscap	be position must be present unless
Restrictive La	ayer (if present): Typ	e:M		Depth (ii	nches):		1-1-1	21 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Hydric Soil I	Present (Y/N):	V	a de la composition de la comp					

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or m	nore required)
Surface Water (A1)N	Surface Soil Cracks (B6)	Water-stained Leaves (B9) <u>N</u>	Stunted or Stressed Plants (D1)N
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7) N	Drainage Patterns (B10) <u>N</u>	Geomorphic Position (D2) N
Saturation (A3)	Sparsely Vegetated Concave Surface (B8) N	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)
Water Marks (B1)	Marl Deposits (B15) N	Presence of Reduced Iron (C4)	Microtopographic Relief (D4) <u>N</u>
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5) _N	FAC-Neutral Test (D5)
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	A second
Algal Mat or Crust (B4)	Other (Explain in Notes):	1	
Iron Deposits (B5)	(· · ·	A	
Surface Water Present (Y/N):	Depth (in):		N
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):	/*
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:	in a
Notes:	The second		and the second second

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, M= Mat	rix
Forested-Evergreen-Needle-leaved Scru	Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved for Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-Non-persistent Emergent-
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): Ever	nness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-209 80%) Very High Density (80-100%)	%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): 1009 Peripheral Cover >75% Scattered or P	6 Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or eripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant specie	s) 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 Vo Open Small Scattered Patches	eg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site Continuous Cover
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 patch High (small groupings, diverse and interspersed)	es, concentric rings) Moderate (broken irregular rings)
HGM Class (P): Slope Flat Lac	ustrine Fringe Depressional Riverine Estaurine Fringe
POIL VADIADI ED	
SOIL VARIABLES Soil Factors (P): Soil Lacking Histor Mineral: Gravelly Mineral: Sandy	sol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
	o Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial rennial Outlet
Wetland Water Regime (P): Drier: Seasonally Wet: Perm. Flooded, Intermittently Exposed, Semipe	Flooded, Temporarily Flooded, Saturated
Evidence of Sedimentation (P): No Evidence Obs Created	erved 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 Overban Return Interval >5 yrs	k 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 Circumn	eutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (P): Hi Glacial Till/Not Permeable	gh Permeability Stratified Deposits Low Permeability Stratified Deposits
Basin Topographic Gradient (M): Low Gradie Evidence of Seeps and Springs (P): No Seeps or S	
LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated	Wetlands within 400m, Not Connected Only Connected Below
	ream & Downstream Unknown 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	Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space) 5-25% Urbanized 25-50% Urbanized >50% Urbanized
	5-25% Urbanized 25-50% Urbanized >50% Urbanized

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

1/85/ 4/06 Feature ID:

Field Target:___5765

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?
- D 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

- D 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)?

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

Signature / Date Wetland Scientist (print) Brownlee 2.(5 X-lanie

Field Crew Chief (print)

Signature / Date

A 5 0 1

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WETLAND DETERMINATIO	N DATA FO	ORM	AF	
SITE DESCRIPTION	The PATIENT THE	and the second second second	Canada and an	A MARTING MARTING
Survey Type: Centerline Access Road (explain) Other (explain	in) Field Ta	rget: 15058 Map #: 93	Map Date: 6.18.15
Date: 4/2/15 Project Name	& No.: Alaska LNG		Feature Id: W85	HAGZ
Investigators: Jessie Brownle	e, Abicianto	Fishor	Team No.:	WES
State: Alaska Region: Alask	-1 - 13 A DI DU I	Milepost: 472	2	<u> </u>
Latitude: (1035 04.35" N	Longitude:		Datum: WG	S84
		MI 06 4	N JC/ W	
Logbook No.: A Logbook Page	No.: 27	Ficture No F_W	852H062_VEG.	JEG MILIU
SITE PARAMETERS	用同时的新闻和	R. H. M. Market	Alt - Alt - Salar - Real - Salar	
Subregion: Tanano - Kuskokain /c	swlands	Landform (hillslope, terr	ace, hummocks, etc.): To	eslope
Slope (%): () - 3		Local relief (concave, co	onvex, none): slightly	convex
Pre-mapped Alaska LNG/NWI classification: \)		Evidence of Wildlife Use		
Are climatic/hydrologic conditions on the site typical for the	his time of year?	Are "Normal Circu	umstances" present:	1-
Yes No (if no explain in Notes)	-if a setter Disturbed 2		(If no, explain in Notes.)
	inificantly Disturbed?	No(If yes, e		they for the second
	turally Problematic?	No (If yes, e		
SUMMARY OF FINDINGS	7 100 100 100 100 100 100 100 100 100 10			
Hydrophytic Vegetation Present? Yes No_		he Sampled Area within	n a Wetland? Yes	NoX
Hydric Soil Present? Yes No	<u> </u>	tland Type:		
Wetland Hydrology Present? Yes No	Ale	ska Vegetation Classifica	ation (Viereck):	
Notes and Site Sketch: Please include Directional & Nort	h Arrow, Centerline,	ength of feature, Distance	ces from Centerline, Photo Lo	ocations, and Survey
tall Mature Bet Nea Forest	w/trees ~	60' tall .	industry of	ros Acic
in cold	signs of he	porolog. Dr.		and but
Vib Edu & Egu Sylv. No on map 93 the polygon PEM likely been cleased for again the	Vesi Polygish	surrounding Th	LE PENTI IS NOT	CAL CAN
on map 93 the polygon 10	al purposes i	n the past 4 i	3 NON AMAGOIN	
likely been cleared for aquicont	And firewee	Sfield.		
6 500				
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V VC	DR M			
A A A	RR Crossing (7 11:4		1
4	profil 1	1 X	Diff	1
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299	.,	< I EITE		
CH CH				
U:10		N.		
30				
,				QU

Page 1 of 4

Picea alanca	Absolute % Cover	Dominant	Indicator	Dominance Test worksheet:
		Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC: $\frac{1}{\sqrt{1}}$ (A)
	a90	Y	Fae	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: 5
	2	/	Fact	AVB
			-+	Prevalence Index worksheet:
Total Cover:			10.11	Total % Cover of: Multiply by:
50% of total cover:		% of total cov		OBL species:X 1 =
apling/Shrub Stratum (<u>AG+</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $X = $ FAC species $74 \times 3 = 522$ FACU species $57 \times 4 = 272$
U. burnum edule	15	1	Fool	UPL species X 5 =
Rosa acicularis	35	7	Fac	AColumn Totals: 327 (A) 734 (B) PI-B/A = 3.23
Betwa negalaslana	40		Fac	
Picea glavca	T		Fact	
				A CONTRACTOR OF A CONTRACTOR
				A second s
Total Cover:_ 50% of total cover:_	27 20	% of total cov	er: <u>\0.8</u>	
EGETATION (use scientific names of plants)	A PACIFIC PARTY			
erb Stratum (b)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
· Equisetum sulvaticum	75	Y	Far	Prevalence Index is ≤3.0
· Calomacrostis canade	555	1.5	Fac	Morphological Adaptations ¹ (Provide supporting data in Notes)
Chamerten anavelifati	m1		Forl	Problematic Hydrophytic Vegetation ¹ (Explain)
· Herb sp.	T		~	¹ Indicators of hydric soil and wetland hydrology must be present unless
· Geranium erianthum	T.		FacU	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:	MO \$ 20	% of total cov	er: 16 -)	Notes: (If observed, list morphological adaptations below):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-7						_		Dry organics
7-8.5	104R 3/2	1000	TOTRS/0-18	1			silf loam	10 -
8.5-24	104R7/3	90	104R 5/6	10	COA	M	Silt loam	
								4
		_						
¹ Type: C=Co	oncentration, D=Dep	letion, RM	/ /=Reduced Matrix, CS	 =Cov	ered or Co	ated Sand	Grains. ² Location	I : PL=Pore Lining, M=Matrix.
HYDRIC SO	L INDICATORS	That is a		Call In	(新社)	12 19 12 - 24	INDICATORS	FOR PROBLEMATIC HYDRIC SOIL
Histosol or H	istel (A1)		Alaska Gleyed (/	A13)	N		Alaska Color (Change (TA4) ⁴
Histic Epipeo	1		Alaska Redox (A	14)	N		Alaska Alpine	Swales (TA5)
Black Histic ((A3) <u>N</u>		Alaska Gleyed P	ores	(A15) N			with 2.5Y Hue
Hydrogen Su	Ilfide (A4)	-	1. A				Alaska Gleyeo Layer	without 5Y Hue or Redder Underlyin
Thick Dark S	urface (A12) 📈		100 100					n in Notes) 📈
disturbed or	or of hydrophytic veg problematic. of color change in N		1				appropriate landsc	ape position must be present unless
Restrictive La	ayer (if present): Typ	be:/	De De	epth (inches):	-		
	Present (Y/N):/							
Notes: All a all the	olors taken di	y.D	ry platey soi	1.	Color is	5 Pares	A Material	related. Consistent he

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or I	nore required)
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	· · · · · · · · · · · · · · · · · · ·
Algal Mat or Crust (B4)	Other (Explain in Notes): N		
Iron Deposits (B5)			
Star was the American Street		tradition in the Action of the Party of the	
Surface Water Present (Y/N): N	Depth (in):		1
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N): _	
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:	<i>u</i>
Notes: No signs of hy	iddrology.		

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, M	I= Matrix
Forested-Evergreen-Needle-leaved	cking 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-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) Dwarf shrub (<0.5m) Tall herb (≥r	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% Scattered	100% Cover or Open Water <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
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) ed)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
Soil Factors (P): Soil Lacking_ Mineral: Gravelly Mineral: Sandy_	Histosol:Fibric Histosol:Hemic Histosol: Sapric
	X
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial In	No Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Iet/Perennial Outlet
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Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85LH067 Field Target: 15258

Date: 8/2/15

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

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

6. Field Logbook

K Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate?

K Each logbook page is initialed and dated?

7. Maps

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

8. Photos

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

0 Wetland Scientist (print) Signature / Date

Х mee

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION		(1) · · · · · · · · · · · · · · · · · · ·			
Survey Type: Centerline A	Access Road (explain) X	Other (explain)	Field 1	arget: 15296	Map #: 126 Map Date: 6.18.15
Date: 8.13.15	Project Name & No.:	Alaska LNG 604	Feature Id	WESLHOUS	
Investigators: Jessle Brow	mare, Jennifer A	inderson	L DAT N		Team No.: USES
State: Alaska	Region: Alaska		post: Sole	S	4
Latitude: (04 07.07.88	77	Longitude:	49 14 33.	17"	Datum: WGS84
Logbook No.: 2	Logbook Page No.:	34 Pict			veey. N.S
			Did Hernisten		Million Design of the Control of
SITE PARAMETERS		Lan	dform (hillslope, te	errace, hummock	s, etc.):
Subregion: Tanana - Kusk	nkwim Lowland		al relief (concave,		Flore plann
Slope (%): Pre-mapped Alaska LNG/NWI clas	sification: PSSI/FMIE				Moose drappings
Are climatic/hydrologic conditions of			Are "Normal Ci	cumstances" pre	esent:
Yes <u>X</u> No (if no	explain in Notes)			o (If no, ex	24
Are Vegetation, Soil, c		tly Disturbed?	No <u>X</u> (If yes,		1. S. 1. 1. S. 1
Are Vegetation, Soil •, c	or Hydrology Naturally	Problematic?	No <u>X</u> (If yes	, explain in Note:	
SUMMARY OF FINDINGS					Max No
Hydrophytic Vegetation Present?	Yes No	Is the S	ampled Area wit	hin a wetland?	Yes No
Hydric Soil Present?	/es No	Wetland	d Type:	FMIC	
Wetland Hydrology Present?	Yes No		/egetation Classif	ication (Viereck):	11C1 111 A*2
corridor. Myr Gal & Salix	shrub community w/ c	cal can and flow, throw of in repeating it it was obvious a large and c south. I	you other the site the stands	indicate c indicate c polygon b of is Not of is Not imageny l	week Plocalo regular ecomes much wetter representative of oad and map bowchies . Draw/split polygon in The Result B

VEGETATION (use scientific names of plants	s)		200 - F				
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)			
1. 2	1		1.1.1	Total Number of Dominant Species Across All Strata:(B)			
2.	1.1		4.6	% Dominant Species that are OBL, FACW, or FAC: <u>SO</u> (A/B)			
3.	St. Inc. C	8.1925	1.2.0				
4.	13,13	1.1.1.1	1	Prevalence Index worksheet:			
Total Cover			10	Total % Cover of: Multiply by:			
50% of total cover	and a first sector of the sect		ver:	OBL species: $37 \times 1 = 37$			
Sapling/Shrub Stratum (. つ() 「)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $31 \times 2 = 62$ FAC species $68 \times 3 = 304$			
1. Picea Glauca	15	V	FACU				
2. St. DIL	15		\	UPL speciesX 5 = Column Totals:53(A)37/(B)			
2. Salix Pulchra	30	V	FACU	Column Totals:(A)(B) PI = B/A =(A) = 2.42			
4. Betyle range laland ulo 52.	15	N. A.	OBL	PI= B/A =			
5. Dasiphora fivitcosa	12		FAC				
6. Salle Achardsonni	17	N	FAC	and the second second second second			
7. Vaccinium ulisinosum	10	-	FAC				
8.	10	1.1.1	+nc ·	and a start of the start of the			
9.	1.1	1.1	·				
Total Cover	: 112	100-00	1. 1.				
50% of total cover	56 20	% of total cov	er: 22.4	and the second			
VEGETATION (use scientific names of plants)		12. 10 × 14				
Herb Stratum (<u></u> - Ζ (ρ)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:			
1. Comarum . Daustre	7		OBL	Prevalence Index is ≤ 3.0			
2. Rubys Archicus	6	100	FAC	Morphological Adaptations ¹ (Provide supporting data in Notes)			
3. Calonascostis canadensis.	25	Y	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)			
4. Forb -	T	1. 1. 1		¹ Indicators of hydric soil and wetland hydrology must be present unless			
5. Parnassia polistris	1 28	inger i h	TACW	disturbed or problematic.			
6. Forscotom sciencides	2	6. 22	FACU				
7.	511. -	4.17	Sec. Alex	% Bare Ground			
8.	Sec.	- B -	ie.	20 % Cover of Wetland Bryophytes			
9.	a start	× • •	A. A.	Total Cover of Bryophytes			
10.		AN DON	4	∠ // // % Cover of Water			
Total Cover:	Ц	and the	40	Hydrophytic Vegetation Present (Y/N):			
50% of total cover:		% of total cov	er: <u>8.2</u>	Notes: (If observed, list morphological adaptations below):			
· · · · · · · · · · · · · · · · · · ·		ST KORK		States Carlos			

Oe Og

SOIL			Date Fe	ature ID				
	E DESCRIPTION: (D	escribe		to docum	ent the	indicator or o	confirm the absence	e of indicators.)
Depth	Matrix		Redox Features		1	de.		1. A.
(inches)	Color (moist)	%	Color (moist)	%	Гуре ¹	Loc ²	Texture	Notes
()-4	10 12 2/1	21	7.542 2.5/2	03				Thick band on Conc throughout root
4-14	2.51 3/1 mine	_	and the second s		- AI	a.	Fire sandy long	researed hands of mineral & organics
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	S - PAUS SO W	1000				- 7 S (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0
11-20	X 76-1×	5	90 A			2 - 2	1 Pr - 24	reported Lands
1.	10.00	104	2011	5			1 A.	a substantiant
	All and		1.1.1	1.00			the second s	
100	A BELLEN MAN	Elent	and strend a			er aller an	·	1 Brack - Contraction
¹ Type: C=Co	ncentration, D=Deplet	ion, RI	M=Reduced Matrix, C	CS=Covere	ed or Co	ated Sand G		PL=Pore Lining, M=Matrix.
HYDRIC SOI	LINDICATORS						The second secon	FOR PROBLEMATIC HYDRIC SOILS'
Histosol or Hi	istel (A1)	to.	Alaska Gleyed	I (A13)	N		Alaska Color C	hange (TA4) ⁴
Histic Epiped	on (A2)	HS:	Alaska Redox	(A14)	<u>N</u>	N.	Alaska Alpine S	Swales (TA5)
Black Histic (A3) <u>AN</u> 4B	1999	Alaska Gleyed	Pores (A	15) _/	1.4		with 2.5Y Hue
Hydrogen Su	lfide (A4)	1	the - and the	1		e Derv	E State Stat	without 5Y Hue or Redder Underlying
	urface (A12)				1		Other (Explain	in Notes)
		ation of	one primary indicator	of wetland	hvdrold	ody, and an		pe position must be present unless
⁴ Give details Restrictive La	ayer (if present): Type		F1	Depth (inc	hes):			day an angle
Restrictive La Hydric Soil F Notes: Post Hybrouldy Hybrouldy Surface Wate	Present (Y/N): Present (Y/N): WE XX in which the chip away Y PRIMARY INDICAT	ral 9 9 fi ORS (Su Int (B	any one indicator is sufface Soil Cracks (Brundation Visible on A	sufficient)	ampl nics	K b (our in Cr/A SECONDAR Water-staine Leaves (B9) Drainage Pa	tterns (B10)	or more required) Stunted or Stressed Plants (D1)' Geomorphic Position (D2)
Restrictive La Hydric Soil F Notes: Post Hybrool fy Hybrool og Surface Wate	ayer (if present): Type Present (Y/N): we XX in which the chipaway Y PRIMARY INDICAT er (A1) Table (A2)	ral 9 4 fi ORS (Su Int (B	any one indicator is surface Soil Cracks (Brundation Visible on A	sufficient)	ampl nics	(< b) (our in Cr./A SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots	tterns (B10) izospheres along (C3)	or more required) Stunted or Stressed Plants (D1)/ Geomorphic Position (D2) Shallow Aquitard (D3)
Restrictive La Hydric Soil F Notes: Part Hydric (Hy Hydrolog Surface Wate High Water T	ayer (if present): Type Present (Y/N): Present (Y/N): Ave X in which if chip away Y PRIMARY INDICAT Pr (A1) able (A2) 3)	ral 9 9 fi ORS (Su Int (B Sp Co Ma	any one indicator is s any one indicator is s inface Soil Cracks (Be undation Visible on A 7)	sufficient)	ampl nics	K bl (om in Cr/A SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh	tterns (B10) izospheres along (C3)	or more required) Stunted or Stressed Plants (D1)'/ Geomorphic Position (D2)
Restrictive La Hydric Soil F Notes: Part Hybroolog Surface Water High Water T Saturation (A Water Marks	ayer (if present): Type Present (Y/N): Present (Y/N): Ave X in which if chip away Y PRIMARY INDICAT Pr (A1) able (A2) 3)	ral 9 9 fi ORS (Su Inn (B Sp Cc Cc Mi	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) barsely Vegetated bocave Surface (B8) arl Deposits (B15)	sufficient)	sampl nices	K bl. (ours in Cr/A SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	tterns (B10) izospheres along (C3) Reduced	or more required) Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/_ Shallow Aquitard (D3)/_ Microtopographic
Restrictive La Hydric Soil F Notes: Part Hybroolog Surface Water High Water T Saturation (A Water Marks	ayer (if present): Type Present (Y/N): Y AVE (M. WINC Y PRIMARY INDICAT aver (A1) M able (A2) M (B1) M posits (B2)	ral 9 9 fi 9 fi 10RS (10 10 10 10 10 10 10 10	any one indicator is surface Soil Cracks (Be undation Visible on A 7) $\Lambda/$ barsely Vegetated bocave Surface (B8) arl Deposits (B15) vdrogen Sulfide	sufficient)	sampl nices	K bl. (ow in Cr/A SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	tterns (B10) izospheres along (C3) Reduced	or more required) Stunted or Stressed Plants (D1)'/ Geomorphic Position (D2)/_ Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Restrictive La Hydric Soil F Notes: Part HyDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De	ayer (if present): Type Present (Y/N): Y A (A1) X/ (B1) X/ (B1) Y y (B1) X/ y (B3)	ral 9 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9	any one indicator is s any one indicator is s inface Soil Cracks (Be undation Visible on A 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide or (C1) y-Season	sufficient) () sufficient) () erial Imag	sampl nices	K bl. (ours in Cr/A SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	tterns (B10) izospheres along (C3) Reduced	or more required) Stunted or Stressed Plants (D1)'/ Geomorphic Position (D2)/_ Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Restrictive La Hydric Soil F Notes: Part HyDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or (ayer (if present): Type Present (Y/N): Y Gable (A2) // (B1) // y (B1) // y (B3) // // // // // // // // // // // // // // // // // // <	ral 9 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) parsely Vegetated procave Surface (B8) arl Deposits (B15) dor (C1) y-Season ater Table (C2)	sufficient) () sufficient) () erial Imag	sampl nices	K bl. (ours in Cr/A SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	tterns (B10) izospheres along (C3) Reduced	or more required) Stunted or Stressed Plants (D1)'/ Geomorphic Position (D2)/_ Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Restrictive La Hydric Soil F Notes: Part HyDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposits	ayer (if present): Type Present (Y/N): Y Gable (A2) // (B1) // y (B1) // y (B3) // // // // // // // // // // // // // // // // // // <	ral 9 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) parsely Vegetated procave Surface (B8) arl Deposits (B15) dor (C1) y-Season ater Table (C2)	sufficient) () sufficient) () erial Imag	sampl nices	K bl. (ours in Cr/A SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	tterns (B10) izospheres along (C3) Reduced	or more required) Stunted or Stressed Plants (D1)'/ Geomorphic Position (D2)/_ Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Restrictive La Hydric Soil F Notes: Part HyDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or (Iron Deposits	ayer (if present): Type Present (Y/N): Y Gable (A2) // (B1) // y (B1) // y (B3) // // // // // // // // // // // // // // // // // // <	ral 9 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9	any one indicator is s any one indicator is s inface Soil Cracks (Be undation Visible on A 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide y-Season ater Table (C2) her (Explain in Notes Depth (in):	id Not : ih crga sufficient) 6) erial Imag	ery	Secondar Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	tterns (B10) izospheres along (C3) Reduced s (C5)	or more required) Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)/_
Restrictive La Hydric Soil F Notes: Part HyDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or (Iron Deposits Surface Wate	ayer (if present): Type Present (Y/N): Y AX in which if a chip a way Y PRIMARY INDICAT or (A1) J (A1) J (B1) J (B1) J (B1) J (B1) J J (B1) J (B1) J (B1) J J (B1) J (B1) J (B2) J (B3) J (B5)	ral 9 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9 fi 9	any one indicator is s any one indicator is s inface Soil Cracks (Be undation Visible on A 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide y-Season ater Table (C2) her (Explain in Notes Depth (in):	sufficient) () sufficient) () erial Imag	ery	Secondar Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	tterns (B10) izospheres along (C3) Reduced	or more required) Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)/_

AQUATIC SITE ASSESSMENT DATA FORM

	W85LH063 01315
VEGETATION VARIABLES P= P	lot, M= Matrix
Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	on 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-
Percent Cover (P): Tree (>5 dbh, >6m Dwarf shrub (<0,5m) Tall her	all)Sapling (<5 dbh, <6m tall)5 Tall shrub (2-6m)_ <u>4</u> 5 Short shrub (0.5-2m)5_2 o (≥1m)5 Short herb (<1m)_ <u>1_0</u> Moss-Lichen_ <u>_80</u> Floating Submerged
Number of Wetland Types (M):	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sp 80%) Very High Density (80-1)	parse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 00%)
Interspersion of Cover & Open Water Peripheral Cover >75% Sca	(P): 100% Cover or Open Water <a> X <25% Scattered/Peripheral Cover 26-75% Scattered or attered or Peripheral Cover 26-75% Scattered or <a> N/A
Plant Species Diversity (P): Low (< 5	olant species) Medium (5-25 species) High (>25)
Presence of Islands (M): Absent (no	ne) One or Few Several to Many N/A
Cover Distribution of Dominant Layer Open Small Scattered Patche	(P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abunda Abundant (>50% of surface)	ance (0-25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (High (small groupings, diverse and inters	large patches, concentric rings)X Moderate (broken irregular rings) spersed)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	
Soil Factors (P): Soil Lacking Mineral: Gravelly Mineral: Sa	Histosol:FibricHistosol:HemicHistosol: Sapric AndyMineral: SiltyMineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No ittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial nial Inlet/Perennial Outlet
Wet: Perm. Flooded, Intermittently Expos	
Evidence of Sedimentation (P): No E Created	vidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): At	sent Poorly Developed (6in.) Well Developed (6-18in.) Y 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____X

 Water pH (P): No surface water_____
 Circumneutral (5.5-7.4)_____
 Alkaline (>7.4)____
 Acid (<5.5)_____</td>
 pH Reading 5.3

 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 VARIABLI	ES (M)	Contestal principal and the		2
Wetland Juxtaposition: Only Connected Above_	Wetland Isolated Wetland Connected Upstream & Downs	ls within 400m, Not Connected treamXUnknown	Only Connected Below	1
Wetland Land Use:	High Intensity (i.e., ag.) Mode	rate Intensity (i.e., forestry)	Low Intensity (i.e. open space)	_
Watershed Land Use:	0-5% Rural 5-25% Urbaniz	ed 25-50% Urbanized	>50% Urbanized	
Size: Small (<10 acr	res)X Medium (10-100 acres)	Large (>100 acres)	- 52 N	100

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.

Feature ID: W85LHQ63Field Target: 15296Date: 8/13/15For 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?
- B 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?
- A Maps are initialed and dated?

8. Photos

- S 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)?

8/13/

8181)

Wetland Scientist (print)

Signature / Date

X Jessie Brownier

Fleld Crew Chief (print)

Signature / Date

SITE DESCRIPTION	Company of the second	S- AVA		Service States				
Survey Type: Centerline	Access Road (explain)	Other (expla	in <u>)</u>	Fleid Targ	et: <u>15/25</u>	Map #: 127 Map Date: 6. 18. 15		
Date: 8 13 15	Project Name & No.:	Alaska LNG	60418403	60418403 Feature Id:		W85 LHO64		
Investigators: JB, JA						Team No.: W 35		
State: Alaska	Region: Alaska		Milepost:	507.8		· · ·		
Latitude: 64'06'07 70				06.6	8	Datum: WGS84		
Logbook No.: Ø2					Picture No .: P_ pit, plug, vag, vag, veg N, S.			
SITE PARAMETERS					R. C. Martin			
Subregion: Tananar Kusko	Kuim Lowlands					s, etc.): Lowland		
Slope (%): 0-3	,		Local relief (c	oncave, con	vex, none):	undulating/concave		
Pre-mapped Alaska LNG/NWI clas	ssification: U'. 142		Evidence of V			7		
Are climatic/hydrologic conditions Yes No(if no	on the site typical for this time o explain in Notes)	of year?	Are "No Yes}	ormal Circum	istances" pre (If no, exp	sent: blain in Notes.)		
Are Vegetation, Soil,		ly Disturbed?	NoX	_(If yes, exp	lain in Notes			
Are Vegetation, Soil,	or Hydrology Naturally F	Problematic?	No_X	(If yes, exp	lain in Notes	.)		
SUMMARY OF FINDINGS		Carls de Mi		ALL ALL	E-S. E.M.			
Hydrophytic Vegetation Present?	Yes No	ls t	the Sampled A	Area within a	a Wetland?	YesXNo		
Hydric Soil Present?	Yes No	We	etland Type:	PF04E	3 /			
Wetland Hydrology Present?	Yes No	Ala	aska Vegetation	n Classificati	on (Viereck):	1A2		
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. Burned Pic Mar forest w/ thick Pic Mar sopping regen. Thick moss covering area & low diversity in understory. Landscope is undulating possibly due to thermokarst intree throw. Surround area has many downed trees & pickets of standing water and large hummacks directly to the soft. Elevation may dictate wet/dry line so use lidar when teasing at wet/dry. Map 127 is justs a guestimetion of shape of this polygionidue to lack of contours.								
LA L	PFO4C b b b bounded tout	A 2	A G	R	0	P55-1/10		

VEGETATION (use scientific names of plants)			
Tree Stratum (Plot sizes: 1001)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>5</u> (A)
1. Picea Mariana	35	Y	FACW	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
2.				% Dominant Species that are OBL, FACW, or FAC: 1/10/. (A/B)
3.	1 N N 24	011711		
4			105	Prevalence Index worksheet:
Total Cover:	35	X	i la serie de la s	Total % Cover of: Multiply by:
50% of total cover	17.5 20	% of total cov	er: <u>7</u>	OBL species:X 1 =
Sapling/Shrub Stratum (26')	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 77 X 2 = <u>154</u> FAC species 84 X 3 = <u>25 2</u> FACU species 2 X 4 = _8
1. Picea Mariana	40	Y	FACW	UPL speciesX 5 =
2. Empetrum nigrum	45	Y	FAC	Column Totals: 163 (A) 414 (B)
3. vaccinium uliginarum	T	e.c.	FAC	PI = B/A =
4. Jaccinium vitis-idaea	15	*	FAC	
5. Rhododendrum groenlandicum	10		FAC	
6. Arctous ruber	T		AAC	
7.				
8.		_		
9.	1		2	East, We
Total Cover:		0/ +64-4-1	- 20	
50% of total cover:	20	% of total cov	er: <u>22</u>	
VEGETATION (use scientific names of plants)			
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0
1. Georgulan lividium	2		FACU	Morphological Adaptations ¹ (Provide supporting data in
2. Pyrola grandiflora	4	V	FAC	Notes)
3. Calamagrostis lapponica	10	V	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Rubus chamaemorus	2		FACW	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Pedicularis sp	T			disturbed or problematic.
6. Saxifraga sp	T		~	
7. 0			_	% Bare Ground
8.				% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.	5	-		Cover of Water
Total Cover:	18			Hydrophytic Vegetation Present (Y/N):
50% of total cover:		% of total cov	er: <u>3 (</u>	

0 Bis

A ALEXAND			8.13.15		128	SLHOWY		/
SOIL	Conte Rune start			eature II			化机构展门协会	Soil Pit Required (Y/N)
SOIL PROFILI	E DESCRIPTION: (De	scribe	to the depth needed	d to doci	ument the	e indicator or co	nfirm the absence	e of indicators.)
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-4	104R 2/2	(00)						Damp organica
4-8	1048 41	(00)						Damp organics
8-10	544/1	15	7.51R 3/3	10	C	RC M RC M	Silflowing	
Send 1	101R 3/2	45		0		m		
10-12	5Y4/1	90	7.54R 3/3	10	C	MRC	Silfloam	The second s
12-18	1048 4/3	90	10YR 4/6	10	C	m	loamy course S	and
1. 24 - 1 - C	24				1		2	
the second s	centration, D=Depleti	on, RN	=Reduced Matrix, C	CS=Cov	ered or C	coated Sand Gra		PL=Pore Lining, M=Matrix.
Republic States and a second	INDICATORS		Statistics and suc	And shirts	Contraction of the	1200-2016-10-11		FOR PROBLEMATIC HYDRIC SOILS
Histosol or His	tel (A1)		Alaska Gleyed	_			Alaska Color C	
Histic Epipedo	ter ter	1.0	Alaska Redox	102	and the second s	-,	Alaska Alpine	
Black Histic (A	.3) <u>M/Y</u>		Alaska Gleyed	d Pores	(A15)	N	Alaska Redox	and the second sec
Hydrogen Sulf	ide (A4)	a de					Layer 1	without 5Y Hue or Redder Underlying
	rface (A12)					1.2	Other (Explain	
		ition, o	ne primary indicator	of wetla	and hydro	ology, and an ap	propriate landsca	ape position must be present unless
disturbed or pr ⁴ Give details o	oblematic.	s.						
	ver (if present): Type:		and the second second	Depth (i	nches):_	25		The second second
Hydric Soil P	resent (Y/N):			2	4.			De la
				4			the start	D La Ba Dura det anot
Notes: Joil 5	string in all arou	10 pr	starting at 8	Ler	se rock	2 (18. Po	sittle QUX 1	n Bul + Bg. Does Not meet ms. Using BPJ to assume
soils.	TOP IT DO AT	12 0	- BUALL	arro	ULLU?	204 ADC CE	MC SICI I Hat I B	12.031 9 31 3 43 0
		100		C			3	
HYDROLOGY	PRIMARY INDICAT	ORS (a	ny one indicator is s	sufficien	t)	SECONDARY	INDICATORS (2	2 or more required)
Surface Water	(A1) N(pbf		face Soil Cracks (B			Water-stained Leaves (B9)	N	Stunted or Stressed Plants (D1)
High Water Ta	able (A2)	Inu (B7	ndation Visible on A	Verial Im	agery	Drainage Patte	erns (B10)/	Geomorphic Position (D2)
Saturation (A3	»		arsely Vegetated acave Surface (B8)	N		Oxidized Rhize Living Roots (0	ospheres along C3)	Shallow Aquitard (D3)

Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	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)	. Dee	The second s	
AN CONTRACTOR OF A CONTRACT OF		ALL TAR BELIER SHARE & BEAU AND DESC	A REPORT OF A REPORT OF A
Surface Water Present (Y/N): 📈	Depth (in):		1
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):	-/
Saturation Present (Y/N): (includes capillary fringe)	Depth (in): 8	EC: <u>54</u>	H 5.1 38.8°F
Notes:			. She

8.13.15

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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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent- Persistent Aquatic Bed Forested Strub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0,5-2m)5 Dwarf shrub (<0.5m) Tall herb (≥1m) Short herb (<1m) Moss-Lichen4 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%) Key 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/Peripheral Cover 26-75% Scattered or 100% Cover or Open Water <
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species)X 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) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings)
High (small groupings, diverse and interspersed) (difference is in supplyings 9 Forest buight)
HGM Class (P): Slope Flat A 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/No Outlet Perennial Inlet/Perennial Inlet/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 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 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 Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)
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%) 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 Wetland Juxtaposition: Wetland Solated Only Connected Above Connected Upstream & Downstream Unknown Unknown

Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized

Medium (10-100 acres)

Size: Small (<10 acres) Crew Chief QA/QC check:

lessie Brow

GPS Technician QA/QC check

Large (>100 acres)

>50% Urbanized

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: W85 LHoc4
 Field Target: 15125
 Date: 3 (3115

 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?
- X Vegetation names are entered legibly for all strata present?
- B. Cover calculations are complete and correct?
- All dominant species have been determined and recorded per strata?
- B 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?
- At 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?
- G 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)?

8/13/15 50 Wetland Scientist (print) Signature / Date

X Sessie Brownlee

Х 8-18-15

Fleid Crew Chief (print)

Signature / Date

SITE DESCRIPTION			tion of the		2014年1月1日日本市场的市场
Survey Type: Centerline <u>K</u> Acce	ss Road (explain)	Other (expla	uin)	Fleid Target:	Map #: 129_Map Date: 6-18-15
Date: 8/13/15	Project Name & No.:	Alaska LNG	60418403	Feature le	1: W85LH065
Investigators: J B JA			· .		Team No.: W 85
State: Alaska	Region: Alaska		Mllepost:	512.8	
Latitude: 64 ° 02 15.97		Longitude	149.09%	57.17	Datum: WGS84
Logbook No.: 2	Logbook Page No.:	34			- Plug N, S.
		12 10 14 12 52 MIG	A 407 1983	0 0	
SITE PARAMETERS		N. S. BREEDIN	Landfarm (b)		ke etc):
Subregion: Tanana-Kuskokus	im Lowland				ks, etc.): Footslope
Slope (%): 3-5				concave, convex, none):	1.1.00
Pre-mapped Alaska LNG/NWI classifica			Evidence of	Wildlife Use: Caribo	ou droppings
Are climatic/hydrologic conditions on th Yes X No (if no exp	e site typical for this time lain in Notes)	e of year?	Are "N Yes_	lormal Circumstances" p <u>X</u> No (If no, e	esent: xplain in Notes.)
Are Vegetation, Soil, or Hy	drology Significan	tly Disturbed?	No <u>X</u>	(If yes, explain in Note	s)
Are Vegetation, Soil, or Hy	drology Naturally	Problematic?	No X	(If yes, explain in Note	es.)
SUMMARY OF FINDINGS	the up strong the second		供奉命的		
Hydrophytic Vegetation Present? Yes_	No	Is	the Sampled	Area within a Wetland?	Yes No_ X
Hydric Soil Present? Yes_	Νο <u></u> χ	w	etland Type:	U	
Wetland Hydrology Present? Yes_	NoX	— AI	aska Vegetatio	on Classification (Viereck	: 1A2,11C2
Notes and Site Sketch: Please include corridor. Pic Colauca open forest up Boil shows signs of sat Soils do not make indic Surrounding veg to the See map for bound	salix & Betulo	shrub	layer: Thi	ck Feather Cover	s area. Frost@ 18"

	Absolute	Dominant	Indicator	Dominance Test workshe	et:			
ree Stratum (Plot sizes: 100)	% Cover	Species? (Y/N)	Status	No. of Dominant Species th				
· Picea Calaura	26	Y	FACU	 Total Number of Dominant % Dominant Species that a 				
· Picea Calaura Betula Neoalaskana	4		FACU		0000,1	71011, 011		<i>.</i>
					ALL AND	N 1 20		
			2	Prevalence Index worksh	eet:			
Total Cove							ly by:	
50% of total cove			paner i -	OBL species:				R
apling/Shrub Stratum (26')	Absolute % Cover	Dominant Species?	Indicator Status	FACW species: 7			201	
		(Y/N)	Claids	FACU species			-	
Betula nievalaskana	4		FACU	UPL species				
Picea Glauca	15	6.4	FACU	Column Totals: 160			(B)	6
· Salia pulchra	2		FACW	PI = B/A = 325			1.6	
Rhadadendrum graenkinkicum	25	Y	FAC	Betula glandulosa	5	3		FA
· Vaccinium vitis-idaea	30	Y	FAC	Mertensia paniculati	H.	T		FA
· Vaccinian uliginosum	7		FAC					1
			-11-					1
· Betula nana	T		FAC	_				
Salix glauca	8		FAC	-		-		
· Salix glauca · rosa acivularis	8 T					-		
· Salix glauca · rosa acirularis Total Cove	8 T		FAC FACU		-	-	1	
Salix glauca rosa acivularis	8 T	% of total cov	FAC FACU					
· Salix glauca · Tosa acirularis Total Cove 50% of total cove	8 7 r: 101 r: 50,5 20	% of total cov	FAC FACU	-				
Salix glauce · Tosa acicularis Total Cover 50% of total cover EGETATION (use scientific names of plant	8 7 r: 101 r: 50.5 20 s) Absolute	Dominant	FAC FACJ er: <u>20</u> ² Indicator	Hydrophytic Vegetation Ir				
Salix glauce · Tosa acicularis Total Cover 50% of total cover EGETATION (use scientific names of plant	8 7 r:_101 r:_50.520 s)	Dominant Species?	FAC FACJ er: <u>20</u> ²	Dominance Test is >	50%			
Salix glauca Tosa aciculturis Total Cover 50% of total cover EGETATION (use scientific names of plant terb Stratum ()	8 7 r: 101 r: 50.5 20 s) Absolute % Cover	Dominant	FAC FACJ er: <u>20</u> ² Indicator Status	Dominance Test is >	50% ≤3.0			
Salix glauca Tosa acicularcis Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>26^)</u> Calamagrostis canadensis	8 7 r: 101 r: 50.5 20 s) Absolute	Dominant Species?	FAC FACJ er: <u>20</u> 2 Indicator Status FAC	Dominance Test is > Prevalence Index is Morphological Adapt	50% ≤3.0		oporting d	lata ir
Salix glauca Tosa aciculturis Total Cover 50% of total cover EGETATION (use scientific names of plant terb Stratum (<u>26</u> [*]) Calamacostis canadensis Petrosites Frigidus	8 7 r: 101 r: 50.5 20 s) Absolute % Cover	Dominant Species?	FAC FACJ er: <u>20</u> ² Indicator Status FAC FAC	Dominance Test is > Prevalence Index is Morphological Adapt Notes)	50% ≤3.0 ations ¹ (P	rovide suj		ata ir
· Salix glauca · Tosa acirularis Total Cover 50% of total cover /EGETATION (use scientific names of plant lerb Stratum () · C clamagrastis caradensis · Patasiks Forgidus · Calamagrastis legennes	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5	Dominant Species?	FAC FACJ er: <u>20</u> 2 Indicator Status FAC	Dominance Test is > Prevalence Index is Morphological Adapt	50% ≤3.0 ations ¹ (P nytic Vege	rovide sup station ¹ (E:	xplain)	
Salix glauca Tosa aciculturis Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>26^)</u> Calamagnostis canadensis Petasikes Frindus Calamagnostis Lapponica Calamagnostis Lapponica Carex Bigelowii	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5 15	Dominant Species?	$\frac{FAC}{FAC}$ er: <u>20</u> ² Indicator Status $\frac{FAC}{FAC}$ FAC	Dominance Test is > Deminance Test is > Prevalence Index is Morphological Adapt Notes) Problematic Hydropt	50% ≤3.0 ations ¹ (P nytic Vege	rovide sup station ¹ (E:	xplain)	
Salix glavea Tosa acicularis Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>26</u>) Calamagrastis canadensis Petrosites Frindus Calamagrastis lipponice Calamagrastis lipponice	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5 15	Dominant Species?	$\frac{FAC}{FAC}$ er: <u>20</u> ² Indicator Status $\frac{FAC}{FAC}$ $\frac{FAC}{FAC}$	Dominance Test is > Prevalence Index is Morphological Adapt Notes) Problematic Hydroph ¹ Indicators of hydric soil and w	50% ≤3.0 ations ¹ (P nytic Vege	rovide sup station ¹ (E:	xplain)	
Salix glauca Tosa acircularis Total Cove 50% of total cove EGETATION (use scientific names of plant erb Stratum () Calamagrastis canadensis Petasikes Forgidus Calamagrastis lapponice Marcielle Carex Bige/amii Equisation Arvense	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5 15	Dominant Species?	$\frac{FAC}{FAC}$ er: <u>20</u> ² Indicator Status $\frac{FAC}{FAC}$ $\frac{FAC}{FAC}$	Dominance Test is > Prevalence Index is Morphological Adapt Notes) Problematic Hydroph Indicators of hydric soil and w disturbed or problematic.	50% ≤3.0 ations ¹ (P nytic Vege	rovide sup station ¹ (E:	xplain)	
Salix glavea Tosa acicularis Total Cover 50% of total cover EGETATION (use scientific names of plant terb Stratum (<u>26</u> [*]) Calamagrastis canadensis Petrosites Frigidus Calamagrastis lipponice Maria Carex Bigelowii Equisetum Arvense	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5 15	Dominant Species?	$\frac{FAC}{FAC}$ er: <u>20</u> ² Indicator Status $\frac{FAC}{FAC}$ $\frac{FAC}{FAC}$	Dominance Test is > Prevalence Index is Morphological Adapt Notes) Problematic Hydroph Indicators of hydric soil and w disturbed or problematic. O % Ban O % Cov	50% ≤3.0 ations ¹ (P aytic Vege etland hydr	rovide sup station ¹ (E: rology must	xplain) be presen	
Salix glauca Tosa actubucis Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>26</u>) Calamagrastis caradensis Calamagrastis caradensis Carex Bigefamin Equisetum Arvense	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5 15	Dominant Species?	$\frac{FAC}{FAC}$ er: <u>20</u> ² Indicator Status $\frac{FAC}{FAC}$ $\frac{FAC}{FAC}$	Dominance Test is > Prevalence Index is Morphological Adapt Notes) Problematic Hydroph ¹ Indicators of hydric soil and w disturbed or problematic % Bar % Cov 70 Total 0	50% ≤3.0 ations ¹ (P aytic Vege atland hydr e Ground er of Wet Cover of E	rovide sup etation ¹ (E: ology must land Bryop	xplain) be presen	
Salix glauca Tosa acircularis Total Cover 50% of total cover EGETATION (use scientific names of plant lerb Stratum (<u>26</u>) Calamagrastis caradensis Calamagrastis caradensis Carex Bigelowii Equisetum Arvense	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5 15	Dominant Species?	$\frac{FAC}{FAC}$ er: <u>20</u> ² Indicator Status $\frac{FAC}{FAC}$ $\frac{FAC}{FAC}$	Dominance Test is > Prevalence Index is Morphological Adapt Notes) Problematic Hydroph Indicators of hydric soil and w disturbed or problematic. O % Bar O % Cov O % Cov	50% ≤3.0 ations ¹ (P etland hydr e Ground er of Wet Cover of E er of Wat	rovide sup etation ¹ (E: rology must land Bryop Bryophytes er	xplain) be presen	
EGETATION (use scientific names of plant lerb Stratum () 1. Calamagrostis caradensis 2. Petrosiks Frigidus 3. Calamagrostis leponico	8 7 r: 101 r: 50.5 20 s) Absolute % Cover 10 5 15 20 7	Dominant Species?	$\frac{FAC}{FAC}$ er: <u>20</u> ² Indicator Status $\frac{FAC}{FAC}$ $\frac{FAC}{FAC}$	Dominance Test is > Prevalence Index is Morphological Adapt Notes) Problematic Hydroph ¹ Indicators of hydric soil and w disturbed or problematic % Bar % Cov 70 Total 0	50% ≤3.0 ations ¹ (P ations ¹ (P atiand hydr etland hydr e Ground er of Wet Cover of E er of Wat resent (Y	erovide sup etation ¹ (E: ology must land Bryop Bryophytes er	xplain) be presen phytes	t unles

-2010 CT 12 CT 12	AND DETE		8.13.15		WS	SLHOLES		
SOIL	entren des alle des	201-22-0	Data	eature I	D		12 12 2.101	Soil Pit Required (Y/N)
	E DESCRIPTION: (Describe	to the depth neede	ed to doc	ument the i	indicator or co	onfirm the absence	of indicators.)
St. Same	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
(Inches)	Color (moist)				1			Dry organics
Ort.	21	-		18			silt loam	0
7=9	IDYR 2/2	100					Fire sandy loarn	
9-11	10YR 3/2	100	7.5 YR 2.5/3	10	C	M	silf loam	Charcoal & Buried A/O mixed in Concore in bund
11-16	101R 3/2	40	10/R 4/2	20	a ditional	05		Concerta di suno
17/2-1	101R 3/2	30	7.54R 3/4	4	C	RCM	silfloam	
16-18	2.544/1	100	4.54K 14			-	siltloam	Some maunics mixed in
18-22	a.sy4/1	100	A-Reduced Matrix	CS=CO	vered or Co	ated Sand G	rains. ² Location:	PL=Pore Lining, M=Matrix.
		letion, R	A=Reduced Matrix,	00 00	No. of the local division of the local divis	a set of she	INDICATORS	FOR PROBLEMATIC HYDRIC SOILS
TALVART STORAGE STOR	IL INDICATORS	Livies"	Alsolus Clau	od (A13)	N		Alaska Color C	
Histosol or H	listel (A1)		Alaska Gley	_			Alaska Alpine	
Histic Epipe	don (A2)	/ JOER	Alaska Redo			7	Alaska Redox	
Black Histic	(A3) <u>N</u>		Alaska Gley	ed Pores	s (A15)		Alaska Gleved	without 5Y Hue or Redder Underlying
Hydrogen S	ulfide (A4)			14 M		A.	Layer N	14/10 C
			Carlos St.				Other (Explain	in Notes)
Thick Daik	tor of bydronbytic ver	detation.	one primary indicat	or of wet	land hydro	logy, and an a	appropriate landsc	ape position must be present unless
Notes: Neg	ative did three	sughons				-		-2-2-2-2
	GY PRIMARY INDI	ATOR	(any one indicator	is suffici	ent)	SECONDAR	RY INDICATORS (2 or more required)
HYDROLO	GY PRIMART INDI				.1	Water-staine	ed	Stunted or Stressed
Surface Wa	ater (A1)/		urface Soil Cracks			Leaves (B9)	<u> N </u>	Plants (D1) Geomorphic Position (D2)
High Wate	r Table (A2)		B7)	Adria	anagory		atterns (B10) _N	N/
Saturation	1		Sparsely Vegetated Concave Surface (E	38) <u>r</u>	1	Living Roots		
Water Mar	ks (B1) <u>N</u>		Marl Deposits (B15	1		Presence of Iron (C4)	fReduced	Microtopographic Relief (D4)
	Deposits (B2)		Hydrogen Sulfide			Salt Deposits (C5)		FAC-Neutral Test (D5)
	sits (B3)	-	Dry-Season Water Table (C2)	N	X	Notes:		
Drift Depo				1				
	or Crust (B4)		Other (Explain in N	otes):				
			Other (Explain in N	otes):				
Algal Mat	sits (B5)			otes):		N. W. W. St.		
Algal Mat			Other (Explain in N	otes):	Server	Watland Hyd	Irology Present ((/N): N

EC:

Depth (in): 15

Saturation Present (Y/N): (includes capillary fringe) Notes: Slight Seeping C 15

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AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, I	M= Matrix
Primary Vegetation Type (P): Vegetation L Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	acking 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 (≥	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) m) Short herb (<1m) Moss-Lichen Floating Submerged
Number of Wetland Types (M):	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
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 do r Peripheral Cover 26-75% Scattered or
	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 Lavor (P)	No Vez
	0-25% of surface) Moderately Abundant (25-50% of surface)
o t average, average, average and intersperse	
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
	Estaurine Fringe
SOIL VARIABLES	A second s
Soil Factors (P): Soil Lacking H Mineral: Gravelly Mineral: Sandy	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent C Inlet/Intermittent Outlet Perennial Inlet	_ No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Dutlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
Wetland Water Regime (P): Drier: Season	
statistic council and the statistic council of	Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Created Microrelief of Wetland Surface (P): Absent	
Frequency of Overbank Flooding (P): No Ove	Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Return Interval >5 yrs	rbank 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 Circu	umneutral (5.5-7.4) Alkaline (>7.4) Asid (<5.5)
Surficial Geologic Deposit Under Wetland (P) Glacial Till/Not Permeable	: High Permeability Stratified Deposits Low Permeability Stratified Deposits
Basin Topographic Gradient (M): Low Gra Evidence of Seeps and Springs (P): No Seeps	adient (<2%) High Gradient (2%) or Springs Seeps Observed Intermittent Spring Perennial Spring
ANDSCAPE VARIABLES (M)	
Wetland Juxtaposition: Wetland Isolated	
Only Connected Above Connected U	Wetlands within 400m, Not Connected Only Connected Below pstream & Downstream Unknown
Vetland Land Use: High Intensity (i.e., ag.)	

Moderate Intensity (i.e., forestry)_ Low Intensity (i.e. open space) 0-5% Rural 25-50% Urbanized

Watershed Land Use: 5-25% Urbanized Medium (10-100 acres)

Size: Small (<10 acres) Crew Chief QA/QC check:

Jessie Brown

GPS Technician QA/QC check

Large (>100 acres)

>50% Urbanized

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: WSSLH065Field Target: 15123Date: 81315For 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?
- L 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

A 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)?

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Wetland Scientist (print)

Signature / Date

X Jessie Brownles

8.18.15

8

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION					089	
Survey Type: Centerline X Acce	ss Road (explain)	Other (expla	ain)	Field Target: 15	120	Map #: <u>133 Map Date: 6.18.15</u>
Date: 8/14/15	Project Name & No.:	Alaska LNG	60418403	Featu	ure Id:	W85LHO66
Investigators: JB, JA						Team No.: W85
State: Alaska	Region: Alaska		Milepost:52	1.4		
Latitude: 63°55 16.27		Longitude	: 149°04			Datum: WGS84
Logbook No.: 2	Logbook Page No.:	35	Picture No.:	P-VOI VR.S	P	it, Plug N.S
SITE PARAMETERS			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			11102 14.3
Subregion: Alaska Range			Landform /bill	slopo torrado humi	maaka	
Slope (%): 3-5	100			slope, terrace, hum	nocks,	, oic.): Hillside
Pre-mapped Alaska LNG/NWI classifica	tion: (): IN 2 IN CO		Evidence of W	/ildlife Lise:	10).+	at to slightly convex
Are climatic/hydrologic conditions on the	site typical for this time of	- <u> </u>	Are "No	mal Circumstances	s" pres	eping + hrowse, squirel
Yes No (if no expl Are Vegetation, Soil, or Hyc			Yes	X (If no (If no	o, expl	ain in Notes.)
Are Vegetation, Soil, or Hyd		-		_(If yes, explain in N	_	
SUMMARY OF FINDINGS	Naturally Pr	oblematic?	No	_ (If yes, explain in N	√otes.)	A.4.
Hydrophytic Vegetation Present? Yes_	/ No	_ Is t	he Sampled Ar	rea within a Wetlar	nd?	Yes NoX
Hydric Soil Present? Yes	NoX	We	tland Type:	U	-	and the second sec
Wetland Hydrology Present? Yes	No	- Ala	ska Vegetation	Classification (Viere	eck):	1A2 11C2
Notes and Site Sketch: Please include D corridor. Mature open Pic Gla Forest Thick feather Moss mat red cobrs in the soil. S Mapped as U: 1A2, 11 i	, trees ~ 25' + covers ground.	fall. Un Site bu	derstory o	b VAC VIT, past w/ cha	VAC	Uli, and Salix. al + Ash isibrick
		ł				

<u>Tree Stratum</u> (Plot sizes: $\underline{1(n)}^{1}$	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or Total Number of Dominant Species Across All Str			
1. Picea Clauca	40	Y	Foell	% Dominant Species that are OBL, FACW, or FA			
2.						1	
3.						201	21
4.				Prevalence index worksheet:			
Total Cove				Total % Cover of: Multiply	by:		
50% of total cove				OBL species:X 1 =	-		
Sapling/Shrub Stratum ()	Absolute % Cover	Dominant Species?	Indicator Status	FACW species: 3 X 2 = 10 FAC species 6 X 3 = 228			
	78 COVE	(Y/N)	Otatus	FAC species $66 X 3 = 228$ FACU species $65 X 4 = 267$	-		
1. Pices Glaves	15		FOLL	UPL speciesX 5 =X	12m		
2. Vaccinium uliginosum	70	\vee	FAC	Column Totals: <u>154</u> (A) <u>494</u>			
3. Vaccinium ViFis-idaea	25	V	FAC	PI = B/A = 3.2	-		-
4. Empetrum nigrum	3	1 0	FAC	Rhododendrum groenlandicum	5	2	FI
5. Betila glandulosa	10		FAC	Rhododendrum tomentos um	5	T	A
6. Rosa acicularis			FACU	Salix Bebbiana	3	1	FA
7. Linnaea borealis	5		FACU				
8. Solix pulchra	3		FACU				1
9. Salix glauca	T		FAC		-		1
I otal Cove							1
50% of total cove	r: <u>92.5</u> 20	0% of total cov	/er: <u> </u>			-	-
VEGETATION (use scientific names of plant	s)	11					
Herb Stratum (<u> ユレ'</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: $-\frac{1}{2}$ Dominance Test is > 50% $-\frac{1}{2}$ Prevalence Index is ≤ 3.0	τ.		
1. Corporation lividium	4		FACU	Morphological Adaptations ¹ (Provide supp	ortina	data i	in
2. Calamagrostis lapponica	20	Y	FAC	Notes)			
3. pyrola grandiflora	T		FAC	Problematic Hydrophytic Vegetation ¹ (Exp	olain)		
4. Equisetum sylvaticum	T		FAC	¹ Indicators of hydric soil and wetland hydrology must be	e prese	nt unle	ess
5. Mochringis lateriflora	T		FACU	disturbed or problematic.			
6. Calamaarostis canadensis	5		FAC			1	
7.				% Bare Ground			
8.				% Cover of Wetland Bryoph	nytes		
9.				Total Cover of Bryophytes			
10.				Cover of Water			
Total Cove	r: 29		<u>I.</u>	Hydrophytic Vegetation Present (Y/N):	na k -l		
50% of total cove	-	0% of total co	ver: <u>5.8</u>	Notes: (If observed, list morphological adaptation	ים חפור	, v v j.	

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SOIL		1	8.14.15 Date Fea	ture	No Dalaman and a second	SLHOULD		Soil Pit Required (Y/N)
(TESE, COT)	LE DESCRIPTION: (D			COMPANY OF	M.	indicator or	confirm the absence	
	Matrix	escribe	Redox Features	10 400		indicator or		
Depth (inches)	Color (moist)	.%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
		70		/0	Туре		Texture	Martin Contraction Contraction
0-6	2 540 2.5/	0.	~			No.	1 2.99	Conc are inhand between A+Bu
6-8	7.54R 2.5/2	90	5YR 3/3	10	C	M	loam	Charcoal present
8-13	104R 4/2	70	+ Charcoal & organic	:5	4			
12 11	IOYR YG	02.			1		loany sano	100
13-16		100		-		_	loamy sand	
16-29	10YR4/3	100		-		1 3	loomy said	
¹ Type: C=Co	ncentration, D=Deplet	tion, RM	Reduced Matrix, CS	=Cov	vered or Co	oated Sand C	Grains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SO	LINDICATORS	2	VIII Linux 2 million	3.10	1.	Short of S	INDICATORS	FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or H	istel (A1)	-	Alaska Gleyed (A13)	N	_	Alaska Color C	hange (TA4) ⁴
Histic Epiped	on (A2)		Alaska Redox (A	A14)_	N		Alaska Alpine	Swales (TA5) N
Black Histic (A3)N	1.00	Alaska Gleyed F	Pores	(A15) N		Alaska Redox	with 2.5Y Hue N
Hydrogen Su	lfidə (A4) <u>N</u>		a los a seta				Alaska Gleyed	without 5Y Hue or Redder Underlying
Thick Dark S	urface (A12) N	-		2			Other (Explain	in Notes)
disturbed or Give details		es.			inches):		appropriate landsca	pe position must be present unless
Hydric Soil I	Present (Y/N):			-1				
Notes:						12		and the second
HYDROLOG	Y PRIMARY INDICAT	ORS (a	ny one indicator is suf	fficien	t)	SECONDAR	Y INDICATORS (2	or more required)
Surface Wate			face Soil Cracks (B6)	and a state	1	Water-staine Leaves (B9)		Stunted or Stressed Plants (D1) <u>N</u>
High Water T	able (A2)	Inu (B7	ndation Visible on Aer	ial Im	agery	Drainage Pa	tterns (B10) <u>N</u>	Geomorphic Position (D2)
Saturation (A	3)		nrsely Vegetated	N		Living Roots	1 1	Shallow Aquitard (D3)
Water Marks	(B1)	Mai	1 Deposits (B15)N	/		Presence of Iron (C4)	Reduced	Microtopographic Relief (D4)
Sediment De	posits (B2)		Irogen Sulfide or (C1)		~	Salt Deposits	s (C5)	FAC-Neutral Test (D5)
	_ /	0.000	Conten			Notes:		AL TIME

Dry-Season Water Table (C2) N Drift Deposits (B3) N Algal Mat or Crust (B4) Other (Explain in Notes): Iron Deposits (B5) Surface Water Present (Y/N): N Depth (in): -Wetland Hydrology Present (Y/N): N N Water Table Present (Y/N): Depth (in): Saturation Present (Y/N): (includes capillary fringe) N EC: Depth (in): Notes:

AQUATIC SITE ASSESSMENT DATA FORM

EGETATION VARIABLES P= Plot, M= Matrix
rimary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved orested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved crub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent- ersistent Aquatic Bed
ercent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) warf shrub (<0.5m) Tall herb (≥1m) Short herb (<1m) Moss-Lichen Floating Submerged
umber 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- %) Very High Density (80-100%)
terspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover <a>N/A
lant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
resence of Islands (M): Absent (none) One or Few Several to Many N/A
over Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site pen Small Scattered Patches Continuous Cover
ead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) bundant (>50% of surface)
egetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) igh (small groupings, diverse and interspersed)
GM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
OIL VARIABLES
bil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric ineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
bil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric ineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
ineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
ineral: GravellyMineral: SandyMineral: SiltyMineral: Clayey YDROLOGIC VARIABLES Iet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No utlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Iet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Intermittent Inlet/No Outlet Perennial Intermittent Inlet/Perennial Inlet/Perennial Outlet Perennial Intermittent Inlet/No Outlet Perennial Intermittent Inlet/Perennial Inlet/Perennial Outlet Perennial Intermittent Inlet/No Outlet Perennial Intermittent Inlet/Perennial Inlet/Perennial Outlet Perennial Intermittent Inlet/No Outlet Perennial Intermittent Inlet/Perennial Inlet/Perennial Outlet Perennial Intermittent Inte
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ineral: Gravelly
ineral: GravellyMineral: SandyMineral: SiltyMineral: Clayey YDROLOGIC VARIABLES Iet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No UtletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perenninlet/Perennial Inlet/Perennial Inlet/Perenn
ineral: Gravelly
ineral: GravellyMineral: SandyMineral: SiltyMineral: Clayey YDROLOGIC VARIABLES let/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No Outlet
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ineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey YDROLOGIC VARIABLES let/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Utlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet let/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet etland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Perennial Inlet/No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment reated icrorelief of Wetland Surface (P): No Evidence Observed Sediment Interval 1-2 yrs Return Interval 2-5 yrs egree of Outlet Restriction (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs egree of Outlet Restriction (P): No Outflow Restricted Outflow No Unrestricted Outflow ater pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)

Page 4 of 4

Low Intensity (i.e. open space)

>50% Urbanized

Crew Chief QA/QC check: Jossie Brownlee

Small (<10 acres)

Wetland Land Use:

Size:

Watershed Land Use:

High Intensity (i.e., ag.)_

0-5% Rural_

GPS Technician QA/QC check:

25-50% Urbanized

Large (>100 acres)

Moderate Intensity (i.e., forestry)

5-25% Urbanized

Medium (10-100 acres)

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site,

Feature ID: W851_H066 Field Target: 15120 Date: 8/14/15

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

1. Site Description

- B Site description, site parameters and summary of findings are complete?
- 团 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?
- S Vegetation names are entered legibly for all strata present?
- B; Cover calculations are complete and correct?
- All dominant species have been determined and recorded per strata?
- A Indicator status is correct for each species?
- K Dominance Test and Prevalence Index have been completed?

3. Soil

- Soil profile is complete?
- D: 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

- By 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 nolowin Wetland Scientist (print)

Х 8/14/15 Signature / Date

8.1.8

XJessie Brounda

Field Crew Chief (print)

Х Signature / Date

LH067

		22 19 1	1. A 2.	CARLES AND A REAL PORT	
Survey Type: Centerline <u>×</u> Acc	cess Road (explain)	Other (expla	ain)	Field Target: 15124	Map #: 128 Map Date: 18.15
Date: 8/14/15	Project Name & No.:	Alaska LNG	60418403	Feature Id	· W85LH0107
nvestigators: JB, JA		E.		h	Team No.: W85
itate: Alaska	Region: Alaska		Milepost:	510.5	· · · · ·
atitude: 64°03 '59.40		Longitude	: 149 '11'0		Datum: WGS84
ogbook No.: 2	Logbook Page No.:	35	Picture No.:	P- Veg- Veg- P-	, Plug N.S
SITE PARAMETERS	en al a sub in a start	1.1			
Subregion: Tanana Kuskok	win lowland),	Landform (hi	llslope, terrace, hummock	is, etc.): Lowland
Slope (%): 6-3			Local relief (concave, convex, none):	Flat/Tussocky
Pre-mapped Alaska LNG/NWI classifi	cation: PSS4/13			Wildlife Use: None	
re climatic/hydrologic conditions on t	the site typical for this time (plain in Notes)	of year?		ormal Circumstances" pre 人 No (If no, ex	
Are Vegetation, Soil, or ⊢	lydrology Significant	tly Disturbed?	<u>No ۲</u>	(If yes, explain in Notes	3)
are Vegetation, Soil, or H	lydrology Naturally I	Problematic?	No_X	(If yes, explain in Note	s.)
UMMARY OF FINDINGS				and the second state	
lydrophytic Vegetation Present? Yes	sX No	Is	the Sampled A	Area within a Wetland?	Yes <u>X</u> No
Hydric Soll Present? Yes	X No	W	etland Type:	PSSV4E	
			endine i yper	TODATE	
	<u> </u>			n Classification (Viereck)	11C2 11A3
Vetland Hydrology Present? Yes	No No Directional & North Arrov	v, Centerline,	aska Vegetatio Length of featu	n Classification (Viereck) ure, Distances from Cente	orline, Photo Locations, and Survey
Vetland Hydrology Present? Yes	No No Directional & North Arrov	v, Centerline,	aska Vegetatio Length of featu	n Classification (Viereck) ure, Distances from Cente	rllne, Photo Locations, and Survey
Vetland Hydrology Present? Yes lotes and Site Sketch: Please include orridor. Betula Nana shrub commun Area is much wetler tha	Directional & North Arrow nity with few spr mitis mapped wit	v, Centerline, tyce in the h Tussoe	Length of featu 13 plat bu 10 f 3 t 11	n Classification (Viereck) ure, Distances from Center t much more in of stunding wat	triline, Photo Locations, and Survey the surrounding area; er in between.
Vetland Hydrology Present? Yes lotes and Site Sketch: Please include orridor. Betuk Nana shrub commun Area is much wetler that PPSSI/4 E is hother si	Directional & North Arrow Directional & North Arrow nity with few spr mitis mapped with with a polygon	v, Centerline, suce in the h Tussoc	Length of features 13 plat burks + 3+"	n Classification (Viereck) ure, Distances from Center + much more in of Standing water ce in our 26' x 2	the surrounding area; the surrounding area; er in between.
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/etland Hydrology Present? Yes otes and Site Sketch: Please include orridor. Betula Nana shrub commun Area is much wetler that PPSSI/4 E is better su Entire area is wette	Directional & North Arrow Directional & North Arrow nity with few spr mitis mapped with with a polygon	v, Centerline, suce in the h Tussoc	Length of features 13 plat burks + 3+"	n Classification (Viereck) ure, Distances from Center + much more in of Standing water ce in our 26' x 2	the surrounding area; the surrounding area; er in between.
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Vetland Hydrology Present? Yes lotes and Site Sketch: Please include orridor. Betuk Nang shrub commun Area is much wetler that PPSSI/4 E is better su Entire area is wette	Directional & North Arrow Directional & North Arrow nity with few spr mitis mapped with with a polygon	v, Centerline, suce in the h Tussoc	Length of features 13 plat burks + 3+"	n Classification (Viereck) ure, Distances from Center + much more in of Standing water ce in our 26' x 2	the Surrounding area; the Surrounding area; er in between.
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Tree Stratum (Plot sizes: <u>100)</u>	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: Z Total Number of Dominant Species Across All Strata:
· Picea glauca	N/.		Freed	% Dominant Species that are OBL, FACW, or FAC: 16D (
. 0				\sim 200 miniant species inat are ODE, 1 AGW, 011 AO. \pm
				Prevalence Index worksheet:
Total Cove	ər:	1		Total % Cover of: Multiply by:
50% of total cove	ər: 20	% of total cov	er:	OBL species:X 1 =
apling/Shrub Stratum (QLe')	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 40 X 2 = 90 FAC species 58 X 3 = 174 FACU species 7 X 4 = 28
· Vaccinium uliginasum	7	and the second	FAC	UPL speciesX 5 =
· Vaccinium vitis · idapa	3		FAC	Column Totals: 105 (A) 282 (B)
· Betula nana	35	γ	FAC	PI = B/A =(09
· Rotula Nenalaskami & Shubrid	5	1	FAC	and the last of th
· Salix pulchra	G		FACW	Puergb.
The I have a late			FAC	and the second second second second
KANDODERONN SCAPILATOR			- Lifet	-
	T	1	FAC	
· Jalix glauca	T	Sugar	FAC	A CONTRACT NORTH AND A CONTRACT OF
· Salix glauca · Picea maciana S	T V		FACW	
· Salix glauca · Picca maciana S	T - 1 ⁰ 6			
· Salix glauca · Picea maciana S · Picea glaura S	T 3 1 6 er:_64	% of total cov	FACW	
<u>Sabix glauca</u> <u>Picka maciana S</u> <u>Ricea glauca S</u> Total Cove 50% of total cove	5 6 5 7: <u>64</u> 5 7: <u>32</u> 20	% of total cov	FACW	
<u>Sabix glauca</u> <u>Picea maciana S</u> <u>Picea glauca S</u> Total Cove 50% of total cove EGETATION (use scientific names of plan	5 6 5 7: <u>64</u> 5 7: <u>32</u> 20	% of total cov	FACW FACU er: 12.8	Hydrophytic Vegetation Indicators:
<u>Sabix glauca</u> <u>Picea maciana S</u> <u>Picea glauca S</u> Total Cove 50% of total cove EGETATION (use scientific names of plan	6 9r: <u>64</u> 9r: <u>32</u> 20		FACW	Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50%
Sabix glauca Picea maciana S Picea glauca S Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum ()	ar: <u>64</u> ar: <u>32</u> 20 hts) Absolute % Cover	Dominant Species? (Y/N)	FACU FACU er: 2.8 Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤ 3.0
Sabix glauca Picea maciana S Picea glauca S Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum ()	Absolute % Cover	Dominant Species?	FACU FACU er: 2.8.	- → Dominance Test is > 50% - → Prevalence Index is ≤ 3.0
EGETATION (use scientific names of plan EGETATION (use scientific names of pl	ar: <u>64</u> ar: <u>32</u> 20 ats) Absolute % Cover	Dominant Species? (Y/N)	FACU FACU er: 2.8 Indicator Status	Dominance Test is > 50%
Sabix glauca Picea maciana S Picea glauca S Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum () Product Chamac Marcus Calamagrostis canadeasis	Absolute % Cover	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW	 Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations¹ (Provide supporting data in
Sabix glauca Picea maciana S Picea glauca S Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum () P. Rubus chamacmorus Calamagrostis canadeasis Calamagrostis canadeasis Errophocum vaginatum	Absolute % Cover 3 5	Dominant Species? (Y/N)	FACW FACU er: 2.8 Indicator Status FACW FAC	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
 Sabix glauca Picea maciana 5 Picea glauca 5 Total Coverson 50% of total coverson 50% of total coverson of total coverson for tota	Absolute % Cover 3 5 30	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW FAC FACW	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
Sabix glauca Pricea maciana S Pricea glaura S Total Cover 50% of total cover EGETATION (use scientific names of plan lerb Stratum () Rubus chamacmorus Calamagrostis canadensis Errophorum vaginatum Carex Bugelowili S.	Absolute % Cover 3 5 30	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW FAC FACW	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Sabix glauca Picea maciana S Picea glauca Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum () P. Rubus chamacmorus Calamagrostis canadeasis Calamagrostis canadeasis Calamagrostis canadeasis Calamagrostis canadeasis Calamagrostis canadeasis Calamagrostis canadeasis Calamagrostis canadeasis Calamagrostis canadeasis S.	Absolute % Cover 3 5 30	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW FAC FACW	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Salix glauca Picea mariana S Picea glaura S Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum () Rubus chamacmorus Calanagrostis canadeasis Errophorum vaginatum Carex Brigelowiii	Absolute % Cover 3 5 30	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW FAC FACW	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Sabix glauca Picea maciana S Picea glauca Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum () P. Rubus chamacmorus Calamagrostis canadensis Errophorum vaginatum A. Canex Bigelowii S. 2.	Absolute % Cover 3 5 30	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW FAC FACW	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground
Sabix glauca Picea maciana 5 Total Cove 50% of total cove EGETATION (use scientific names of plan lerb Stratum () P. Rubus chamacmorus Calamagrostis canadeasis Calamagrostis canadeasis	Absolute % Cover 3 5 30	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW FAC FACW	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground 15 % Cover of Wetland Bryophytes
50% of total cover EGETATION (use scientific names of plan Herb Stratum () 1. Ruhus chamacmorus 2. Calamagnostis canadeasis 3. Errophocum vaginatum	Image:	Dominant Species? (Y/N)	FACW FACU er: 12.8 Indicator Status FACW FAC FACW	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes 56 Total Cover of Bryophytes

LA 067

Depth	Matrix		Redox Features				×	Andrew Service (Alter		
(inches)	Coto (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes		
0.5'	tered to the		5		ý.			Saturated organics		
5-9	A China a							Saturated accanics		
9-12	10YR 2/2	100					Siltlagen	ů		
3-17	2.5×4/1	100					Silf/ Dam	thixotrophic		
17- 2	\$2.544/1	100					silfloar	The same she		
			<u>*</u>					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Type: C=C	oncentration, DDep	letion Bl	 M=Beduced Matrix, (CS=Cov	ered or Co	ated Sand (Prains ² Location	n: PL=Pore Lining, M=Matrix.		
	L INDICATORS							FOR PROBLEMATIC HYDRIC SOIL		
Histosol or H	istel (A1)		Alaska Gleye	d (A13)	N		Alaska Color	Change (TA4) ⁴		
Histic Epiped	lon (A2)	d.	Alaska Redox	(A14) _	N	11	Alaska Alpine	Swales (TA5) N		
Black Histic (A3) <u>N</u>	10 ST	Alaska Gleyed	d Pores	(A15) N		Alaska Redox	Alaska Redox with 2.5Y Hue		
Hydrogen Su	Ifide (A4) N						Alaska Gleyer	d without 5Y Hue or Redder Underlyin		
Thick Dark S	urface (A12) _N	the second					Other (Explain	n in Notes)		
disturbed or p	or of hydrophytic veg problematic. of color change in N		one primary indicator	of wetla	ind hydrolo	gy, and an	appropriate landso	ape position must be present unless		
	aver (if present): Typ			Depth (ii	nches):/	7		and the second		
	Present (Y/N):	J						1		

HYDROLOGY PRIMARY INDICATO	ORS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)				
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9) N	Stunted or Stressed Plants (D1) <u>N</u>			
High Water Table (A2)	Inundation Visible on Aerial Imagery	Drainage Patterns (B10)	Geomorphic Position (D2)			
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)N	Shallow Aquitard (D3)			
Water Marks (B1)N	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1) N	Salt Deposits (C5)	FAC-Neutral Test (D5) _/			
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:				
Algal Mat or Crust (B4)			and the same and			
Iron Deposits (B5)N						
Surface Water Present (Y/N):	Depth (in): 3(in before the	strucks)	V			
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):				
Saturation Present (Y/N): (Includes capillary fringe)	Depth (in): 4	EC: 107 PH 5.	3 42°F			
Notes: Large tussacts w/	3+ "water in between					

S.

AQUATIC SITE ASSESSMENT DATA FORM

Sec. 1	J8571067	8.14.15
VEGETATION VARIABLES P= Plot, M= Matrix		
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Persistent Aquatic Bed	Scrub Shrub-Deciduous Emergent-Non-persi	s-Broad-leaved X stent Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) 1 Dwarf shrub (<0.5m)	Tall shrub (2-6m) ss-Lichen50 Floating	Short shrub (0.5-2m) <u>53</u> Submerged
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even <u> </u>	nModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) 80%) Very High Density (80-100%) ×	Medium Density (40-60	%) High Density (60-
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25%	5 Scattered/Peripheral Cover —	26-75% Scattered or
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species)	X High (>25)	-
Presence of Islands (M): Absent (none) One or Few Several to Presence of Islands (M):	Vlany N/A	
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems_ Open Small Scattered Patches Continuous Cover	1 or More Large F	Patches; Parts of Site
Dead Woody Material (P): Low Abundance (0-25% of surface) X Moderately Abu Abundant (>50% of surface)	ndant (25-50% of surface) _	
Vegetative Interspersion (P): Low (large patches, concentric rings) V High (small groupings, diverse and interspersed)	te (broken irregular rings)	
HGM Class (P): Slope Flat Flat Depressional	Riverine	Estaurine Fringe
Real Providence Provid		
Soil Factors (P): Soil Lacking Histosol: Fibric Histosol: Hemic Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Gravelly	Histosol: Sapric Clayey	
HYDROLOGIC VARIABLES		hate we little at tale (Alla
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No In Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet	nlet/Perennial Outlet outlet Perennial Inl	Intermittent Inlet/No et/No Outlet Perennial
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturate Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded	ed	

Evidence of Sedimentation (P):	No Evidence Observed	1	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 (P):
 No Overbank Flooding (P):
 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)_____</td>
 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%)</th>
 ✓
 High Gradient (≥2%)

 Evidence of Seeps and Springs (P): No Seeps or Springs
 ✓
 Seeps Observed
 Intermittent Spring
 Perennial Spring

LANDSCAPE VARIABL	ES (M)	Shi Papite . Shi		
Wetland Juxtaposition: Only Connected Above_		Wetlands withi tream & Downstream_	n 400m, Not Connected Unknown	Only Connected Below
Wetland Land Use:	High Intensity (i.e., ag.)	Moderate In	tensity (i.e., forestry)	_ Low Intensity (i.e. open space)
Watershed Land Use:	0-5% RuralK	5-25% Urbanized	25-50% Urbanized	>50% Urbanized
Size: Small (<10 ac	res) Medium (1	0-100 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.

Feature ID: <u>W85LH067</u> Field Target: <u>15124</u> Date: <u>8114</u> <u>15</u> 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?
- Section 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?
- A Each logbook page is initialed and dated?

7. Maps

- **忆** 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)?

8/14/13 000 Signature//Date Wetland Scientist (print)

X Jessie Brownles

Х 8.18.15

Field Crew Chief (print)

Signature / Date

Survey Type: Centerline 🔏 A	ccess Road (explain)	Other (explai	n)	Field Targe	t: 15121	Map #: 131 Map Date: 6.18.1
Date: 5.14.15	Project Name & No.	_		1		WESLHOGE
Investigators: BB, JA	- <u>_</u>		1.11			Team No.: W85
State: Alaska	Region: Alaska		Milepost:	514.1		
Latitude: 64° 01'13.27		Longitude:	149° 08'			Datum: WGS84
Logbook No.: 2	Logbook Page No.:	37			p. pict,	plug N.S
SITE PARAMETERS		TRITICAN"	No. of the second		a jir kiri	
Subregion: Tanana - Kusko	Luin Lowlands		Landform (hill	Islope, terrace	, hummock	rs, etc.): Mound/small hill
Slope (%): 4-00-3 1 3-			Local relief (c			
Pre-mapped Alaska LNG/NWI class	ification: ()					owse (caribou?)
Are climatic/hydrologic conditions or		e of year?	Are "No	ormal Circum	stances" pre	esent:
Yes No (if no Are Vegetation, Soil, or	explain in Notes)	tly Disturbed?	Yes	No _(If yes, expl		plain in Notes.)
Are Vegetation, Soil, or		Problematic?		_(If yes, exp		
SUMMARY OF FINDINGS	Tydrology Naturally	FIODIAIIIalici	140		annin Note	
Hydrophytic Vegetation Present? Y	esNo	ls ti	ne Sampled A	rea within a	Wetland?	YesNo
	эs NoҲ	71	land Type: (÷.	
Wetland Hydrology Present? Ye	əs No <u>_ 乂</u>	Alas	ska Vegetation	Classificatio	n (Viereck):	1A2
Notes and Site Sketch: Please Incluc corridor. #Sce map 131 for deta This site is a mound /sma Rho Gro, Salix, Bet Nam No signs of hydrology	all d remapping of all hill above the wet a understory. This	transect signatures	from ra	ad. inde. 20	of 'Tal	ll Pic Mar with
			1			

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: <u>3</u> (A
1. Picea Mariana	.30	Y	FACU	Total Number of Dominant Species Across All Strata: 4 (B % Dominant Species that are OBL, FACW, or FAC: 75 (A/E
2.				
3.				
4.			1	Prevalence Index worksheet:
Total Cove	r: <u>30 ·</u>			Total % Cover of: Multiply by:
50% of total cove	n: <u>15</u> 20	% of total cov	er: <u>6</u>	OBL species:X 1 =
Sapling/Shrub Stratum (_26 _)	Absolute % Cover	Dominant Specles? (Y/N)	Indicator Status	FACW species: 10 $X_2 = 20$ FAC species: 62 $X_3 = 180$
1. vaccinium uliginasum	20	V	FAC	FACU species 3D X 4 = /2D UPL species X 5 =
2. vaccinium vitis-idaea	20	1	FAC	Column Totals: 102 (A) 326 (B)
	10	1	FAC	PI = B/A = <u>3</u> 19
^{3.} Rhodadendrum generilandieum ^{4.} Betula nama	2		FAC	Arctous ruber ST FAC
5. Salix Glauce	6.		FAC	satix perbolana s t
6. Salan Arbusculaides	T	Arena	FACW	Sally indication 3
7. Pirea marlana	10		FACW	
8. Rosa acicularis	T	100	FACU	
9. Dasiphora fruiticosa	T			
Total Cove	r: 68			
50% of total cove	r: <u>34</u> 20	% of total cov	er: 13.10_	A CONTRACTOR OF A CONTRACTOR O
VEGETATION (use scientific names of plant	ts)		And the second	
Herb Stratum (<u>26</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Equisation pratense	T		FACW	Prevalence Index is ≤ 3.0
2. Calamagrastis lapponica	4	Y	FAC	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Saussurea Ansystifolia	T -	F	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Mertensia paniculata	Ť		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. grass SP	T -	2		disturbed or problematic.
6. Geocaulon lividium	T		FACU	
7. Petasites Fraidus	T			% Bare Ground
8. J				% Cover of Wetland Bryophytes
9.				_ 50_ Total Cover of Bryophytes Feather most
10.				Cover of Water
Total Cove	r: 4			Hydrophytic Vegetation Present (Y/N):
50% of total cove		% of total cov	er: <u> </u>	Notes: (If observed, list morphological adaptations below):

OA

SOIL			Date	Feature II	D			Soil Pit Required (Y/N)	
SOIL PROFIL	LE DESCRIPTION:	(Describe	to the depth need	ed to doc	ument the	indicator or	confirm the absence		
Depth	Matrix		Redox Features				1		
(inches)	Color (moist)	%	Color (moist)	%	Туре ¹	Loc ²	Texture	Notes	
0-5							-	Dry feather morss	
5-7	7.5YR 3/2	40		- I.			loam	charcoal present	
1 2	IDYR Z/Z	60			e				
78.5	10YR 4/3	80	104R 4/4	20	con	M	very fine sand.	logn	
\$ 5-21)	104R4/3	100					fine sand	A DECKED	
-		-				4			
SA C. REALINGTON CO. C. STREAM CO. C. STREAM	ncentration, D=Depl	etion, RM	=Reduced Matrix,	CS=Cove	ered or Co	ated Sand G	Grains. ² Location:	PL=Pore Lining, M=Matrix.	
IYDRIC SOI	LINDICATORS	1 and 1	24.11		ul is the	NEW TWO	INDICATORS F	OR PROBLEMATIC HYDRIC SOILS	
listosol or Hi	tosol or Histel (A1) Alaska Gleyed (A13)			Alaska Color Change (TA4)4					
listic Epipede	on (A2)		Alaska Redo	x (A14) _	N		Alaska Alpine Swales (TA5)		
Black Histic (/	A3)N	1000	Alaska Gleye	d Pores ((A15) N	1	Alaska Redox with 2.5Y Hue _//		
-lydrogen Sul	fide (A4) <u>N</u>	-		ų.			Alaska Gleyed v Layer/	vithout 5Y Hue or Redder Underlying	
	urface (A12) _N	_					Other (Explain in		
listurbed or p Give details o	r of hydrophytic vege problematic. of color change in No yer (if present): Typ	otes.	e primary indicato	r of wetla Depth (in		gy, and an a	appropriate landscap	be position must be present unless	
	yor (ir prosont). Typ		1	Dehus (II	ici ies)	4	100 March 100		
lydric Soil P	resent (Y/N): N					-		and the second	
							-	and the second se	
lotes:									
lotes:									

HYDROLOGY PRIMARY INDICATO	ORS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)			
Surface Water (A1)	urface Water (A1) Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) <u>N</u>		
High Water Table (A2) Inundation Visible on Aerial Imagery (B7)		Drainage Patterns (B10)	Geomorphic Position (D2)		
Saturation (A3)N	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3) _N	Shallow Aquitard (D3)		
Water Marks (B1)	Water Marks (B1) Marl Deposits (B15)		Microtopographic Relief (D4)		
Sediment Deposits (B2)	Sediment Deposits (B2) Hydrogen Sulfide Odor (C1)		FAC-Neutral Test (D5)		
Drift Deposits (B3)N	Dry-Season Water Table (C2) N	Notes:			
Algal Mat or Crust (B4)	Other (Explain in Notes):	a te ser a ser	e sette nor en en el		
Iron Deposits (B5)			1 And Strength A.		
Surface Water Present (Y/N): N	Depth (in):		.1		
Water Table Present (Y/N): N Depth (in):		Wetland Hydrology Present (Y/N):			
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:			
Notes:					
			and the second sec		

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 Forested-Deciduous-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): 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%) Environmentation Non- No
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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) Moderately Abundant (25-50% 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: 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 Inlet/Perennial Outlet Perennial Inlet/Perennial Inle
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%)
Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring
Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring
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
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 Below

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.

Feature ID: W 85LH 068 Field Target: 15121 Date: 8/14/15

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?
- B Indicator status is correct for each species?
- Dominance Test and Prevalence Index have been completed?

3. Soil

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

4. Hydrology

- Appropriate hydrology indicators are marked?
- E 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

- **1** 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)?

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8/14/15

8.18.15

Wetland Scientist (print)

Signature / Date

X Jessie Bronnlac

Field Crew Chief (print)

Signature / Date

Х

SITE DESCRIPTION	and the state of the state	a de la		1. 1995	The Partie	
Survey Type: Centerline Acce	ss Road (explain)	Other (expla	ain)	Field Targ	et: <u>522</u>	Map #: 130_Map Date: 6-18-15
Date: 8/14/15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W7564069
Investigators: JBJA					- f;	Team No.: 10,85
State: Alaska	Region: Alaska		Milepost:	514.0		
Latitude: 104 01. 11.89		Longitude	» -149° 08			Datum: WGS84
Logbook No.: 2	Logbook Page No.:	37	Picture No.:	P-PH	plug, 1	Nez-Vez
SITE PARAMETERS		the second second	A REAL PROPERTY AND	10-15-0	1. 	State of the state
Subregion: Tanaka Kushda	in Cowlands		Landform (hill	slope, terrac	e, hummock	s, etc.): frescare / toeslope ?
Slope (%): 0-3	10 · · · · · · · · · · · · · · · · · · ·		Local relief (c	oncave, con	vex, none):	Madly contaile
Pre-mapped Alaska LNG/NWI classific	ation:				58	Real matter,
Are climatic/hydrologic conditions on the	e site typical for this time plain in Notes)	of year?	Are "No Yes V	ormal Circum	nstances" pre (If no, ex	sent: plain in Notes.)
Are Vegetation, Soil, or Hy		ly Disturbed?			lain in Notes	
Are Vegetation, Soil, or Hy	drology Naturally F	Problematic?	No 🔶	_ (If yes, exp	plain in Notes	s.)
SUMMARY OF FINDINGS			Children Ver			
Hydrophytic Vegetation Present? Yes	XaNo	is	the Sampled A	Area within a	a Wetland?	Yes No
Hydric Soil Present? Yes_	<u>× No</u>	w	etland Type:	PROYB		
Wetland Hydrology Present? Yes_	No	— A	Alaska Vegetation Classification (Viereck): 142, 11C Z			
Notes and Site Sketch: Please include corridor. A mainly feather but Moved FT from or Johnal la N Instead we put plat 1554/10 WA	I wart	1 dend	and a do	, A 50	lix RI	logro, Thick MOSS 37 @ WESLHOUS FT 1512
	WESL HOLE					

Contra to the second	5)	100	1 1 1	and the second state of the second state of the second states
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)
1. Piceo Madana	30	Y	Farilat	Total Number of Dominant Species Across All Strata: (B)
2.		1		% Dominant Species that are OBL, FACW, or FAC: <u>10D</u> (A/B
3.			5	and the second
4.	- 14			Prevalence Index worksheet:
Total Cover 50% of total cover	THE REPORT OF)% of total cov	ver:	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum (24)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $(_{0}2 \ X 2 = 124)$ FAC species $(_{0} \ X 3 = 19\%)$ FACU speciesX 4 =
1. Salix Pulchra	7	- AN ET	FACW	UPL speciesX 5 =
2. Salix Glauca	- Tak	문무고보	FAC	Column Totals: 128 (A) 327 (B)
3. Picea Mariana	10		FACW	PI = B/A = 2.51
4. Unccinium ulianneum	15	Y	EAC	and server and a server a server as a server as
5. vaccinium vitis idea	25	N	FAC	and the second of the second second
6. Rhododendrum groenlandicum	to		FAC	and the second
7. Betula nama	6	- S _ P	FAC	a strange of the state of the s
8. Empetrim riguin	3		Fre	S and the state of the state of the state of the
9.			and the second s	
				10.4
Total Cover:			1.00	164
Total Cover: 50% of total cover:		% of total cov	er: <u>15.2</u>	164
50% of total cover.	38 20	% of total cov	er: <u>15.2</u>	164
50% of total cover VEGETATION (use scientific names of plants	38 20	% of total cov Dominant Species? (Y/N)	er: <u>15.2</u> Indicator Status	Hydrophytic Vegetation Indicators:
50% of total cover.	38 20	Dominant Species?	Indicator	Hydrophytic Vegetation Indicators: ↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0
50% of total cover.) Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. Carex sp 2. pyrola grand.flore) Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: ↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. <u>Carex sp</u> 2. <u>pyrola grand florg</u> 3. <u>General Physiolum</u>) Absolute % Cover	Dominant Species?	Indicator Status N/A FAC	Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes)
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. Carex Sp 2. pyrola grandiflora 3. Geocarlon lividium 4. Equisetum proteinse) Absolute % Cover	Dominant Species?	Indicator Status N/A FAC FACO	Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. <u>Carex sp</u> 2. <u>pyrola grand flora</u> 3. <u>General on lividium</u> 4. <u>Egyisetum pratense</u> 5. <u>Arctograstis latifolia</u>) Absolute % Cover	Dominant Species?	Indicator Status N/A FAC FACO FACO	Hydrophytic Vegetation Indicators: ↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. <u>Carex sp</u> 2. <u>pyrola grand.flora</u> 3. <u>Geoconton livid.um</u> 4. <u>Egylisetum pratense</u> 5. <u>Acctograstis latifolia</u> 6. <u>Saussurea angustifolia</u>) Absolute % Cover	Dominant Species?	Indicator Status N/A FAC FAC FAC FAC	Hydrophytic Vegetation Indicators: ↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. Carex Sp 2. pyrola grand.florg 3. General on livid.um 4. Equisetum protense 5. Arctographic latifolia 6. Saussurea angustifolia 7. Calamagroshs apponica) Absolute % Cover	Dominant Species?	Indicator Status N/A FAC FAC FAC FAC FAC	Hydrophytic Vegetation Indicators: ✓ 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.
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. <u>Carex sp</u> 2. <u>pyrola grand.flora</u> 3. <u>Geocarlon lividium</u> 4. <u>Eguisetum pratense</u> 5. <u>Acctograstis latifolia</u> 6. <u>Saussurea angustifolia</u> 7. <u>Calanageostis lapponica</u> 8.) Absolute % Cover	Dominant Species?	Indicator Status N/A FAC FAC FAC FAC FAC	Hydrophytic Vegetation Indicators: ↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. <u>Carex sp</u> 2. <u>pyrola grand.flora</u> 3. <u>Geocarlon lividium</u> 4. <u>Equisetum pratense</u> 5. <u>Acctoprostis latifolia</u> 6. <u>Saussurea angustifolia</u> 7. <u>Calamagrostis apponica</u> 8. <u>H</u>) Absolute % Cover	Dominant Species?	Indicator Status N/A FAC FAC FAC FAC FAC	Hydrophytic Vegetation Indicators: ↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations' (Provide supporting data in Notes) Problematic Hydrophytic Vegetation' (Explain) ' Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes % Cover of Bryophytes % Cover of Water
50% of total cover. VEGETATION (use scientific names of plants Herb Stratum () 1. Carex sp 2. pyrola grand.flora 3. Geocarlon lividium 4. Equisetum pratense 5. Arctworostis latifolia 6. Saussurea angustifolia 7. o. b. J. J.	Absolute % Cover	Dominant Species?	Indicator Status N/A FAC FAC FAC FAC FAC	Hydrophytic Vegetation Indicators: ↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (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

WETLAND DETERMINATION D	ATA FORM
-------------------------	----------

Depth	Matrix		Redox Features			1. 1. 1.	Sec. 1 Sec. 18			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes		
0-5	And a second			_				saturated acgamics		
5.8					1 and a		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Saturated organics		
8-10	104R 2/2	100					loam	Q		
10-18	1042.4/2	85	A.SY-1/1	5	D	MRC	loamy fine say	1		
ange and			7.51124/4	10	C	MRC		A State of the second second		
140				1. Alexander	Z. +	1 Com	1. 1. 1. 1 No.	A Provide State		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0	A STREET	1. 1.	10.000		10.11.15			
¹ Type: C=Co	oncentration, D=Depl	letion, RN	M=Reduced Matrix,	CS=Cov	ered or Co	ated Sand Gr	rains. ² Location:	PL=Pore Lining, M=Matrix.		
HYDRIC SO	L INDICATORS				Stor!	and the second second	INDICATORS F	OR PROBLEMATIC HYDRIC SOIL		
Histosol or H	istel (A1)		Alaska Gleye	ed (A13)	N		Alaska Color Ch	nange (TA4) ⁴		
Histic Epiped	on (A2)		Alaska Redo	x (A14) _	N	and at a	Alaska Alpine S	wales (TA5)		
Black Histic (A3) N	J.C.	Alaska Gleye	ed Pores	(A15)	A. 1.	Alaska Redox w	vith 2.5Y Hue		
Hydrogen Sulfide (A4)								Alaska Gleyed without 5Y Hue or Redder Underlying Layer		
						1. 1. 1. 1.	Other (Explain in Notes)			
disturbed or	or of hydrophytic veg problematic. of color change in N		ne primary indicato	or of wetla	and hydrold	gy, and an a	ppropriate landscap	pe position must be present unless		
	ayer (if present): Typ	201 1		Depth (i	nches):	8				

HYDROLOGY PRIMARY INDICATOR	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or n	nore required)
Surface Water (A1) V - M Seciole	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	
Algal Mat or Crust (B4)	Other (Explain in Notes):	Part and and the state of the	
Iron Deposits (B5)	Martin States	The Maria Maria	a the state of the
Surface Water Present (Y/N):	Depth (in):	and the second second	
Water Table Present (Y/N):	Depth (in): 9	Wetland Hydrology Present (Y/N): _	L L L
Saturation Present (Y/N): (includes capillary fringe)	Depth (in): 3	EC: lole pH 5	.3
Notes: Surface water in only a	Few spots in depusions.		the states in

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 Emergent-
Percent Cover (P): Tree (>5 dbh, >6m tall) 30 Sapling (<5 dbh, <6m tall) 10 Tall shrub (2-6m) Short shrub (0.5-2m) 30 Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even XHighly UnevenModerately 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 Cover2
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) X Moderate (broken irregular rings)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Mineral: Gravelly Mineral: Silty Mineral: Gravelly Mineral: Silty
HYDROLOGIC VARIABLES
Inter/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/Perennial 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.)
Frequency of Overbank Flooding (P): No Overbank Flooding Keturn Interval 1-2 yrs Return Interval 2-5 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%)
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Only Connected Below
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)_ Crew Chief QA/QC check:

fissel Bron

Lee

GPS Technician QA/QC check

Medium (10-100 acres)_

 \times

___Large (>100 acres)_

Page 4 of 4

4069

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: <u>N85LH069</u>
 Field Target: <u>15122</u>
 Date: <u>8/14 (15</u>

 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?
- D- 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?
- Solution values 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?
- A 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)?

Х 8/14/15 8140 Signature / Date Wetland Scientist (print)

X Jessie T le

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION		01		Elal d Z	16110	Man # 120 Han D. 1 144
Survey Type: Centerline X Acce				Fleid Target:		Map #: <u>132 Map Date: 6.18</u>
Date: 8/14/15	Project Name & No.:	: Alaska LNG	60418403	ㅋ	eature Id:	W85LH070
Investigators: JB, JA						Team No.: W 85
State: Alaska	Region: Alaska		Milepost: 4	522.2		
Latitude: 63°54'41.33		Longitude	: 149°04'	33,72		Datum: WGS84
Logbook No.: 2	Logbook Page No.:	39	Picture No.:	P-pit-p	tuz, v	eq. veg. N.S
SITE PARAMETERS					10.19	
Subregion: Alaska Range	1 2 A		Landform (hil	Islope, terrace,	hummock	s, etc.): Hillside / Foot slope
Slope (%): 3-5	14		Local relief (c	oncave, convex	, none):	Flat
Pre-mapped Alaska LNG/NWI classifica	ation: V: 11CZ	, ILAZ	Evidence of V	Vildlife Use: ؍	IONE	
Are climatic/hydrologic conditions on th Yes No(If no exp	e site typical for this time lain In Notes)	e of year?		ormal Circumsta		
Are Vegetation, Soll, or Hy	drology Significan	tly Disturbed?	No_X	_(If yes, explain	n In Notes)
Are Vegetation, Soll, or Hy	drology Naturally	Problematic?	No_X	_ (If yes, explai	n In Notes	.)
SUMMARY OF FINDINGS	anitari in Ma		rejulius S	NR 184 4 3	\$-14-1	n status da status
Hydrophytic Vegetation Present? Yes_	1 No	Is	the Sampled A	Area within a W	etland?	Yes NoX
Hydric Soil Present? Yes_	No <u>X</u>	w	etland Type:	Ч		
Wetland Hydrology Present? Yes_	NoX	Ala	aska Vegetatior	n Classification	(Viereck):	11C1, 1A3
Corridor. Bet Nan & talk Salix Gla Dry site, with No signa All of Gum	a shrub commu o of hydrology.	nity with Bry s	h a few sandy se	(8%) P: iils w/a	2 Gla Smal	trees 15-25' tal LE/Bs processes
		a a Part		•		
					ц. с.	

<u>Tree Stratum</u> (Plot sizes: <u>しの</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>4</u> Total Number of Dominant Species Across All Strata: <u>5</u>
1. Picea Glauca	7	Y	FACU	% Dominant Species that are OBL, FACW, or FAC: <u>%D</u>
Populus tremulades	-	- C	Fael	
i. •		-		
4.				Prevalence Index worksheet:
Total Cover	Ŭ			Total % Cover of: Multiply by:
50% of total cove	r: <u> 4 </u>	% of total cov	er: L.L	OBL species:X 1 =
Sapling/Shrub Stratum (<u>26'</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $X 2 =$ FAC species $1() 5$ $X 3 = 315$
· Betula Nana	55	V	FAC	FACU species I X 4 = II UPL species X 5 =
Picea Glauca	2	l	FACU	Column Totals: // 6 (A) 359 (B)
Rhodadandrum groelandieum	dia.		FAC	PI = B/A = <u>3,09</u>
· Vaccinium uliginas um	10		FAC	
· vaccinism with's - idaea	15	_	FAC	
· Salix glavea	20	4	FRE	a sector conservation
· Salix pulchra	T	t		and the second sec
3. rosa cicicularis	1	I NOVI L	Fail	
Total Cover	: 104			
50% of total cover	r: <u>52</u> 20	% of total cov	er: <u>20.</u> 8	
	Star U.M.			
EGETATION (use scientific names of plant	s)			
	s) Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
lerb Stratum ()	Absolute		Status	- Dominance Test is > 50% $-$ Prevalence Index is ≤ 3.0
Mertensie paniculata	Absolute	Species?		Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data In
Perb Stratum (_ Zle') Mertensio paniculata 2. Chamerian pages & folium	Absolute	Species?	Status FACU	- Dominance Test is > 50% $-$ Prevalence Index is ≤ 3.0
Pertensio paniculata Chamerlan Dagustifium Calamagrostic Espanica	Absolute	Species?	Status FACU FACU	$\begin{array}{c} & \searrow \\ & & & & \\ & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & &$
Lerb Stratum () 1. Mertensio paniculata 2. Chamerian angustifulium 3. Calamagrostis lapponica 4. Equisptum pratense	Absolute	Species?	Status FACU FACU FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data Ir Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
1. Mertensia paniculata 2. Chamerian angustifulium 3. Calamagrostis lapponica 4. Equisatum pratense 5. Contium trifidum	Absolute	Species?	Status FACU FACU FAC FAC FAC	↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data In Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
· Mertensio paniculata · Mertensio paniculata · Chamerlan angustifilium · Chamerlan angustifilium · Chamerlan angustifilium · Calemagrostic lapponica · Equisatum pratense · Contium trifidum · Festuca altaica	Absolute % Cover	Species?	Status FACU FACU FAC FAC	↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data In Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Lerb Stratum () 1. Mertensie paniculata 2. Chamerian angustifulium 3. Calamagrostis lapponica 4. Equisptum pratense 5. Contium trifidum 5. Festuca altaica 7. Calamagrostis concensis	Absolute % Cover	Species?	Status FACU FACU FAC FAC FAC FACU FAC	↓ Dominance Test is > 50% ↓ Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unleadisturbed or problematic.
Lerb Stratum (1. Mectensie paniculata 2. Chamerian angustificium 3. Calamagrostic lapponica 4. Equisetum pratense 5. Contium trifidum 5. Fastuca altaica 4. Calamagrostis renoctasis 3.	Absolute % Cover	Species?	Status FACU FACU FAC FAC FAC FACU FAC	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data In Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic.
1. Mertensie paniculata 2. Chamerian angustificium 3. Calamagrostic lapponica 4. Equisatum pratense 5. Contium trifidum 6. Festucar altaica 7. Calamagrostis concensis 8.	Absolute % Cover	Species?	Status FACU FACU FAC FAC FAC 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 unlest disturbed or problematic.
1. Mertensio peniculata 2. Chamerion augustifulium 3. Calamagrostis lapponica 4. Equisatum pratense 5. Contium trifidum 6. F. 1	Absolute % Cover	Species?	Status FACU FACU FAC FAC FAC FACU FAC	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data In Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic. 0 % Bare Ground 0 % Cover of Wetland Bryophytes 40 Total Cover of Bryophytes

SOIL	the state of the	-13 15	8 · 15 · 15 Date Feature ID		ELHO70	1	Soil Pit Required (Y/N)
	LE DESCRIPTION: (Describe	to the depth needed to docur	nent th	ne indicator or o	confirm the absence	
	Matrix	-	Redox Features		20 E - 21		
Depth (inches)	Color (moist)	%		Type ¹	Loc ²	Texture	Notes
· · · ·		/0		туре	LUC	Texture	Notes
0-3	- 7/	-					
3-4	104R 3/2	100				laam	chargoal present
4-5	10YR 5/2	100			-	very fice county le	0m
5-7	7.54R 4/6	100				fine couches In	with
7-24	10412 4/4	100	The second se			fine sandy los	
	ALC: NO						2× .
¹ Type: C=Ce	oncentration, D=Deple	tion, RN	-Reduced Matrix, CS=Cover	ed or (Coated Sand G	arains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SO	IL INDICATORS	1959	STATISTICS IN THE PARTY	3175	and have the	INDICATORS F	OR PROBLEMATIC HYDRIC SOILS
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	listel (A1)/	-	Alaska Gleyed (A13)	V		Alaska Color Ch	A CONTRACTOR OF A CONTRACTOR O
			Alaska Redox (A14) _/		2	Alaska Alpine S	
	lon (A2) ·	-					
	(A3) <u>//</u>		Alaska Gleyed Pores (A	15) _/	V		ith 2.5Y Hue _/V
Hydrogen Su	ılfide (A4)/					Layer	vithout 5Y Hue or Redder Underlying
Thick Dark S	urface (A12) -N			-		Other (Explain in	- Notes)
		tetion (n	ne primary indicator of wetland	1 hvdr	ology and an a		e position must be present unless
disturbed or	problematic.	(anoni o	to printing indicator of wordan	a nyan	ology, and an e	appropriato landooap	
⁴ Give details	of color change in No						
Restrictive La	ayer (if present): Type	∋: <u></u> /_	Depth (inc	hes):_	÷		
					_		
Hydric Soil i	Present (Y/N): _/				X	is 1	
					4	1 .	
Notes:		1.0	2 · · · ·			14 - L	
	5				1		
		141	A				
HYDROLOG	Y PRIMARY INDICAT	TORS (a	iny one indicator is sufficient)	1,41	SECONDAR	Y INDICATORS (2 c	or more required)
Surface Wate	ər (A1) 🔨	Su	face Soil Cracks (B6)	_	Water-stained Leaves (B9)		Stunted or Stressed Plants (D1)
High Water T	able (A2) _/	Inu (B7	ndation Visible on Aerial Imag	ery	Drainage Patterns (B10)/		Geomorphic Position (D2)
Saturation (A	.3) <u>N</u>		arsely Vegetated ncave Surface (B8)		Oxidized Rhizospheres along Living Roots (C3)/		Shallow Aquitard (D3)
Water Marks	(B1)	Ма	rl Deposits (B15)		Presence of Reduced		Microtopographic Relief (D4)
Sediment De	posits (B2)	Hy	drogen Sulfide or (C1)N		Salt Deposits	(C5) <u>N</u>	FAC-Neutral Test (D5) _/
Drift Deposits	s (B3)	Dry	-Season ter Table (C2) _N		Notes:	17-	
		VVC		1			
Algal Mat or	Crust (B4)	Oth	er (Explain in Notes):				
	Crust (B4)	Oth	er (Explain in Notes):				· · · · ·
Algal Mat or		Oth	er (Explain in Notes):				
Iron Deposits	s (B5) <u>N</u>		- N		. 75 - 2		
Iron Deposits	s (B5) <u>N</u>	Oth	er (Explain in Notes):		- 270 - 20	a an Anna	N
Iron Deposits Surface Wate	e (B5)		- N	- v	Vetland Hydro	logy Present (Y/N)	

Notes:

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 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)
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%) Image: Comparison of the second secon
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover <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 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 Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial 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.)
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
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 End (<5.5)
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
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%)
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 Example Gradient (M): Low Gradient (<2%)
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading

Watershed Land Use: 0-5% Rural_____ 5-25% Urbanized_____ 25-50% Urbanized_

Medium (10-100 acres)

Size: Small (<10 acres)

GPS Technician QA/QC check:

Large (>100 acres)

>50% Urbanized

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>W85(H970</u> Field Target: <u>15119</u> Date: <u>8/14/15</u> 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)?

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la Anden 8/14/15

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Wetland Scientist (print)

Signature / Date

X Jessie Brownlee

Field Crew Chief (print)

Signature / Date

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	- Tarata - a - Har Va - Star Barra	MAR NOT COMMENSION	The summer of the second	an antipatric state of the Western			
SITE DESCRIPTION			Field Terretur 5095	Man # 12) Man Data: 11. (8			
*	ss Road (explain) 人 Other (e:		Field Target: 15295	Map #: 132 Map Date: <u>June (8</u>			
Date: 8 15 16	Project Name & No.: Alaska L						
Investigators: JB_JA Team No.: W35							
State: Alaska	Region: Alaska	Milepost: 522.1					
Latitude: 63°54' 37 98		tude: 14 9.04 20.16 Datum: WGS84					
Logbook No.: 2	Logbook Page No.: 4	Picture No.:	P, vez. veg.	P.t. Pluz			
SITE PARAMETERS	Weiner Million States and			Constant Constant			
Subregion: Alaska Range		Landform (hil	Islope, terrace, hummock	s, etc.): Slope			
Slope (%): 0 - 3 /	5 I	Local relief (o	concave, conyex, none):	flat			
Pre-mapped Alaska LNG/NWI classifica	tion: PSS IB	Evidence of V	Wildlife Use: -Noru G	and the second se			
Are climatic/hydrologic conditions on the Yes No (if no expl	e site typical for this time of year? ain in Notes)	Are "N Yes_>	ormal Circumstances" pre ∠ No (lf no, ex	sent: plain in Notes.)			
Are Vegetation, Soil, or Hyd	drology Significantly Disturbe	ed? No <u>X</u>	(If yes, explain in Notes)			
Are Vegetation, Soil, or Hyd	drology Naturally Problemati	ic? No	_(If yes, explain in Notes	5.)			
SUMMARY OF FINDINGS		1. 22 P. 20 M. 20					
Hydrophytic Vegetation Present? Yes_		Is the Sampled A	Area within a Wetland?	Yes No			
Hydric Soil Present? Yes_	No	Wetland Type:	PSSIB				
Wetland Hydrology Present? Yes_	<u>У №</u>	Alaska Vegetatio	n Classification (Viereck):	11 - 1			
Notes and Site Sketch: Please include I	Directional & North Arrow, Centerli	ne, Length of featu	ire, Distances from Cente	rline, Photo Locations, and Survey			
corridor.	chat a manufa	1 ~ ~ '	D. Cland	fulle discrafty otherward			
Closed Det Nan.	Sins community	205 2010	Fic Gla and	Attle discrafty otherwice			
Moved field taget 15	295 Did OP at 13	275 origin	I location an	d round some			
Veg (taller Bet), Simil		,	0				
to confirm landscape	does indeed get	wet Pull	LO Slope	between op and			
The only distinguishing	feature was short	er iser i G	service out -	-			
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	Non Series	S.C.	E-D-				
	NO AN C	De t	-				
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	No. We Had	10 th					

Tree Stratum (Plot sizes: 100)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
() () () () () () () () () () () () () (76 COVER	(Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC: 3
Picea Glauca	6	Y	FACU	Total Number of Dominant Species Across All Strata: 4
2.				% Dominant Species that are OBL, FACW, or FAC: <u>75</u>
3.				and the state of the
4.				Prevalence Index worksheet:
Total Cove	er: <u>5</u>		4	Total % Cover of: Multiply by:
50% of total cove	er: <u>2.5</u> 20)% of total cov	ver:	OBL species:X 1 =
Sapling/Shrub Stratum (_ 26')	Absolute	Dominant	Indicator	FACW species: 5 X 2 = 10
· · · · ·	% Cover	Species?	Status	FAC species 11 7 X 3 = 351
	-	(Y/N)	· · · · · ·	FACU species 8 X 4 = 32
1. Betula Hana	170	Y	FAC	UPL speciesX 5 =
2. Vaccinium uliginosum	3		FAC	Column Totals: 130 (A) 393 (B)
3. vaccinium vitis-lidaea	7		FAC	PI = B/A =
4. Picea Glauca	3		FACU	
5. Salix Pulchra	2		FAC	
6.	10.1			A. A. A. A. A. M.
7.				
8. 9.				
9. Total Cove				
Э.		% of total cov	er: <u>17</u>	
9. Total Cove 50% of total cove	er: <u>42.5</u> 20	% of total cov	er: <u>17</u>	
D. Total Cove 50% of total cove VEGETATION (use scientific names of plan	er: <u>42.5</u> 20	% of total cov	er: <u>17</u>	Hydrophytic Vegetation Indicators:
). Total Cove 50% of total cove /EGETATION (use scientific names of plan	er: <u>42.5</u> 20	Dominant Species?		Hydrophytic Vegetation Indicators:
کی – Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (<u>26 '</u>)	er: <u>43.5</u> 20 ts) Absolute % Cover	Dominant	Indicator Status	
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2. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum () 1. Calan agrostis Canadan si's 2. Cavex bige low i 3. Directory of the science of t	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5	Dominant Species?	Indicator Status FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
2. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (<u>26'</u>) 1. Calanagrostis Canadansi's 2. Carex bige lowil 3. Peta sites - Frigidus	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5 5	Dominant Species?	Indicator Status FAC FAC FAC	Dominance Test is > 50% N Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum () 1. (alan agrostis Canadan si's 2. (avex bige lawi) 3. Pota sites - Frigidus 4. Pyrola grandif lora	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5	Dominant Species?	Indicator Status FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum (<u>26'</u>) 1. (alan agrostis Canadan si's 2. Carex bige lowil 3. Pota sites - Frigidus 4. Pyrola grandif lora 5. Stellaria Sp	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5 5	Dominant Species?	Indicator Status FAC FAC FAC FAC	Dominance Test is > 50% N Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
2. Total Cove 50% of total cove /EGETATION (use scientific names of plan terb Stratum () 1. Calanagrostis Canadansis 2. Carex bige lowil 3. Peta sites - Frigidus 4. Pyrola grandif lora 5. Stellaria Sp 6. Calamagrostis lapponica	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5 5	Dominant Species?	Indicator Status FAC FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unles disturbed or problematic.
D. Total Cove 50% of total cove /EGETATION (use scientific names of plan Herb Stratum () 1. (alan agrostis Canadan si's 2. Cavex bige lowil 3. Pota sites - Frigidus 4. Purola grandiflora 5. Stellaria sp 6. (alamagrastis lapponica 7	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5 5 5 7 7	Dominant Species?	Indicator Status FAC FAC FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
2. Total Cove 50% of total cove /EGETATION (use scientific names of plan terb Stratum (<u>26'</u>) 1. Calanagrostis Canadansis 2. Carex bige lowill 3. Peta sites - Frigidus 4. Pyrola grandiflora 5. Stellaria Sp 6. Calamagrastis lapponica 7.	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5 5 5 7 7	Dominant Species?	Indicator Status FAC FAC FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic % Bare Ground % Cover of Wetland Bryophytes
2. Total Cove 50% of total cove /EGETATION (use scientific names of plan terb Stratum (<u>26'</u>) 1. Calanagrostis Canadansis 2. Carex bige lowill 3. Peta sites - Frigidus 4. Pyrola grandiflora 5. Stellaria Sp 6. Calamagrastis lapponica 7.	er: <u>43.5</u> 20 ts) Absolute % Cover 20 5 5 5 7 7	Dominant Species?	Indicator Status FAC FAC FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes Total Cover of Bryophytes
9. Total Cove 50% of total cove VEGETATION (use scientific names of plan Herb Stratum () 1. (alan agrostis Canadansis 2. Carex bige lowil 3. Peta sites - Frigidus 4. Pyrola grandif lora 5. Stellaria Sp 6. (er: <u>43.5</u> 20 ts) Absolute % Cover 20 5 5 5 7 7	Dominant Species?	Indicator Status FAC FAC FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unlest disturbed or problematic % Bare Ground % Cover of Wetland Bryophytes

OIL DROFT		Decomor	n me nonin noona.					
Showly.	LE DESCRIPTION: (I Matrix	Describe	Redox Features		none ino i			
Depth Inches)		%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
ALL CONTRACTOR	Color (moist)	70		70	туре	LUC		0
0-5	2/	-	1 125/			1.	5.111	Dampoquales
5-7	101R 3/3		7.5YR 2.5/3	10	C	MRC	silf loam	
1-15	2.54 4/1	30	and the second se	5	D	m	Silt-loam	and the second s
	2.54 3/1		7.54 R 4/4	25	C	m		and a second
	10-1R 3/2	10			_	-		
15-20	10-1R 5/3	100					course sandy li	244 (SI)
-			A-Deduced Metrix, C		od or Cor	ated Sand G	raine ² l ocation	PL=Pore Lining, M=Matrix.
	oncentration, D=Deple	etion, RN	M=Reduced Matrix, C	S=Cover	ed of Coa	aled Sand G		FOR PROBLEMATIC HYDRIC SO
and the second	L INDICATORS				CI OFINING		a Canton and the fight of	The second second sectors and the second s
Histosol or H		11	Alaska Gleyed			-		Change (TA4) ⁴
Histic Epipeo	lon (A2)	100	Alaska Redox			/		Swales (TA5) N
Black Histic	(A3)/		Alaska Gleyed	Pores (A	A15) _/	Sug he	Alaska Redox	
Hydrogen Su	Ifide (A4) N	an in the	Same in				Alaska Gleyed	without 5Y Hue or Redder Und
Thick Dark S	urface (A12)	1000				_	Other (Explain	in Notes)
		atation c	ne primery indicator	of wetlen	d hydrolo	and an a		ape position must be present unless
	Present (Y/N): <u>/</u> XX throughou	+ 5	oil collapsing	and	seepin	3 C 15"	in sandy	horizon
		+ 5	oil collapsing	and :	seepin	3 @15"	in sandy	howzon
Notes: Neg			0		1			horizon ? or more required)
Notes: Neg	XX throughout	TORS (0	sufficient)	s		Y INDICATORS (2	
Notes: Neg HYDROLOG Surface Wat	XX throughout	TORS (any one indicator is s Inface Soil Cracks (Be undation,Visible on A	sufficient) 6) _ N _	S V L gery	SECONDAR Nater-staine Leaves (B9)	Y INDICATORS (2	or more required) Stunted or Stressed Plants (D1)
Notes: Neg HYDROLOG Surface Wat High Water	XX <i>Hrsight</i> Y PRIMARY INDICA er (A1) <u>N</u> Fable (A2) <u>N</u>	TORS (Su - (B Sp	any one indicator is s Inface Soil Cracks (Be undation,Visible on A	sufficient) 6) <u>V</u> erial Imag	gery C	SECONDAR Nater-stainee Leaves (B9) Drainage Pat Dxidized Rhiz Living Roots	Y INDICATORS (2 d	? or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)
Notes: Neg HYDROLOG Surface Wat High Water	$X \propto H_{roughon}$ AY PRIMARY INDICA er (A1) N Table (A2) N (A3) N	TORS (i Su - (B Co	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) arsely Vegetated	sufficient) 6) <u>V</u> erial Imag	gery C	SECONDAR Water-stainer Leaves (B9) Drainage Pat	Y INDICATORS (2 d	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Notes: Neg HYDROLOG Surface Wat High Water ⁻ Saturation (A Water Marks	$X \propto H_{roughon}$ AY PRIMARY INDICA er (A1) N Table (A2) N (A3) N	TORS (i Su - Inu - (B Sp Cc Ma Hy	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) varsely Vegetated oncave Surface (B8)	sufficient) 6) <u>V</u> erial Imag	gery C C C F II	SECONDAR Water-stained eaves (B9) Drainage Pat Dxidized Rhiz Living Roots Presence of I ron (C4)	Y INDICATORS (2 d	? or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
Notes: Neg HYDROLOG Surface Wat High Water Saturation (A Water Marks Sediment De	$X \times H_{roughow}$ $PRIMARY INDICA$ $er (A1) \underline{N}$ $Fable (A2) \underline{N}$ $(B1) \underline{N}$ $(B1) \underline{N}$ $(B2) \underline{N}$	TORS (i Su - Inu - (B Sp Cc Cc Ma - Hy Occ	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) Vegetated oncave Surface (B8) arl Deposits (B15) rdrogen Sulfide	sufficient) 6) <u>V</u> erial Imag	gery C C C F II	SECONDAR Water-stained eaves (B9) Drainage Pat Dxidized Rhiz Living Roots Presence of I ron (C4)	Y INDICATORS (2 d	? or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Neg HYDROLOG Surface Wat High Water Saturation (A Water Marks Sediment De Drift Deposit	$X \times H_{roughout}$ EXAMPRIMARY INDICA er (A1) <u>N</u> Table (A2) <u>N</u> (B1) <u>N</u> (B1) <u>N</u> s (B3) <u>N</u>	TORS (a Su - Inu (B Sp Cc Ma - Ma - Ma Oc Dr Wa	any one indicator is s inface Soil Cracks (Be indation Visible on A 7) N parsely Vegetated oncave Surface (B8) arl Deposits (B15) rdrogen Sulfide for (C1) y-Season	sufficient) 6) <u>N</u> erial Imag N N	gery C C C F II	SECONDAR Water-stained eaves (B9) Drainage Pat Dxidized Rhiz Living Roots Presence of I ron (C4)	Y INDICATORS (2 d	? or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Neg HYDROLOG Surface Wat High Water Saturation (/ Water Marks Sediment De Drift Deposit Algal Mat or	$X \times H_{roughout}$ EXAMPLE ANDICA er (A1) <u>N</u> Fable (A2) <u>N</u> (B1) <u>N</u> (B1) <u>N</u> eposits (B2) <u>N</u> s (B3) <u>N</u> Crust (B4) <u>N</u>	TORS (a Su - Inu (B Sp Cc Ma - Ma - Ma Oc Dr Wa	any one indicator is s and tion Visible on A 7) N barsely Vegetated barsely Vegetated	sufficient) 6) <u>N</u> erial Imag N N	gery C C C F II	SECONDAR Water-stained eaves (B9) Drainage Pat Dxidized Rhiz Living Roots Presence of I ron (C4)	Y INDICATORS (2 d	? or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Neg HYDROLOG Surface Wat High Water Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit	$\mathcal{K} \mathcal{K} \xrightarrow{H} \mathcal{K} \mathcal{K} \mathcal{K}$	TORS (a Su - Inu (B Sp Cc Ma - Ma - Ma Oc Dr Wa	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) N barsely Vegetated barsely Vege	sufficient) 6) <u>N</u> erial Imag N N	gery C C C F II	SECONDAR Water-stained eaves (B9) Drainage Pat Dxidized Rhiz Living Roots Presence of I ron (C4)	Y INDICATORS (2 d	? or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Neg HYDROLOG Surface Wat High Water Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit Surface Wat	$X \times H_{roughout}$ EXAMPLE ANDICA er (A1) <u>N</u> Fable (A2) <u>N</u> (B1) <u>N</u> (B1) <u>N</u> eposits (B2) <u>N</u> s (B3) <u>N</u> Crust (B4) <u>N</u>	ATORS (a Su - Inu - (B Sp Cc Ma - Ma - Ma - Oc Dr Wa	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) N barsely Vegetated barsely Vege	sufficient) 6) <u>N</u> erial Imag N N	gery C C F I S N	SECONDAR Water-stained eaves (B9) Drainage Pat Dividized Rhiz Living Roots Presence of I ron (C4) Salt Deposits Notes:	Y INDICATORS (2 d	Por more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3)Y Microtopographic Relief (D4)Y FAC-Neutral Test (D5)
Notes: Neg HYDROLOG Surface Wat High Water ⁻ Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit Surface Wat Water Table Saturation P	$\mathcal{K} \mathcal{K} \text{ throughout}$ $PRIMARY INDICA$ $Primary INDICA$ $Primary INDICA Primary INDICA Pr$	ATORS (a Su - Inu - (B Sp Cc Ma - Ma - Ma - Oc Dr Wa	any one indicator is s inface Soil Cracks (Be undation Visible on A 7) N arsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide tor (C1) <u>N</u> y-Season ater Table (C2) <u>Y</u> her (Explain in Notes Depth (in): —	sufficient) 6) <u>N</u> erial Imag N N	gery E Gery E F II S N We	SECONDAR Water-stained eaves (B9) Drainage Pat Dividized Rhiz Living Roots Presence of I ron (C4) Salt Deposits Notes:	Y INDICATORS (2 d	Por more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3)Y Microtopographic Relief (D4)Y 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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Non-persistent Persistent Aquatic Bed Forested-Deciduous-Needle-leaved 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 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%) 4
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: 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/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Out
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed <u>K</u> Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) X 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 5.95
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 X Seeps Observed Intermittent Spring Perennial Spring

LANDSCAPE VARIABL	ES (M)		
Wetland Juxtaposition: Only Connected Above_	Wetland Isolated Wetlands withi Connected Upstream & Downstream_	n 400m, Not Connected Unknown	Only Connected Below
Wetland Land Use:	High Intensity (i.e., ag.) Moderate In	tensity (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 ac	res) Medium (10-100 acres)X	Large (>100 acres)	

GPS Technician QA/QC check(

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85CH071 Field Target: 15295 Date: 8/15/15

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

1. Site Description

- Bite 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?
- D Vegetation names are entered legibly for all strata present?
- D Cover calculations are complete and correct?
- All dominant species have been determined and recorded per strata?
- □ Indicator status is correct for each species?
- Ek 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?
- B; Surface water, water table, and saturation depths are recorded if present?

5. Functions and Values

K 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?
- A 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)?

K 8/14/15 X Jenni X Anderson Signature / Date Wetland Scientist (print)

X Jissic Browniee Field Crew Chief (print)

X Casser Signature / Date 8.18.15

SITE DEFORIPTION	and the second		Mile will start and		
Survey Type: Centerline X Acce	ss Road (explain)	Other (exp		Field Target: 15050	Map #: <u>21.3</u> Map Date: <u>(</u>
Date: 6-5-2015	Project Name & No.:	Alaska LN	G 60418403	Feature Id:	
Investigators: JB, JA					Team No.: W&S
State: Alaska	Region: Alaska		Milepost:	724.3	1
Latitude:		Longitud	e:	0	Datum: WGS84
Logbook No.:	Logbook Page No.:	+	Picture No.:		
SITE PARAMETERS		214 188 103	this and the the	出版:"文件》:《此代	
Subregion: South Central				Islope, terrace, hummocks	WID P. d
Slope (%): ()-3			Local relief (c	oncave, convex, none): {	lat to Slightly Concave
Pre-mapped Alaska LNG/NWI classifica	ation: U: 102, 1	132	Evidence of V	Vildlife Use: Browse - 1	Maose
Are climatic/hydrologic conditions on the Yes No (if no exp	e site typical for this time lain in Notes)	of year?		ormal Circumstances" pre	
Are Vegetation, Soil, or Hy	drology Significant	ly Disturbed	? No X	_(If yes, explain in Notes	4
Are Vegetation, Soil, or Hy	drology Naturally P	roblematic?	No <mark>X</mark>	_ (If yes, explain in Notes	.)
SUMMARY OF FINDINGS		M. Entry "g			
Hydrophytic Vegetation Present? Yes_	X No	Is		Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	<u>X</u> No		Vetland Type:		OT/EATS PEMIB
Wetland Hydrology Present? Yes_	No	— A	laska Vegetatior	Classification (Viereck):	111AZ
Notes and Site Sketch: Please include to corridor. Bryan Strong took M For this wetland For this area	Map Notes, mand smoon	apping	j edits o site 1		
		÷.			al

Page 1 of 4

ree Stratum (Plot sizes: 26 Deneter	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 4 (A Total Number of Dominant Species Across All Strata: 5 (B
· Betula NeoAlaskana	-J	N	FACH	% Dominant Species that are OBL, FACW, or FAC: 80, 9 (A/
· Alous Viridis ssp. fruticosA	5	7	FAC	and a second
· Pirea Glauca	T	N	FACU	
	+			Prevalence Index worksheet: Total % Cover of: Multiply by:
Total Cover				Total % Cover of: Multiply by: OBL species: O
50% of total cove	1	1	1	FACW species: \bigcirc $X2 = \bigcirc$
Sapling/Shrub Stratum (_26/Dram)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FAC species 20 $x_3 = 360$ FAC species 3 $x_4 = 12$
Vihurnum Edule	T	N	FACU	UPL species 0 X 5 = 0
2. Rosa Acicularis	3	Y	FACU	Column Totals: 123 (A) 372 (B)
3.				PI = B/A =
4.		100		DAS per Aleska Sibregion Final Drog US Army Corp of Engineeus CRREL
5.	1	1 N		to As per manage sucregion that the
6.	1	1.00	- 5-	US Army Corp of Engineeus
7.		1.1.4	A COLUMN TO A	CRREL
8. 51 54 30 51 5	_	1.00	1	Betula NeoAlaskana (formelly Betula Papyrifera is FAC in cook inlet low
Total Cove 50% of total cove		0% of total co	ver: .6	
in the second states of store		GOR DE SUDA		A CONTRACTOR OF THE PARTY OF THE ACTION OF THE PARTY OF
VEGETATION (use scientific names of plan	T	Dominant	Indicator	Hydrophytic Vegetation Indicators:
VEGETATION (use scientific names of plan Herb Stratum (_ <u>Ale1</u> Dlan)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Yes Dominance Test is > 50% ∧/ 0 Prevalence Index is ≤ 3.0
	Absolute	Species?	Status FAC	$\sqrt{e_{D}}$ Dominance Test is > 50% <u>$\sqrt{0}$</u> Prevalence Index is ≤3.0
Herb Stratum (261 Day)	Absolute % Cover	Species? (Y/N)	Status FAC FAC	<u>Ye</u> Dominance Test is > 50% <u>NO</u> Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
Herb Stratum (26 Day) 1. Athyrium cyclosorum	Absolute % Cover 40	Species? (Y/N)	Status FAC	Yes Dominance Test is > 50% Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Ale' Day) 1. Athyrium cyclosorum 2. Equisetum Arvense	Absolute % Cover 40	Species? (Y/N)	Status FAC FAC	Yes Dominance Test is > 50% <u>NO</u> Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Herb Stratum (Ala' D'an) 1. Athyrium cyclosorum 2. Equisatum Arvense 3. Urfrica Sp	Absolute % Cover 40	Species? (Y/N)	Status FAC NA	Yes Dominance Test is > 50% Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (26 Dan) 1. Athyrium cyclosorum 2. Equisetum Arvense 3. Urtica Sp 4. Streptopus amplexitolius 5. Frientalis Europaea	Absolute % Cover 40	Species? (Y/N)	Status FAC FAC NA NA	Yes Dominance Test is > 50% Morphological Adaptations1 (Provide supporting data in Notes)
Herb Stratum (26 Dan) 1. Athyrium cyclosorum 2. Equisetum Arvense 3. Urtica Sp 4. Streptopus amplexifolius 5. Frientalis Europaea	Absolute % Cover 40	Species? (Y/N)	Status FAC NA NA FU FU FU FU	
Herb Stratum (Ala' Dian) 1. Athyrium cyclosorum 2. Equisatum Arvense 3. Urtica Sp 4. Streptopus amplexifolius 5. Tricatalis Europaea 6. Mertensia paniculata	Absolute % Cover 40	Species? (Y/N)	Status FAC NA NA FU FU	Yes Dominance Test is > 50% NO Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes
Herb Stratum (Ala' Dian) 1. Athyrium cyclosorum 2. Equisetum Arvense 3. Virtica Sp 4. Streptopus amplexifolius 5. Trientalis Europaea 6. Mertensa paniculata 7. Chamericon Angusti folium 8. viola sp	Absolute % Cover 40	Species? (Y/N) X N N N N N N	Status FAC NA NA FU FU FU FU	Yes Dominance Test is > 50% NO Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (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
Herb Stratum (Ala' Dian) 1. Athyrium cyclosorum 2. Equisetum Arvense 3. Urtica Sp 4. Streptopus amplexifolius 5. Trientalis Europaea 6. Mertensa paniculata 7. Chamerion Angusti tolium 8. yiola sp	Absolute % Cover 40	Species? (Y/N) X N N N N N N	Status FAC NA NA FU FU FU FU NA	Yes Dominance Test is > 50% NO Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes

SOIL			Date 6.5.15 Feature ID	185	TICOL	3-0-76-10-5	Soil Pit Required (Y/N)
SOIL PROFILE	E DESCRIPTION: (De	escribe	to the depth needed to docum	ent the	indicator or co	onfirm the absen	ce of indicators.)
Depth	Matrix	a	Redox Features				
(inches)	Color (moist)	%	Color (moist) % T	ype ¹	Loc ²	Texture	Notes
0-3.5	organics de	9.2					
3.5-5.0	7.5 YR 2.5/1	100		-		SiL	
5.0-15.0	544/1	85	10YR 4/4 15 C		PL/M	SiL	
18-+	36						
				_			
1Turnet C=Conc	pontrotion D-Donlati		I=Reduced Matrix, CS=Covered	d at Ca	ated Sond Cr	olno ² l continu	N DI -Doro Liping MaMatrix
HYDRIC SOIL	and the second s		I-Reduced Mainx, CS-Covered		aleu Sanu Gr	and the second se	FOR PROBLEMATIC HYDRIC SOILS ³
ALL REAL PROPERTY OF	el (A1)	14.1	Alaska Gleyed (A13)	1942	an geographic in	111 - 11	Change (TA4) ⁴
	i (A2)		Alaska Redox (A14)				Swales (TA5)
	3)		Alaska Gleyed Pores (A1				with 2.5Y Hue
			Alaska Gleyed Poles (Al	<u>. </u>			d without 5Y Hue or Redder Underlying
	de (A4)	_				Layer	
Thick Dark Surf						Other (Explain	
disturbed or pro	of hydrophytic vegeta	tion, o	ne primary indicator of wetland	hydrolo	ogy, and an ap	propriate landso	cape position must be present unless
⁴ Give details of	color change in Note	s.		- F 14	æll		
Restrictive Laye	er (it present): Type:	Den	se Clay Pan Depth (inch	es):	8		
Hydria Soll Bra	esent (Y/N):						
	sent (1/14)						
Notes:						n (*	
				_			
HYDROLOGY	PRIMARY INDICATO	DRS (a	ny one indicator is sufficient)		SECONDARY	INDICATORS (2 or more required)
Surface Water (A1)	Sur	face Soil Cracks (B6)		Vater-stained .eaves (B9)		Stunted or Stressed Plants (D1)
High Water Tab	le (A2) <u>X</u>	Inu (B7	ndation Visible on Aerial Image			erns (B10)	
Saturation (A3)	X	Spa Cor	arsely Vegetated acave Surface (B8)		Oxidized Rhizospheres along Living Roots (C3) X		Shallow Aquitard (D3)
Water Marks (B	1)	Mai	l Deposits (B15)		Presence of Reduced Iron (C4)		Microtopographic Relief (D4)
Sediment Depos	sits (B2)		lrogen Sulfide or (C1)	5	Salt Deposits (C5)	FAC-Neutral Test (D5) <u>NO</u>
Drift Deposits (B	33)		-Season ter Table (C2)		Notes:	XX reacti	57
Algal Mat or Cru	ist (B4)	Oth	er (Explain in Notes):		G		· · · · · · · · · · · · · · · · · · ·
Iron Deposits (B	5)						
C.C. S. Same Sala			PLO PARA SALA	120.20	175 m 2.6	Stall	
Surface Water P	Present (Y/N):		Depth (in):				\sim
			Depth (in): 🧹 <	We	tland Hydrold	ogy Present (Y/	N):
Water Table Pre	esent (Y/N):		Deptn (in): 5.5				
Water Table Pre Saturation Prese (includes capillar	ent (Y/N):		Depth (in): 3.5	EC	165	-	

AQUATIC SITE ASSESSMENT DATA FORM

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 Emergent-Needle-leaved Emergent-Non-Persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) Q Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) 15 Short shrub (0.5-2m) O 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%) 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 >75% Scattered or Peripheral Cover N/A 26-75% Scattered or
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 1
Dead Woody Material (P): Low Abundance (0-25% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) X Moderate (broken irregular rings) High (small groupings, diverse and interspersed)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil Variables Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey Arclayey Restrictive
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Outlet Perennial Inlet/No Outlet Perennial
Inlet/Intermittent Outlet Perennial Inlet/Perennial 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
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Exidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, SaturatedX Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, SaturatedX Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Flooded Evidence of Sedimentation (P): No Evidence ObservedX Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, SaturatedX Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
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 Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Intet/Intermittent Outlet Perennial Intet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, SaturatedX Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Fluvaquent Soils Sediment Created
Intet/Intermittent Outlet Perennial Intet/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 Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Well Developed (6-18in.) 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)
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_X
Intet/Intermittent Outlet Perennial Intet/Perennial Outlet
Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Intet/Intermittent Outlet Perennial Intet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Fluvaquent Soils Sediment 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 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)

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: <u>WRST1001</u>
 Field Target: <u>15050</u>
 Date: <u>55155</u>

 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?
- K 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?

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)?

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X unifer Anderson 5/5/11

Wetland Scientist (print)

Signature / Date

ennuel X. le. S. 15 Х

Field Crew Chief (print)

Signature / Date

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SITE DESCRIPTION	and the second second second	al series a			100	
Survey Type: Centerline X Acce	ss Road (explain)	Other (expla	ain)	Fleld Target:_	15021	Map #: 238 Map Date: 6.4.15
Date: 6.6.15	Project Name & No.:	Alaska LNG	60418403	Fe	eature Id:	WSSTICOZ
Investigators: JB JA	.5					Team No.: WSS
State: Alaska	Region: Alaska		Milepost:	750.1		
Latitude:		Longitude				Datum: WGS84
Logbook No.:	Logbook Page No.:	2	Picture No.:	p:001-00	>4	
SITE PARAMETERS		Territor A	MPAGE MIN			
Subregion: South Central	× =		Landform (hil	llslope, terrace, h	ummocks	s, etc.): Lowland
Slope (%): 0-3			Local relief (c	concave, convex,	none): _[-	Tat to Slightly concave
Pre-mapped Alaska LNG/NWI classifica	tion: PSS[/EMIB			Wildlife Use: ωo		11 /
Are climatic/hydrologic conditions on the Yes X No (if no expl	e site typical for this time ain in Notes)	of year?	Are "N Yes	ormal Circumsta		sent: blain in Notes.)
Are Vegetation, Soil, or Hyde		ly Disturbed?		_(If yes, explain		1. I I I I I I I I I I I I I I I I I I I
Are Vegetation, Soil, or Hyd	drology Naturally F	Problematic?	No_X	(If yes, explain	in Notes	.)
SUMMARY OF FINDINGS	a and share		N DI ST TIM	AT AN AN AN		
Hydrophytic Vegetation Present? Yes_	No	Is	the Sampled /	Area within a We	etland?	Yes No
Hydric Soil Present? Yes_	У No	w	etland Type:	P554/1B		
Wetland Hydrology Present? Yes	No	Ala	aska Vegetatio	n Classification (Viereck):	11A.2, 11C1
Notes and Site Sketch: Please include E corridor.	Directional & North Arrow	, Centerline,	Length of featu	ire, Distances fro	m Center	line, Photo Locations, and Survey
Åd seen to Rest/6	MIR Shall be	P554/1	B	1.0		
Mor pienappedas 1551/C	(1 1 1 to the	G	PEQUE	to PSS4/	IB t	PEMYSSIE in the
Lowland, Depressional h	letland Nausitio	MUG HON	ABILO ID	1001		Daling chard)
Plot premappedas PSSI/E Lowland, Depressional u center. Map Lines are	accurately dr	awn e	scept in	e center	MOST	Polygon should
be extended to the	North (see n	nap); f	Ind Upper	burroug	PSS	4/1B as very
wet and should be .M	napped as a	PSS4/IC	(see may	(4		بدرسة التدرية
1			241			
				96		

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes: <u>/5 × 35</u>)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC:
1.				Total Number of Dominant Species Across All Strata:
2.				% Dominant Species that are OBL, FACW, of FAC:(/
3.	1			and the second
4.				Prevalence Index worksheet:
Total Cove	r:		L	Total % Cover of: Multiply by:
50% of total cove	r: 20	% of total cov	er:	OBL species:X 1 =
Sapling/Shrub Stratum (15 × 35)	Absolute	Dominant	Indicator	FACW species: 67 X2 = 934
	% Cover	Species? (Y/N)	Status	FAC species 75 X 3 = <u>\$55</u> FACU species 0 X 4 = 0
·Picea Mariana	35	Ý	FACW.	UPL speciesX 5 =
Rhadsdendron Tomentosum	7		FACW	Column Totals:43(A) 390(B)
3. Betula Nana	3		FAC	PI=B/A=_2.7
Empetrum nigrum	1.0:	Y	FAC	17 million 19 million 1
vaccinium uligimsum	le		FAC	
Vaccinium BXYCOCCOS	1		OBL	and the second sec
Chamaedaphie calyculata	5		FACW	
- · · · · ·	20		1111	
Kuhus Chamaemorus	20 1	- di	FACW	
Vaccinium vitis-idaea	4	4	FAC.	
B. Robos Chamaemorus Vaccinium vitis-idaea Total Cover	(e :: 114:3	1	FAC	
Vaccinium vitis-idaea	(e :: 114:3	% of total cov	FAC	
Vaccinium vitis-idaea Total Cover 50% of total cover	<u>с</u> r: <u>¶Ц 3</u> r: <u>71.5</u> .20	% of total cov	FAC	
Total Cover Total Cover 50% of total cover TEGETATION (use scientific names of plant	<u>с</u> r: <u>¶Ц 3</u> r: <u>71.5</u> .20	Dominant	FAC	Hydrophytic Vegetation Indicators:
Vaccinium vifis-idaea Total Cover 50% of total cover EGETATION (use scientific names of plant	r: <u>114 3</u> r: <u>71 5</u> . 20 s)	Dominant Species?	FAC.	
Total Cover Total Cover 50% of total cover EGETATION (use scientific names of plant terb Stratum (<u>15 × 35</u>)	r: 114 3 r: 71.5 20 s) Absolute % Cover	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status	Hydrophytic Vegetation Indicators:
EGETATION (use scientific names of plant erb Stratum (<u>15 * 35</u>)	r: 143 r: 71.5. 20 s) Absolute	Dominant Species?	FAC er: 28.6 Indicator Status OBL	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in
EGETATION (use scientific names of plant Total Cover 50% of total cover EGETATION (use scientific names of plant lerb Stratum (<u>15 × 35</u>) Drosera colundifalia Pedicularis Langsdorfii	r: 114 3 r: 71.5 20 s) Absolute % Cover	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
EGETATION (use scientific names of plant EGETATION (use scientific names of plant Lerb Stratum (<u>15 * 35</u>) Drosera colundifalia Pedicularis Langsdorfii Eriophorum Vaginalum	4 r: 11.3 r: 71.5 20 s) Absolute % Cover T T T	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW FACW	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
1. Drosera colundifalia 2. Redicularis Langsdorfii 3. Eriophorum Vaginatum 4. Grass Spp	r: 114 3 r: 71.5 20 s) Absolute % Cover	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW	Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 _ Morphological Adaptations ¹ (Provide supporting data in Notes) _ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cover Total Cover 50% of total cover 50% of total cover TEGETATION (use scientific names of plant terb Stratum (<u>15 × 35</u>) 1. Droseca colundificitia 2. Pedicularis Langsdorfii 3. Eriophorum Vaginatum 4. Grass Spp 5. Equisetum Sylvakcum	4 r: 11.3 r: 71.5 20 s) Absolute % Cover T T T	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW FACW	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover Total Cover 50% of total cover FEGETATION (use scientific names of plant Herb Stratum (<u>15 × 35</u>) Droseca colundificia Predicularis Langsdorfii Friophorum Vaginatum Corres Spp Equisatum Sylvaticum Stratum Sylvaticum	4 r: 11.3 r: 71.5 20 s) Absolute % Cover T T T	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW FACW	Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 _ Morphological Adaptations ¹ (Provide supporting data in Notes) _ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Vaccinium vifis-idaea Total Cover 50% of total cover EGETATION (use scientific names of plant erb Stratum (<u>15 * 35</u>) Droseca colundificitia Predicularis Langsdorfii Eriophorum Vaginatum Grass Spp Equisetum Sylvaticum	4 r: 11.3 r: 71.5 20 s) Absolute % Cover T T T	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW FACW	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground
Total Cover Total Cover 50% of total cover 50% of total cover TEGETATION (use scientific names of plant Herb Stratum (<u>15 × 35</u>) Droseca colundification Proseca col	4 r: 11.3 r: 71.5 20 s) Absolute % Cover T T T	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW FACW	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground
Total Cover Total Cover 50% of total cover EGETATION (use scientific names of plant lerb Stratum (<u>15 × 35</u>) Droseca colundifalia Predicularis Langsdorfii Eriophorum Vaginatum Corres Spp Equisatum Sylvaticum	4 r: 11.3 r: 71.5 20 s) Absolute % Cover T T T	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW FACW	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes
Total Cover Total Cover 50% of total cover 50% of total cover TEGETATION (use scientific names of plant terb Stratum (<u>15 × 35</u>) 1. Droseca colundifalia 2. Pedicularis Langsdorfii 3. Eriophorum Vaginalum 4. Grass Spp 3. En colundifalia	Image: Control of the second secon	Dominant Species? (Y/N)	FAC er: 28.6 Indicator Status OBL FACW FACW	Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0

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SOIL	A State of the second	San St	Date 6.6-15 F	eaturo I	D. WEST	7002		Soil Pit Required (Y/N)
SOIL PROFIL	E DESCRIPTION:	Describe	e to the depth neede	d to doc	ument the	indicator or	confirm the absenc	e of indicators.)
Depth	Matrix		Redox Features			// 5		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-32	organics						_	seenotes below
1 E.							-	
- A.							the second	
19 ¹ -							-10-	
							- 2	
			8				-	
¹ Type: C=Co	ncentration, D=Depl	etion, RM	/I=Reduced Matrix, (S=Cov	ered or Co	ated Sand G	Brains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SOIL	INDICATORS						INDICATORS	FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or His	stel (A1)X		Alaska Gleyed	I (A13)	_	-	Alaska Color C	Change (TA4)⁴
Histic Epipedo	on (A2)		Alaska Redox				Alaska Alpine	Swales (TA5)
Black Histic (A	\3)		Alaska Gleyed	Pores	(A15)		Alaska Redox	with 2.5Y Hue
Hydrogen Sul	fide (A4)						Alaska Gleyed Layer	without 5Y Hue or Redder Underlying
Thick Dark Su	rface (A12)						Other (Explain	in Notes)
disturbed or p	of hydrophytic vege roblematic. of color change in No		ne primary indicator	of wetla	and hydrolo	gy, and an a	appropriate landsca	ape position must be present unless
	ver (if present): Typ		lo I	Depth (i	nches):			
	resent (Y/N):		1	25				and a street of
Notes: 32" . fun sapri	Gorganics. N =	1 % C); with a sand l	ease	@ 81.1	Tansitioni	ing to De unt.	1 20" where organics

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or n	nore required)		
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)		
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)		
Saturation (A3) /	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)		
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	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)					
			·····································		
Surface Water Present (Y/N): N	Surface Water Present (Y/N): N Depth (in):		\vee		
Water Table Present (Y/N): Y Depth (in): 7-		Wetland Hydrology Present (Y/N):			
Saturation Present (Y/N): (includes capillary fringe)	Depth (in): 4.9	EC:3			
Notes:			ţ		

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 Scrub Shrub-Deciduous-Broad-leaved Persistent Aquatic Bed Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) 0 Sapling (<5 dbh, <6m tall) 3 ⊆ Tall shrub (2-6m) Short shrub (0.5-2m) 15 Dwarf shrub (<0.5m)
Number of Wetland Types (M): Summers of Wetland Type Distribution (M): Even Highly Uneven Moderately even X
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 CoverX
Dead Woody Material (P): Low Abundance (0-25% of surface)X 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 Lacustrine Fringe Depressional <u>X</u> Riverine Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:HemicX 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 Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Outlet Perennial Inlet/No Outlet
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
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/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perenninlet/Perennial Inlet/Perennial Inlet/Perenn
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial 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
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Porter: Seasonally Flooded, Temporarily Flooded, Saturated Keture 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
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial Outlet
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Inlet/Outlet Class (P): No Inlet/Outlet X No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Int
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/No Outlet Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated X 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 X Return Interval 1-2 yrs Return Interval 2-5 yrs Degree of Outlet Restriction (P): No Outflow X Restricted Outflow Unrestricted Outflow Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)
Inlet/Outlet Class (P): No Inlet/Outlet X No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Inlet/Int
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletPerennial OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial OutletPerennial Inlet/No Outlet
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/IPerennial OutletNo Inlet/IPerennial OutletPrennial Inlet/No OutletPrennial Inlet/Intermittent Inlet/Perennial OutletPrennial Inlet/No OutletPrennial Inlet/Perennial Inlet/No OutletPrennial Inlet/Perennial Inlet/No OutletPrennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/Perennial Inlet/No OutletPrennial Inlet/Perennial Inlet/No OutletPrennial Inlet/Perennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/Perennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/Perennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/No OutletPrennial Inlet/No Outlet
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletNo Inlet/Perennial OutletPrennial Inlet/No Intermittent Inlet/No OutletIntermittent Inlet/Intermittent OutletNo Inlet/Perennial OutletPrennial 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.

W8STICOR

Feature ID: <u>45021</u>

Field Target: 15021

Date: 6.6.15

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?
- Jack 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?
- I Dominance Test and Prevalence Index have been completed?

3. Soil

- \square 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

- Metland boundaries have been corrected if necessary?
- A 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)?
- 凶、Two photos were taken for each Observation Point (vegetation/site overview)?

indersion

Signature / Date an 10/10/15

Wetland Scientist (print)

X Jessie Brownlee Х

Suon 6:6:15

Field Crew Chief (print)

Signature / Date

Survey Type: Centerline V.	Access Road (explain)	_ Other (expla	ain)	Field Ta	get: <u>15022</u>	Map #: 038 Map Date: 6.4.15
and the second	Project Name & No.					
10.001		, , addite ENO	50-10-00			W8571003 Team No.: W85
Investigators: JB JA State: Alaska	Region: Alaska	r Sube	Milepost:	150	-F	W85
	Region Aldold	Longitude	-151° C		11	Datum: WGS84
Latitude: 61° 18' 07" Logbook No.: 1	Logbook Page No.:	3	Picture No.:	1 51	_	
	Logbook Page No	3	FIGURE NO.		5	
SITE PARAMETERS			10. 15 23	and the second	e na seu de la presenta de la pres Presenta de la presenta de la p	
Subregion: South Centre	al					s, etc.): Lowland
Slope (%): 0-3			Local relief (c	oncave, co	nvex, none): {	lat to Slightly I oncave.
Pre-mapped Alaska LNG/NWI clas	sification: U		Evidence of V			0 0
Are climatic/hydrologic conditions of Yes No (if no	on the site typical for this time explain in Notes)	e of year?	Are "No Yes		mstances" pre (If no, ex)	sent: plain in Notes.)
Are Vegetation, Soil, c	or Hydrology Significan	tly Disturbed?	No_X	_(If yes, ex	plain in Notes	
Are Vegetation, SoilX, c	or HydrologyNaturally	Problematic?	No /-	_ (If yes, ex	plain in Notes	Possitive da reaction
SUMMARY OF FINDINGS				en forder la	The Participation	11 2 4 06 301132C 201 20
Hydrophytic Vegetation Present?	Yes No	ls t	he Sampled A	rea within	a Wetland?	Yes No
Hydric Soil Present?	′es No	We	tland Type:	PF04	SSIK	n ^B B
Wetland Hydrology Present?	esNo			/	1000	1'A2, 11 B\$2
Polygon Mapped as UP & PFO4B and PFO41 beyond is All wet. Tra PS54 PEM PFO412	UB. A small stream and act from W85 WPST1002 1/13 1/SS/E	was to t	he NE OB	FIDW	as all c	

10

Tree Stratum (Plot sizes: <u>26 (Diaq)</u>	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. Picea Mariana	35	Y	FACW	% Dominant Species that are OBL, FACW, or FAC:
Betula Neoalaskana	15	Y	FAC	bonninant species that are Oble, 1 AGW, of 1 AG.
3. Picen Court				
		· · · · · · · · · · · · · · · · · · ·		Prevalence Index worksheet:
Total Cover:	. 50		******	Total % Cover of: Multiply by:
50% of total cover:	25 20	% of total cov	er: 0	OBL species:X 1 =
apling/Shrub Stratum (Re Down)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 35 $X 2 = 70$ FAC species 85 $X 3 = 2SS$ FACU species 52 $X 4 = 208$
· Menziesia Ferrugineg	40	Y	FACU	UPL species O X 5 = O
2. Spiraea Stevenii	5	N	FACU	Column Totals: 172 (A) 533 (B)
3. Vaccinium Ovalifolium	T.	N	FAC	PI=B/A=
1. Oplopanax Harridus	T.	N	FACU	
. Linnaea, borealis	2	N	FACU	
B. Picea Glauca (SAPPING)	1	N	FACU	
3.			11000	
Total Cover:				
)% of total cov	ver: <u>9.6</u>	and the second
·Total Cover: 50% of total cover:	24 20)% of total cov	ver: <u>9.6</u>	
Total Cover: 50% of total cover: /EGETATION (use scientific names of plants	24 20	Dominant Species?	rer: <u>9.6</u> Indicator Status	Hydrophytic Vegetation Indicators:
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (<u>26' Dear'</u>)	Absolute % Cover	Dominant	Indicator Status	$_{-}$ Dominance Test is > 50% $_{-}$ $_{-}$ Drevalence Index is ≤3.0
Total Cover: 50% of total cover: /EGETATION (use scientific names of plants Herb Stratum (26'Dian') 1. Equisatum Sylvaticum	Absolute	Dominant Species? (Y/N)	Indicator Status	$_{-}$ Dominance Test is > 50% $_{-}$ $_{-}$ Drevalence Index is ≤3.0
Total Cover: 50% of total cover: /EGETATION (use scientific names of plants Herb Stratum (26 Den) 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting da
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26 Dand) 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26 Dand) 1. Equisation Sylvaticum 2. Calamagrostis Canadensis 3. Cornus Canadensis 4. Streptopus Amplexifolius	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FAC FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26 Dend) 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis 3. Cornus Canadensis 4. Streptopus Amplexitatius 5. Equisedum Arvens	24 20 Absolute % Cover 25 35 2 T	Dominant Species? (Y/N)	Indicator Status FAC FAC FAC FACU	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present
Total Cover: 50% of total cover. /EGETATION (use scientific names of plants Herb Stratum (26 Dand) 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis 3. Cornus Canadensis 4. Streptopus Amplexifolius 5. Equisedum Arvens	24 20 Absolute % Cover 25 35 2 10 T	Dominant Species? (Y/N) Y V N N N	Indicator Status FAC FAC FAC FACU FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present in disturbed or problematic.
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26 Den) 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis 3. Cornus Canadensis 4. Streptopus Amplexitatius 5. Equisedum Arvens 6. Trientalis Europeg 7. Caymaccarpium Dryopteris	24 20 Absolute % Cover 25 35 2 10 T	Dominant Species? (Y/N) V V V N N N	Indicator Status FAC FAC FAC FAC FAC FAC FAC	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic. ✓ O ✓ % Bare Ground ✓ % Cover of Wetland Bryophytes (Structure)
Total Cover: 50% of total cover. VEGETATION (use scientific names of plants Herb Stratum (26'Dan') 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis 3. Cornus Canadensis 4. Streptopus Amplexitolius 5. Equisedum Arvens 6. Trientalis Europheg 7. Commocarpium Dryopteris 8.	24 20 Absolute % Cover 25 35 2 10 T	Dominant Species? (Y/N) V V V N N N	Indicator Status FAC FAC FAC FAC FAC FAC FAC	Dominance Test is > 50% Merevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data Notes) Morpholematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic. % Bare Ground % Cover of Wetland Bryophytes (State Cover of Bryophytes)
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26 Dand) 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis 3. Cornus Canadensis 4. Streptopus Amplexitatius 5. Equisedum Arvens 6. Trientalis Europieg 7. Commocarpium Dryopteris 8. 9.	24 20 Absolute % Cover 25 35 2 10 T	Dominant Species? (Y/N) V V V N N N	Indicator Status FAC FAC FAC FAC FAC FAC FAC	Dominance Test is > 50% Merevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data Notes) Morpholematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic.
Total Cover: 50% of total cover: VEGETATION (use scientific names of plants Herb Stratum (26 Dand) 1. Equisetum Sylvaticum 2. Calamagrostis Canadensis 3. Cornus Canadensis 4. Streptopus Amplexitatius 5. Equisedum Arvens 6. Thentalis Europeeg 7. Caymaccarpium Dryopteris	25 35 2 10 7 2 2 2 2 2 2 2 10 7 2	Dominant Species? (Y/N) V V V N N N	Indicator Status FAC FAC FAC FAC FAC FAC FAC	Dominance Test is > 50% Merevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data Notes) Morpholematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic.

SOIL		STE	Date 6/6/15	Feature I	D_W85T	1003	THE ALL SALVER	Soil Pit Required (Y/N)
SOIL PROFI	E DESCRIPTION: (D	Describe	to the depth ne	eded to doc	ument the ir	dicator or	confirm the absenc	e of indicators.)
Depth	Matrix		Redox Feature	s				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-2.5"	10 YR 2/1	150					Sanderinlean	+ sand lense distinct
2.5-12,5	10YR 2/2	Im			- 2 - 1		Silt loam	11. The second sec
12.5.19.5'	7.5 YR 2.5/3	75	Bt	4.57	1446171.7		Iram.	
	Black	10	10 1 27		1. The second se	ti-	Loam	
	104R 3/2	15				- 70 51		
			1.12					
¹ Type: C=Co	ncentration, D=Deple	tion, RM	I≕Reduced Matr	ix, CS=Cove	ered or Coat	ted Sand (Grains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SOI	INDICATORS	2 0 1	8- Spart maline	能和時代		La Mais	INDICATORS	FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or Hi	stel (A1)		Alaska Gle	eyed (A13) _			Alaska Color C	change (TA4) ⁴
Histic Epipede	on (A2)		Alaska Re	dox (A14) _	-		Alaska Alpine	Swales (TA5)
Black Histic (/	(3) N		Alaska Gle	eyed Pores	(A15)		Alaska Redox	with 2.5Y Hue
Hydrogen Sul	fide (A4)						Alaska Gleyed	without 5Y Hue or Redder Underlying
Thick Dark Su	inface (A12) <u>N</u>				5		Other (Explain	in Notes) Yes Reduced Matrix
disturbed or p	of hydrophytic veget roblematic Have of color change in Not	Veg, He	ne primary indicative Landform	ator of wella , Have P	nd hydrolog	y, and an 火_	appropriate landsca	ape position must be present unless
	ver (if present): Type		οwn	_ Depth (ir	nches): <u>A</u>	(o "		1
	-15							

Hydric Soll Present (Y/N):

Notes: Evidence of depositional events vary through the last 12.5-19.5" Burled Possitive OXX starting @ 6" & continued/tested to 10" Instart reaction of 100%.

HYDROLOGY PRIMARY INDICAT	ORS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)				
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)			
High Water Table (A2) _ /	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2) $\underline{\gamma}$			
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	[°] Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)			
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)			
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	N. ANTANA			
Algal Mat or Crust (B4)	Other (Explain in Notes):					
Iron Deposits (B5)						
A COMPANY AND A COMPANY						
Surface Water Present (Y/N): 7	Depth (in): 💥 2.5		1Z			
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N): _				
aturation Present (Y/N): Depth (in): 3		EC:_24				
Notes: 10% water in 3 sphagnum in Doe	hall & large depression. Lets throughout	>,	1			

AQUATIC SITE ASSESSMENT DATA FORM

EGETATION VARIABLES P= Plot, M= Matrix
rimary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Needle-leaved X Forested-Deciduous-Broad-leaved prested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved prub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent- persistent Aquatic Bed
e rcent Cover (P) : Tree (>5 dbh, >6m tall) <u>50</u> Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) <u>40</u> Short shrub (0.5-2m) <u>5</u> warf shrub (<0.5m) <u>2</u> Tall herb (当m) Short herb (<1m) <u>74</u> Moss-Lichen Floating Submerged
umber of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even 🖉 Highly UnevenModerately even
egetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- %) Very High Density (80-100%)
terspersion of Cover & Open Water (P): 100% Cover or Open Water 25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover N/A
ant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
esence of Islands (M): Absent (none) One or Few Several to Many N/A
over Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stems 1 or More Large Patches; Parts of Site
ead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface)
egetative Interspersion (P): Low (large patches, concentric rings) X Moderate (broken irregular rings)
GM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
neral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey
/DROLOGIC VARIABLES
Intermittent Inlet/Intermittent Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No utlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/No Perennial Inlet/No Outlet Perennial et/Intermittent Outlet Perennial Outlet Perennial Perennial Perennial
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Page 4 of 4

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>W857(003</u> Field Target: <u>Isoaa</u> Date: <u>6.6.15</u>

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?
- D Indicator status is correct for each species?
- Dominance Test and Prevalence Index have been completed?

3. Soil

Soil profile is complete?

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 July 6/6/15 Signature / Date Х Anderson Wetland Scientist (print)

Jessie Brownlel

6.6.15

Field Crew Chief (print)

Signature / Date

Vegetation Classification Data Form

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Vegetation Classification Data Form

Level I	Level II	Level III
I. Forest	A. Needleleaf (conifer) forest	 Closed needleleaf (conifer) forest Open needleleaf (conifer) forest Needleleaf (conifer) woodland
	B. Broadleaf forest	 Closed broadleaf forest Open broadleaf forest Broadleaf woodland
	C: Mixed forest	(1) Closed mixed forest (2) Open mixed forest (3) Mixed woodland
II Scrub	A. Dwarf tree scrub	 Closed dwarf tree scrub Open dwarf tree scrub Dwarf tree scrub woodland
	B. Tail scrub	(1) Closed tall scrub (2) Open tall scrub
	C. Low scrub	(1) Closed low scrub (2) Open low scrub
	D. Dwarf scrub	 Dryas dwarf scrub Ericaceous dwarf scrub Willow dwarf scrub
III, Herbaceous	A. Graminoid herbaceous	 Dry graminoid herbaceous Mesic graminoid herbaceous Wet graminoid herbaceous (emergent)
	B. Forb herbaceous	 Dry forb herbaceous Mesic forb herbaceous Wet forb herbaceous (emergent)
	C. Bryoid herbaceous	(1) Mosses (2) Lichens
	D. Aquatic (nonemergent) herbaceous	 Freshwater aquatic herbaceous Brackish water aquatic herbaceou Marine aquatic herbaceous

II. Scrub

11. 30	cido
8a.	Vegetation with at least 10 percent cover of dwarf trees
8b.	Vegetation with at least 25 percent cover of shrubs and less than 10 percent cover of dwarf trees
9a	Dwarf tree canopy of 60-100 percent cover
9b.	Dwarf tree canopy of 25-59 percent cover
9c.	Dwarf tree canopy of 10-24 percent cover
10a.	Shrubs more than 1.5 meters (5 ft) tall
10b,	Shrubs less than 1.5 meters (5fl)tall
11 a	Shrub canopy cover greater than 75 percent
11 b	Shrub canopy cover of 25-74 percent II B 2 Open tall scrub
12a.	Shrubs 20 centimeters to 1.5 meters tall II.C Low scrub 13
12b.	Shrubs under 20 centimeters in height
13a;	Shrub canopy cover greater than 75 percent I.C.I Closed low scrub
13b	Shrub canopy cover of 25-74 percent, or as low as 2 percent if little or no other vegetation cover present
14a	Dryas species dominant in the dwarf shrub layer
14b.	Ericaceous species dominant in the dwarf shrub layer
14 c ,	Willow species dominant in the dwarf scrub layer
Ш. Н	erbaceous
	Terrestrial vegotation, or if growing in the water, dominated by emergent vegotation
15b.	Dominant vegetation growing submerged in water or floating on the water surface. but not emerging above the water

De	scriptions of levels I, II, III, and IV follow the classification table
la.	Trees over 3 meters (10 ft) tail are present and have a canopy cover of 10 percent or more. I. Forest 2
1 <u>b</u> .	Trees over 3 meters (10 ft) tail are absent or nearly so, Less than 10 percent cover, (Dwarf trees, less than 3 meters (10 ft) tail may be present and abundant
L F	orest
2a,	
2b.	Less than 75 percent of tree cover contributed by needleleaf (conifer) species
3a	
3b.	Tree canopy of 25-59 percent I.A.2 Open needleleaf forest
3c,	Tree canopy of 10-24 percent cover
4a.	Over 75 percent of tree cover contributed by broadleaf species
4b.	Broadleaf or needleleaf species contribute 25 to 75 percent of the tree cover
5a.	Tree canopy of 60-100 percent cover
5b,	Tree canopy of 25-59 percent cover
5c,	Tree canopy of 10-24 percent cover
6a,	Tree canopy of 60-100 percent cover. I.C.1 Closed mixed forest
6b.	Tree canopy of 25-59 percent cover. I.C.2 Open mixed forest
6c.	Tree canopy of 10-24 percent cover
7a_	Vegetation with at least 25 percent cover of erect to decumbent shrubs or with at iteast 10 percent cover of dwarf trees (less than 3 meters [10 t]tail] a
7b.	Nonjawi
16a	Grasses, sedges, or rushes
	(graminoid) plants dominant
16b	Forbs or bryophytes dominant
17a.	Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes. Typically (but not always) dominated by <i>Elymus</i> spp., <i>Fesfuce</i> spp. and <i>Deschampsie</i> spp
17b.	On moist sites, but usually not with standing water. Usually dominated by Calamagrostis spp. Carex spp. or Eriophorum spp.; tussocks often present
17c	On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens
18a.	Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetalls)
18b.	Vegetation dominated by mosses or lichens
19a,	On dry sites, usually rocky and well drained; mostly tundra sites
19b	On moist sites but without standing water, mostly within forested areas
19c	On wet sites, usually with standing water for part of the year
	Vegetation cover dominated by mosses
20b	Vegetation cover dominated by lichens III.C.2 Bryoid lichen
	Vegetation submerged or floating in fresh water
	Vegetation submerged or floating in brackish water
21c	Vegetation submerged or floating in salt water
-	

Vegetation Classification Data Form QA/QC Checklist

This form is to be completed before leaving the field site.

Feature ID: 108571004 Field Target: 15008 Date: 6.14.15

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

1. General Information

- Location data recorded?
- Photo taken and photo number recorded?

2. Location Description

Location of site recorded with enough detail to help relocate?

3. Common Species

- Scientific name of common species recorded?
- Percent cover of dominant structure level noted?

4. Habitat Description

Habitat described?

5. Classification

All three levels of classification recorded?

6. Field Log Book

- Field form entries consistent with log book?
- Logbook clearly identifies the Field Target ID and Feature ID?

- X Moley Voller 6-14-15 Signature

X Jessie Brownlee X 6.14.15

SITE DESCRIPTION			R anglata, at		H. M. St. Parnet and C. C. P.
	ess Road (explain) Other (e	explain)	Field Target: /	5042	Map #: <u>219 Map Date: 6/4/15</u>
Date: 6.7.2015	Project Name & No.: Alaska L	NG 60418403	Fea	ture ld:	WISTIOOS
Investigators: JB 5A	i.	an a' c			Team No.: 185
State: Alaska	Region: Alaska	r :Milepost	37.2		· · · · · · · · · · · · · · · · · · ·
Latitude: G1° 24' 3.5.6	Longit	ude: ~150° 6		÷	Datum: WGS84
Logbook No.: /	Logbook Page No.: 4	Picture No.:	$P_{100} = 00$	4	
SITE PARAMETERS	A STATE AND A STATE OF A STATE			1997	
Subregion: South Central	44	Landform (hi	llslope, terrace, hu	mmock	s, etc.): Toe slope / Hillside
Slope (%): 3-5					slightly concave
Pre-mapped Alaska LNG/NWI classific	ation:		Wildlife Use: NO		00
Are climatic/hydrologic conditions on the YesNo(if no exp		Are "N Yes	ormal Circumstand		esent: plain in Notes.)
Are Vegetation, Soil, or Hy		oëd? No <u>×</u>	(If yes, explain in	n Nøtes)
Are Vegetation, Soil, or Hy	drology	tic? No_X	(If yes, explain i	n Notés	s.)
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes	No	Is the Sampled	Area within a Wet	land?	Yes No
Hydric Soll Present? Yes_	<u> </u>	Wetland Type:	PEMI/SS	(A)	
Wetland Hydrology Present? Yes_	No	Alaska Vegetatio	n Classification (V	iereck):	111 AZ, 11 B 3
Notes and Site Sketch: Please include corridor. Plot is on ~4% slope at toe + go Whater table likel Wath table & ~ 14" See Log book and map to Plot is on PEMI/SSI	slope of the Mt. Susit y drops later in the sum	ng. Much g	round water soils show	flowi eviden	ne off Mt. Susitina. The g a consistent

Iree Stratum Absolute Commant Indicator Dominant Species Parts No. of Dominant Species that are OBL, FACW, or FAC: 1. No. of Dominant Species that are OBL, FACW, or FAC: 2. Yell No. of Dominant Species that are OBL, FACW, or FAC: 3. Yell No. of Dominant Species that are OBL, FACW, or FAC: 3. Yell No. of Dominant Species that are OBL, FACW, or FAC: 3. Yell No. of Dominant Species that are OBL, FACW, or FAC: 3. Yell Yell 4. Yell Yell Yell Sapting/Shrub Stratum (Absolute Over: Yell
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VEGETATION (use scientific names of plants) Herb Stratum (2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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Colomoractic panadonaire 201 V
A7 MOTOROUGALADAGAINODS LETOVIDE SUBJECTOROUGA
2. Athurium ruclosorum 107. Y Fac Notes)
3. Equise fum arvense 15 Y Far N Problematic Hydrophytic Vegetation ¹ (Explain)
4. N Facu Indicators of hydric soil and wetland hydrology must be present
5. Streptopus ample vi folius II. N. Facua disturbed or problematic.
^a . Mertensia peoiculata II N Fac II
7. % Bare Ground
3. <u>O</u> % Cover of Wetland Bryophytes
9. O Total Cover of Bryophytes
9 Total Cover of Bryophytes

-1	SOIL PROFILE	F DESCRIPTION /	Describe	to the depth needed	to doc	D UN 85		onfirm the absen	ce of indicators)
ł	Depth	Matrix	Jeschbe	Redox Features	10.000				
1	(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
ľ	0-8	organics	100		1000	and the set	1.402		Not saturated
	8-14	Black	100	A Star all a starting	1	No. States	1.1	SiL	High organic content Not s
ŀ	14-15.5	Black	100	,10YR 2/1-	10	Start Contract		Muck	110 0
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	19.5-26.5	TO SYR 4/10	87	544/1	3	D	RC	SIL	
			hand	5YR46	10	C	MARC		
			1000					21	
	and the second se	State (1977) State (1977)	etion, RN	M=Reduced Matrix, C	CS=Cov	ered or Coa	ited Sand Gr		n: PL=Pore Lining, M=Matrix.
	HYDRIC SOIL	A CONTRACTOR OF THE PARTY OF	COLORING OF	Alaska China	(442)	STATISTICS.	MS - AL	A PROPERTY OF A	FOR PROBLEMATIC HYDRIC SOILS
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+	Black Histic (A			Alaska Gleyed	res	(A15)	-		d without 5Y Hue or Redder Underlying
	Hydrogen Sulfi	de (A4)	65	an sustained	A - lun	in-in-	All and	Layer	- And a shirt of the second states
1	Thick Dark Sur		-	- 1. × 1	2		2 de m		n in Notes) A-3 A 10 cape position must be present unless
L									
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	Notes: HYDROLOGY Surface Water		Su	rface Soil Cracks (B	3) <u>N</u>		/ater-stained eaves (B9) _	J AN	Stunted or Stressed Plants (D1)
	Notes: HYDROLOGY		Su Inu (B7	rface Soil Cracks (B) Indation Visible on A	3) N	agery D	/ater-stained eaves (B9) _ rainage Patt	 erns (B10)	Stunted or Stressed
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	Notes: HYDROLOGY Surface Water High Water Tal	PRIMARY INDICA (A1) ble (A2))	Su Inu (B7 Sp Co	rface Soil Cracks (Bi Indation Visible on A 7) N arsely Vegetated	3) <u>N</u> erial Im	agery D	/ater-stained eaves (B9) _ rainage Patt	erns (B10) <u>N</u> ospherës along C3) <u>N</u>	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
	Notes: HYDROLOGY Şurface Water High Water Tal Saturation (A3)	PRIMARY INDICAT (A1), ble (A2),) 31)	Sul Inu (B7 Sp Co Ma Hy	rface Soil Cracks (Br ndation, Visible on A 7) N arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide _f	3) <u>N</u> erial Im	agery D C Li P Ir	/ater-stained eaves (B9) rainage Path xidized Rhiz iving Roots (resence of R	N erns (B10) N ospheres along C3) N reduced	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
	Notes: HYDROLOGY Şurface Water High Water Tal Saturation (A3) Water Marks (E	PRIMARY INDICATION (A1) N (A1) N ble (A2) N (A1) N	Sui Inu (B7 Sp Co Ma Hy Od	rface Soil Cracks (Br ndation, Visible on A 7) N arsely Vegetated ncave Surface (B8) rl Deposits (B15)	3) <u>N</u> erial Im	agery D C C C C C C C C C C C C C C C C C C C	/ater-stained eaves (B9) _ rainage Patt xidized Rhiz iving Roots (resence of R on (C4)	 erns (B10) <u>N</u> ospheres along C3) <u>N</u> educed (C5) <u>N</u>	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
	Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo	PRIMARY INDICAT (A1) N (A1) N ble (A2) N ble (A2) N B1) N Dosits (B2) N	Su Inu (B7 Sp Co Ma Hy Od Dry Wa	rface Soil Cracks (Br indation, Visible on A 7) N arsely Vegetated ncave Surface (B8) irl Deposits (B15) drogen Sulfide lor (C1) y-Season	3) <u>N</u> erial Im. N N	agery D C C C C C C C C C C C C C C C C C C C	Vater-stained eaves (B9) rainage Path xidized Rhiz iving Roots (resence of R on (C4) alt Deposits	 erns (B10) <u>N</u> ospheres along C3) <u>N</u> educed (C5) <u>N</u>	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
	Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (PRIMARY INDICAT (A1) N (A1) N ble (A2) N ble (A2) N B1) N B3) N rust (B4) N	Su Inu (B7 Sp Co Ma Hy Od Dry Wa	rface Soil Cracks (Be indation, Visible on A 7) Narsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	3) <u>N</u> erial Im. N N	agery D C C C C C C C C C C C C C C C C C C C	Vater-stained eaves (B9) rainage Path xidized Rhiz iving Roots (resence of R on (C4) alt Deposits	 erns (B10) <u>N</u> ospheres along C3) <u>N</u> educed (C5) <u>N</u>	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
	Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (I	PRIMARY INDICAT (A1) N (A1) N ble (A2) N ble (A2) N 31) N 331) N bits (B2) N (B3) N ust (B4) N B5) N	Su Inu (B7 Sp Co Ma Hy Od Dry Wa	rface Soil Cracks (Bi indation, Visible on A 7) N arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide for (C1) -Season ater Table (C2) her (Explain in Notes	3) <u>N</u> erial Im. N N	agery D C C C C C C C C C C C C C C C C C C C	Vater-stained eaves (B9) rainage Path xidized Rhiz iving Roots (resence of R on (C4) alt Deposits	 erns (B10) <u>N</u> ospheres along C3) <u>N</u> educed (C5) <u>N</u>	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
	Notes: HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (I	PRIMARY INDICAT (A1) N (A1) N ble (A2) N ble (A2) N 31) N 331) N bits (B2) N (B3) A Tust (B4) N B5) N Present (Y/N): N	Su Inu (B7 Sp Co Ma Hy Od Dry Wa	rface Soil Cracks (Be indation, Visible on A 7) Narsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	3) <u>N</u> erial Im. N N	agery D CLi P In S N	Vater-stained eaves (B9) rainage Path xidized Rhiz iving Roots (r resence of R on (C4) alt Deposits otes: Nego	 erns (B10) <u>N</u> ospheres along C3) <u>N</u> educed (C5) <u>N</u>	Stunted or Stressed Plants (D1) Geomorphic Position (D2)N Shallow Aquitard (D3)N Microtopographic Relief (D4) FAC-Neutral Test (D5)N

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 PersistentX Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m)O Short shrub (0.5-2m)5 Dwarf shrub (<0.5m) Tall herb (≥1m) Short herb (<1m) 49 Moss-Lichen Floating Submerged
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even _XHighly UnevenModerately 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%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <25% Scattered/Peripheral Cover 26-75% Scattered or Peripheral Cover <a>N/A <a> 26-75% Scattered or <a> <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
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) X 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 Mineral: Gravelly Mineral: Silty Mineral: Silty Mineral: Silty
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Pere
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated X
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennia
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Perennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial Outlet Perennial Inlet/Perennial OutletPerennial Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Inlet/Perennial O
OutletIntermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/No
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerenniterial SubstratePerennial Inlet/Pe
OutletIntermittent Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/Perennial Outlet
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Outlet
Outlet Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Wettand Water Regime (P): Drier: Seasonally Flooded, Saturated
Outlet

23

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>W85T1005</u> Field Target: <u>IS047</u> Date: 6.7.15For 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?

K_ 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)?

mderson

Wetland Scientist (print)

Signature Date

les 6/7/15

Х Brownlee

Field Crew Chief (print)

Signature / Date

a.7.15

SITE DESCRIPTION	Printer in the		i de stati		and the second second second
Survey Type: Centerline Access Road (explain)	Other (expla	ain)	Field Target	: <u>15023</u>	Map #: <u>236</u> Map Date: <u>6/4</u>
Date: 6-14-15 Project Name & No.:	Alaska LNG	60418403		Feature Id:	W8571006
Investigators: JB, KV					Team No.:W85
State: Alaska Region: Alaska		Milepost:	749.5		1
Latitude: (010 18.486483' N	Longitude	:151°1.4	1534 35	51W	Datum: WGS84
Logbook No.: Logbook Page No.:	19	Picture No.:	R_W85TI	006_	001 thru _004
SITE PARAMETERS	Bran St. Ort	Service and a	ANS HOUSE	A PENNS	State of the second second second
Subregion: Sathcentral		Landform (hill	Islope, terrace,	, hummocks	s, etc.):
Slope (%): 0 - 3		Local relief (c	oncave, conve	x, none): 5	Flat to concare
Pre-mapped Alaska LNG/NWI classification: 1551/EM	B	Evidence of V		n Ø	
Are climatic/hydrologic conditions on the site typical for this time Yes No (if no explain in Notes)		Are "No Yes_\	ormal Circumst	tances" pres	sent: blain in Notes.)
Are Vegetation, Soil, or Hydrology Significantly	y Disturbed?	No_	(If yes, expla	in in Notes)	
Are Vegetation, Soil, or Hydrology Naturally P	roblematic?	No_	_ (If yes, expla	ain in Notes	.)
SUMMARY OF FINDINGS	General States	「日本の日	With a fundamental and	語の書言	
Hydrophytic Vegetation Present? Yes No	Is	the Sampled A	Area within a \	Vetland?	Yes No
Hydric Soil Present? Yes No	w	etland Type:	PSSTAC	1	PSSIC 27.
Wetland Hydrology Present? Yes No	AI	aska Vegetation	Classification	(Viereck):	11 C2, HAZ
Notes and Site Sketch: Please include Directional & North Arrow,	Centerline,	Length of featu	ire, Distances f	from Center	rline, Photo Locations, and Survey
corridor. See Map 9 Notebest / pac	ge 19				1. Walter
s in the second s		-			2. 2001 11 2
			2		

Page 1 of 4

5:

	5)	The second second		ull]
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: (A
1.				Total Number of Dominant Species Across All Strata: 6
2.				% Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/
3.				
4.				Prevalence Index worksheet:
Total Cover				Total % Cover of: Multiply by:
50% of total cover	: 20	% of total cov	er:	OBL species: <u>.55</u> X 1 = <u>.55</u>
Sapling/Shrub Stratum (26 48 5)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $9 \times 2 = 18$ FAC species $55 \times 3 = 165$ FACU species $2 \times 4 = 8$
1. Retula nang	25	Y	FAC	¹ UPL species <u>O</u> X 5 = O
2. Myrico gale	35 -	Y	OBL.	Column Totals: 121 (A) 246 (B)
3. Andromeda polifolia,	3	Ň	FACW	³ PI = B/A = <u>2</u> , O
4. Vaccinium orycoccus	3	N	OBLY	3
5. Rhododendrum tomentosum	T	N	FACW	
Desiphora fruiticosa	30	Y	FAC	1
Empitrum Nigrum	T,	N	FAC	3
B. Picea Mariana		N,	FACW	
RUBUS SP	T	N	V	the second s
Total Cover	97			
	Lel E an		Qu	
50% of total cover	: 48.5 20	% of total cov	er: <u>19.4</u>	
		% of total cov	er: <u>19.4</u>	
VEGETATION (use scientific names of plants	s) Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
VEGETATION (use scientific names of plants)	Dominant Species?		Hydrophytic Vegetation Indicators: Dominance Test is > 50%
VEGETATION (use scientific names of plants Herb Stratum (26 FF)	Absolute % Cover	Dominant	Indicator Status	
regeration (use scientific names of plants Herb Stratum (s) Absolute	Dominant Species? (Y/N) Y	Indicator Status OBL	Y Dominance Test is > 50% ↓ Y Prevalence Index is ≤3.0 ↓ M Morphological Adaptations ¹ (Provide supporting data in
VEGETATION (use scientific names of plants Herb Stratum (26 ft) 1. Menyanthes trifoliata 2. Drosera cotund: folia	Absolute % Cover	Dominant Species? (Y/N) Y N	Indicator Status	$\frac{V}{V}$ Dominance Test is > 50% 1 V 1 V 1 Notes) Prevalence Index is ≤3.0 1 Notes 1 Notes
VEGETATION (use scientific names of plants Herb Stratum (<u>26</u> <u>F</u>) 1. <u>Menyanthes</u> <u>trifoliata</u> 2. <u>Drosera</u> <u>rotund</u> ; folia 3. Jancus Castineus 4	Absolute % Cover 5 1	Dominant Species? (Y/N) Y N	Indicator Status OBL OBL	
VEGETATION (use scientific names of plants Herb Stratum (<u>26</u> <u>F</u>) 1. <u>Menyanthes</u> <u>trifoliata</u> 2. <u>Drosera</u> <u>rotund</u> ; folia 3. Juncus Castineus 4. Trientalis europaca	Absolute % Cover	Dominant Species? (Y/N) Y N N N	Indicator Status OBL OBL FACU	$\frac{V}{V}$ Dominance Test is > 50% 1 V 1 V 1 Notes) Prevalence Index is ≤3.0 1 Notes 1 Notes
VEGETATION (use scientific names of plants Herb Stratum (<u>26</u> A) 1. <u>Menyanthes</u> trifoliata 2. <u>Drosera</u> cotuad: falia 3. Jancus Castineus 4. <u>Trientalis</u> europaea 5. <u>Equisetum</u> fluviatile	Absolute % Cover 5 1	Dominant Species? (Y/N) Y N N N N	Indicator Status OBL OBL FACU OBL	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Notes) Y Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
1. Menyanthes trifoliata 2. Drosera cotuadifalia 3. Janus Castineus 4. Trientalis europaea 5. Equisetum fluviatile 6. Drosera Anglica	Absolute % Cover 5 1	Dominant Species? (Y/N) Y N N N	Indicator Status OBL OBL FACU OBL OBL	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Notes) Notesi 1 Notesi 1 <
VEGETATION (use scientific names of plants Herb Stratum (<u>26</u> <u>F</u>) 1. <u>Menyanthes</u> <u>trifoliata</u> 2. <u>Drosera</u> <u>rotund</u> ; folia 3. Jancus Castineus 4. <u>Trientalis europaea</u> 5. <u>Equisetum Fluviatile</u> 6. <u>Drosera Anglica</u> 7. <u>Sicous</u> <u>Cessitosus</u>	Absolute % Cover 5 1	Dominant Species? (Y/N) Y N N N N	Indicator Status OBL OBL FACU OBL OBL OBL	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Y Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
VEGETATION (use scientific names of plants Herb Stratum (26 ft) 1. Menyanthes trifoliata 2. Drosera rotund; falia 3. Jamus Castineus 4. Triental's europaca 5. Equisetum fluviatile 6. Drosera Anglica 7. Sciences Cessitosus 8. Lalanageostis Stricta	Absolute % Cover 5 1 1 2 1 1 2 1 1 2	Dominant Species? (Y/N) Y N N N N	Indicator Status OBL OBL FACU OBL OBL	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Notes) Notes) Notes) Notesi Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
VEGETATION (use scientific names of plants Herb Stratum (<u>26</u> A) 1. Menyanthes trifoliata 2. Drosera rotundifalia 3. Juncus Castineus 4. Trientalis europaca 5. Equisetum fluviatile 6. Drosera Anglica 7. Scienus. Cespitosus 8. Lalamagnostis Stricta 9. Carek Sp (2)	Absolute % Cover 5 1 1 2 1 1 2 1 1 2	Dominant Species? (Y/N) Y N N N N	Indicator Status OBL OBL FACU OBL OBL OBL	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Notes) Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. O % Bare Ground % Cover of Wetland Bryophytes
VEGETATION (use scientific names of plants Herb Stratum (<u>26</u> ft) 1. <u>Menyonthes</u> <u>trifoliata</u> 2. <u>Drosera</u> <u>rotund</u> ; folia 3. Jayneus Castineus 4. <u>Trientalis</u> europaea 5. <u>Fewisetum</u> <u>Fluviatile</u> 6. <u>Drosera</u> <u>Anglica</u> 7. <u>Sicous</u> . <u>Cessitoisus</u> 8. <u>Calamagnostis</u> <u>Stricta</u> 9. <u>Carex</u> <u>Sp</u> (2) 10.	Absolute % Cover 5 1 1 2 1 7 5 5 1	Dominant Species? (Y/N) Y N N N N	Indicator Status OBL OBL FACU OBL OBL OBL	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Notes) Y Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. O % Bare Ground
VEGETATION (use scientific names of plants Herb Stratum (26 Ft) 1. Menyanthes trifoliata 2. Drosera cotundificiata 3. Janus Castineus 4. Trientalis europaca 5. Equisetum fluviatile 6. Drosera Anglica 7. Science Cessitosus 8. Calamagnostis Stricta 9	Absolute % Cover 5 1 1 2 1 7 5 1 5 1 5 1 5 1	Dominant Species? (Y/N) Y N N N N	Indicator Status OBL OBL HACU OBL OBL OBL OBL	Y Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations¹ (Provide supporting data in Notes) Notes) Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. O % Bare Ground 50 % Cover of Wetland Bryophytes CO Total Cover of Bryophytes 2.0 % Cover of Water

Q7

Depth	Matrix		Redox Features						
(inches)	Color (moist)	%	Color (moist)	% Type ¹	Loc ²	Texture	Note	es	
0-10+	14 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -								
10-16+									
10 10									
)							1	
									1
¹ Type: C=Co	ncentration, D=Depl	etion, RN	A=Reduced Matrix, CS	=Covered or (Coated Sand C			Pore Lining, M≕Matrix.	-
HYDRIC SOI	L INDICATORS	Phase Ph	No. of the second second		ST WIND CATE	A ALANDAR MARCHINE AND	State State State	ROBLEMATIC HYDRIC S	Oll
Histosol or Hi	stel (A1)		Alaska Gleyed (/	A13)N	_	Alaska Color	Change	e (TA4)⁴N	
Histic Epiped	on (A2)		Alaska Redox (A	14) N		Alaska Alpine			
Black Histic (A3) <u>N</u>		Alaska Gleyed P	ores (A15)	N	Alaska Redo		and the state of t	55
	lfide (A4) N			118			ed withou	ut 5Y Hue or Redder Unde	lyin
						Layer N Other (Explai	in in Not	(20	-
3Ope indicate	urface (A12) <u>N</u>	tation o	ne primary indicator of	wetland hydr	ology and an			sition must be present unle	ss
disturbed or p	problematic.		ne primary maloator or	would high	ology, and an	opproprieto inijeo			έ.,
⁴ Give details	of color change in No	otes.	De	pth (inches):		5			
		e' 110	De						
Hydrlc Soil F	ayer (if present): Typ Present (Y/N):							4	
Hydric Soll F Notes: <i>Hish</i>	Present (Y/N): <u>Y</u> sol saturated t	to sur	Acc.				10	4 	*
Hydric Soll F Notes: <i>Hish</i>	Present (Y/N): <u>Y</u> sol saturated t	to sur			SECONDAR	RY INDICATORS	(2 or mo	and the state of t	
Hydric Soli F Notes: <i>Hish</i> HYDROLOG	Present (Y/N): sol saturated t Y PRIMARY INDICA	tors (Acc.	ficient)) be	(2 or mo	ore required) Stunted or Stressed Plants (D1)	
Hydric Soll F Notes: Hish	Present (Y/N):Y sol saturated a y primary indica or (A1)Y	tors (a	Acc., any one indicator is suf rface Soil Cracks (B6) indation Visible on Aeri	flicient)	SECONDAR Water-staine Leaves (B9)) be	(2 or mo	Stunted or Stressed	3
Hydric Soll F Notes: Hish HYDROLOG Surface Wate	Present (Y/N): $\underline{/}$ sol saturated to Y PRIMARY INDICA pr (A1) $\underline{/}$ able (A2) $\underline{/}$	TORS (: Su - Int Sp	Acc., any one indicator is suf rface Soil Cracks (B6), indation Visible on Aeri 7) arsely Vegetated	flicient)	SECONDAR Water-staine Leaves (B9) Drainage Pa	atterns (B10) <u>√</u>	ų.	Stunted or Stressed Plants (D1)	
Hydric Soll F Notes: Hish HYDROLOG Surface Wate High Water T	Present (Y/N): $\underline{/}$ present (Y/N): $\underline{/}$ provided of provided o	TORS (1 Su - (BT Co	Acc., any one indicator is suf rface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated	flicient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh	atterns (B10) _ / izospheres along 6 (C3) _ / _	ų.	Stunted or Stressed Plants (D1) Geomorphic Position (D2	
Hydric Soil F Notes: Hish HYDROLOG Surface Wate High Water T Saturation (A Water Marks	Present (Y/N): $\underline{/}$ present (Y/N): $\underline{/}$ provided of provided o	TORS (a Su Inu - (B Sp Co Ma	Acc., any one indicator is suf fface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated ncave Surface (B8)	flicient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of	atterns (B10) <u>√</u> izospheres along s (C3) <u></u> Reduced	ų.	Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic	
Hydric Soil F Notes: Hish HYDROLOG Surface Wate High Water T Saturation (Å Water Marks Sediment De	Present (Y/N): $\underline{/}$ present (Y/N): $\underline{/}$	TORS (1 Su Inu Bi Sp Co Ma Hy Od	Acc., any one indicator is suf rface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfidø	flicient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	atterns (B10) <u>√</u> izospheres along s (C3) <u></u> Reduced	ų.	Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	
Hydric Soil F Notes: Hish HYDROLOG Surface Wate High Water T Saturation (A Water Marks	Present (Y/N): $\underline{/}$ present (Y/N): $\underline{/}$	TORS (a Su Int. (Bi Sp Co Ma Ma Dr Wa	Acc., any one indicator is suf fface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide lor (C1) y-Season	ficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	atterns (B10) <u>√</u> izospheres along s (C3) <u></u> Reduced	ų.	Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	
Hydric Soil F Notes: Hish HyDROLOG Surface Wate High Water T Saturation (Å Water Marks Sediment De Drift Deposits Algal Mat or (Present (Y/N): $\underline{\checkmark}$ present (Y/N): $\underline{\land}$ Present (Y/N): $\underline{\land}$	TORS (a Su Int. (Bi Sp Co Ma Ma Dr Wa	Acc., any one indicator is suf rface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated ncave Surface (B8) irl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	ficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	atterns (B10) <u>√</u> izospheres along s (C3) <u></u> Reduced	ų.	Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	
Hydric Soil F Notes: Hist HYDROLOG Surface Wate High Water T Saturation (Å Water Marks Sediment De Drift Deposits Algal Mat or (Iron Deposits	Present (Y/N): $\underline{/}$ Sol saturated to Y PRIMARY INDICA or (A1) $\underline{/}$ able (A2) $\underline{/}$ (B1) $\underline{/}$ (B1) $\underline{/}$ (B3) $\underline{/}$ Crust (B4) $\underline{/}$ (B5) $\underline{/}$	TORS (a Su Int. (Bi Sp Co Ma Ma Dr Wa	Acc., any one indicator is suf fface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated ncave Surface (B8) ind Deposits (B15) drogen Sulfide for (C1) y-Season ater Table (C2) her (Explain in Notes):	ficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	atterns (B10) <u>√</u> izospheres along s (C3) <u></u> Reduced	ų.	Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	
Hydric Soil F Notes: Hist HYDROLOG Surface Wate High Water T Saturation (Å Water Marks Sediment De Drift Deposits Algal Mat or (Iron Deposits	Present (Y/N): $\underline{\checkmark}$ present (Y/N): $\underline{\land}$ Present (Y/N): $\underline{\land}$	TORS (a Su Int. (Bi Sp Co Ma Ma Dr Wa	Acc., any one indicator is suf rface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated ncave Surface (B8) irl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	ficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	atterns (B10) _ \[\] izospheres along s (C3) _ <u>\</u> Reduced as (C5) _ <u>\</u>		Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	
Hydric Soll F Notes: Hist HYDROLOG Surface Wate High Water T Saturation (Å Water Marks Sediment De Drift Deposits Algal Mat or (Iron Deposits Surface Wate	Present (Y/N): $\underline{/}$ Sol saturated to Y PRIMARY INDICA Pr (A1) $\underline{/}$ able (A2) $\underline{/}$ (B1) $\underline{/}$ (B1) $\underline{/}$ (B3) $\underline{/}$ Crust (B4) $\underline{/}$ (B5) $\underline{/}$	TORS (1 Su Int. (B) Co Ma Hy Od Dr Wa Od	Acc., any one indicator is suf fface Soil Cracks (B6) indation Visible on Aeri 7) arsely Vegetated ncave Surface (B8) ind Deposits (B15) drogen Sulfide for (C1) y-Season ater Table (C2) her (Explain in Notes):	ficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	atterns (B10) <u>√</u> izospheres along s (C3) <u></u> Reduced		Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	

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 Persistent Aquatic Bed Forested-Deciduous-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) 90 Dwarf shrub (<0.5m)
Number of Wetland Types (M): 3 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 <25% Scattered/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 OpenX Small Scattered Patches Continuous Cover 1
Dead Woody Material (P): Low Abundance (0-25% of surface) X Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) X 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 X Histosol: Sapric
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic X Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey 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/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated X 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.) X Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding <u>X</u> Return Interval 1-2 yrs Return Interval 2-5 yrs
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow X Water pH (P): No surface water Circumneutral (5.5-7.4) X Alkaline (>7.4) Acid (<5.5)
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow X Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)
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 <u>5.40</u> Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Acid (<5.5) PH Reading <u>5.40</u> Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%)
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow Water pH (P): No surface water Circumneutral (5.5-7.4)
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 <u>5.40</u> Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits Acid (<5.5) PH Reading <u>5.40</u> Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%)
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
Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow X Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)

Crew Chief QA/QC check:

GPS Technician QA/QC check:

This form to be completed before leaving the field site.

Feature ID: <u>W85T1006</u> Field Target: <u>16023</u> Date: <u>6-14-15</u>

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 legbook?

2. Vegetation

1 At least 80% of onsite vegetation has been keyed to species, or collected for later identification?

Map

- Vegetation names are entered legibly for all strata present?
- 2 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

Directory of the second wetland?

6. Field Logbook

abla 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 Jessie Brownlee

6.14.15

Wetland Scientist (print)

Signature / Date

Volger

Field Crew Chief (print)

X haley Valger 6-14-15 Signature / Date

Vegetation Classification Data Form

· link.		lame & #:	Field Target:
6/7/15	Alaska L	NG 26221306	15043
nvestigators:		9	Feature ID:
JB, JA			W85T1007
_atitude:		Longitude:	Datum: WGS84
51°24'40.3		150 43 47.8	
.ogbook #: 💩 🖉	P /	Logbook Page #:	Picture #:
np # 219 *		5	P, veg 001, veg 002
ocation Descrip	ption:		
common Specie	es Observed (S	Scientific Name)	
) thurium a	cuel o e ver	a calana	avocts and dancis
Ingrium a	y war		agnists canadensis
quisetim	cultation		teris expansa
gaiscium	Synaria	in soft	sons equinse
quisetum	aridine	17	
Marsenater	www.se		
HOUC FRIT	i ciosa		
	Dominant Stru	cture Level:	1
Percent Cover of			
	÷		
TO/ Fern cover			
10/• Fern cover labitat Descript	ion:		Carried Mar
To/• Fern cover labitat Descript	ion:	Tositne. Ø Nearly 100 fe	im cover. Surrounded by
10/• Fern Cover labitat Descript	ion:	vour Birch & Alder. D	im cover. Surrounded by y soil. Dug to ~ 15" w/ No signo.
10/• Fern cover labitat Descript	ion:	os: Ina. Birch & Alder. D on: Level I, Level II, Level III	im cover. Surrounded by ry soil. Dug to ~ 15" w/ No signo.
Percent Cover of 90/. Fern Cover Habitat Descript Ory side, Toe SI Cooland Canop Alaska Vegetatio	ion:		im cover. Surrounded by of soil. Dug to ~ 15" w/ No signo.
TO/. Fern Cover labitat Descript my side, Tox Si codland Canop Naska Vegetatid	ion: pe g Mt. 3 y 1 cottomo n Classification	Lenger landsape	in cover. Surrounded by ry soil. Dug to ~ 15" w/ NO signo.
10% Fern Caver labitat Descript my side, Toe Sl codand Canop Naska Vegetatid	ion: pe g Mt. 3 y 1 cottomo n Classification		im cover. Surrounded by ry soil. Dug to ~ 15" w/ NO signo.
10% Fern Cover labitat Descript bry side, Toe Sl booland Canop Alaska Vegetatid	ion: pe g Mt. 3 y 1 cottomo n Classification	Lenger landsape	im cover. Surrounded by ry soil. Dug to ~ 15" w/ NO signo.
10% Fern Cover labitat Descript bry side, Toe Sl booland Canop Alaska Vegetatid	ion: pe g Mt. 3 y 1 cottomo n Classification	Lenger landsape	im cover. Surrounded by ry soil. Dug to ~ 15" w/NO signo.
10% Fern Cover Habitat Descript Ory side, Toe Sh Cooland Canop Alaska Vegetatid 11 B 2, 111 A 2 Notes:	ion: general 1914: 5 y <u>1 cottomo</u> on Classification	Lenger landsape	im cover. Surrounded by ny soil. Dug to ~ 15" w/ NO signo.
10% Fern Cover labitat Descript ory side, Toe Sl cooland Canop Alaska Vegetatid 11 B 2, 111 A 2 Notes:	ion: general 1914: 5 y <u>1 cottomo</u> on Classification	Lenger landsape	im cover. Surrounded by of soil. Dug to ~ 15" w/ NO signo.
10/ Fern Cover labitat Descript	ion: general 1914: 5 y <u>1 cottomo</u> on Classification	Lenger landsape	im cover. Surrounded by ry soil. Dug to ~ 15" w/ NO signo

1

Vegetation Classification Data Form

Level i	Level II	Level III
I. Forest	A. Needleleaf (conifer) forest	 Closed needleleaf (conifer) forest Open needleleaf (conifer) forest Needleleaf (conifer) woodland
	B. Broadleaf forest	 Closed broadleaf forest Open broadleaf forest Broadleaf woodland
	C. Mixed forest	(1) Closed mixed forest (2) Open mixed forest (3) Mixed woodland
il, Scrub	A. Dwarf tree scrub	 Closed dwarf tree scrub Open dwarf tree scrub Dwarf tree scrub woodland
6	B Tall scrub	(1) Closed tall scrub (2) Open tall scrub
	C. Low scrub	 Closed low scrub Open low scrub
	D. Dwarf scrub	 Dryas dwarf scrub Ericaceous dwarf scrub Willow dwarf scrub
III, Herbaceous	A. Graminoid herbaceous	 (1) Dry graminoid herbaceous (2) Mesic graminoid herbaceous (3) Wet graminoid herbaceous (emergent)
	B. Forb herbaceous	 Dry forb herbaceous Mesic forb herbaceous Wet forb herbaceous (emergent)
	C. Bryoid herbaceous	(1) Mosses (2) Lichens
	D_Aquatic (nonemergent) herbaceous	 Freshwater aquatic herbaceous Brackish water aquatic herbaceous Marine aquatic herbaceous

II. So	crub
8a.	Vegetation with at least 10 percent cover of dwarf trees crub 9
86.	Vegetation with at least 25 percent cover of shrubs and less than 10 percent cover of dwarf trees
9a.	Dwarf tree canopy of 60-100 percent cover
9b,	Dwarf tree canopy of 25-59 percent cover
9c.	Dwarf tree canopy of 10-24 percent cover
10a.	Shrubs more than 1.5 meters (5 ft) tall
1 0b .	Shrubs less than 1.5 meters (5ft)tall
11 a	Shrub canopy cover greater than 75 percent
11 b	Shrub canopy cover of 25-74 percent II B 2 Open tall scrub
12a	Shrubs 20 centimeters to 1.5 meters tall . II.C Low scrub 13
12b.	Shrubs under 20 centimeters in height
13a	Shrub canopy cover greater than II C.I Closed low scrub
13b	Shrub canopy cover of 25-74 percent, or as low as 2 percent if little or no other vegetation cover present
14a.	Dryas species dominant in the dwarf shrub layer
14b.	Ericaceous species dominant in the dwarf shrub layer
14c.	Willow species dominant in the dwarf scrub layer
Ш. Н	terbaceous
15a	Terrestrial vegetation, or if growing in the water, dominated by emergent vegetation
15b	Dominant vegetation growing submerged in water or floating on the water surface, but not emerging above the water

la 🚬	Trees over 3 meters (10 ft) tall are
	present and have a canopy cover of 10 percent or more
1 b.,	Trees over 3 meters (10 ft) tall are
	absent or nearly so, Less than 10 percent cover. (Dwarf trees, less
	than 3 meters [10 ft] tall may be
1 5-	present and abundant
2a	Over 75 percent of tree cover
20	contributed by needleleaf
	(conifer) species
2b	Less than 75 percent of tree cover contributed by needleleaf (conifer) species
За_	Tree canopy of 60-100 percent I.A.1 Closed needleleaf forest
3b.	Tree canopy of 25-59 percent cover LA.2 Open needleleaf fores
3c	Tree canopy of 10-24 percent cover IA.3 Needleleaf woodland
4a	Over 75 percent of tree cover contributed by broadleaf species
4b.	Broadleaf or needleleaf species contribute 25 to 75 percent of the tree cover
6	
5a. 5b.	Tree canopy of 60-100 percent cover
эр 5с.	Tree canopy of 25-59 percent cover I.B.2 Open broadleaf fores Tree canopy of 10-24 percent cover I.B.3 Broadleaf woodland
6a	Tree canopy of 60-100 percent cover. I.C.1 Closed mixed fores
6b	Tree canopy of 05 100 percent cover
6c.	Tree canopy of 10-24 percent cover
7a.	Vegetation with at least 25 percent
/ a	cover of erect to decumbent shrubs
	or with at least 10 percent cover of dwarf trees (less than 3 meters [10 t]tail)
7b	Vagetation herbaceous (may have up to 25 percent shrub cover)
16a_	Grasses, sedges, or rushes
	Grasses, sedges, or rushes (graminoid) plants dominant
16b	Grasses, sedges, or rushes (graminoid) plants dominant
16b	Grasses, sedges, or rushes (graminoid) plants dominant
16b	Grasses, sedges, or rushes (graminoid) plants dominant
16b	Grasses, sedges, or rushes (graminoid) plants dominant
16b. 17a	Grasses, sedges, or rushes (graminoid) plants dominant
16b. 17a	Grasses, sedges, or rushes (graminoid) plants dominant
16b. 17a	Grasses, sedges, or rushes (graminoid) plants dominant
16b. 17a	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17а 17b	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17а 17b	Grasses, sedges, or rushes (graminoid) plants dominant
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16b 17а 17b	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17а 17b	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17а 17b 17c 18а	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17a 17b 17c 18a 18b.	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17a 17b 17c 18a 18b.	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17a 17b 17c 18a 18b. 19a 19b	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17a 17b 17c 18a 18b. 19a 19b 19c	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17a 17b 17c 18a 18b 19a 19b 19c 20a	Grasses, sedges, or rushes (graminoid) plants dominant .III A Graminoid herbaceous 11 Forbs or bryophytes dominant .III A Graminoid herbaceous 11 Forbs or bryophytes dominant .III A Graminoid herbaceous 11 Grasses, such as south-facing bluffs, old beaches, and sand dunes. 11 Typically (but not always) dominated by E/ymus spp., Fesfuce spp. and Deschampsia spp. III A! Dry graminoid herbaceous On moist sites, but usually not with standing water. Usually dominated by Calemagrassis spp. Carew spp. or Eriophorum spp. tussocks often present III A.2 Mesic graminoid herbaceous On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra. III A.3 Wet graminoid herbaceous Vegetation dominated by forbs (troadleal herbs, ferns, or horsetails) III A Forb herbaceous 15 Vegetation dominated by mosses or lichens .III C Bryoid herbaceous 20 On moist sites but without standing water, mostly within forested areas .III B.1 Dry forb herbaceous 20 On moist sites, usually with standing water for part of the year .III B.3 Wet forb herbaceous 20 On wet sites, usually with standing water for part of the year .III B.3 Wet forb herbaceous
16b 17a 17b 17c 18a 18b 19a 19b 19c 20a 20b	Grasses, sedges, or rushes (graminoid) plants dominant
16b 17a 17b 17c 18a 18b 19c 20a 20b 21a	Grasses, sedges, or rushes (graminoid) plants dominant

veg form

This form to be completed before leaving the field site.

Feature ID: <u>W85T1007</u> Field Target: <u>15043</u> Date: lov715

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? 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)?

Anderson

Kn 6/7/15

6-7.15

Wetland Scientist (print)

Signature / Date

ourle

Field Crew Chief (print)

Signature //Date

SITE DESCRIPTION			· · · · · · · · · · · · · · · · · · ·	ALL ALL	it water	The state of the state of the state
Survey Type: Centerline X Acces	ss Road (explain)	Other (expla	in)	Field Targ	et: 15046	Map #: <u>217 Map Date: 6.4.15</u>
Date: 6.7.15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W8ST1008
Investigators: JB JA						Team No.: <i>ω§5</i>
State: Alaska	Region: Alaska	b.	Milepost:	733.8	a l	
Latitude: 61.442115		Longitude:	-150.66116	8	N)	Datum: WGS84
Logbook No.: /	Logbook Page No.: (Q	Picture No.:			3.

SITE PARAMETERS	
Subregion: South Central	Landform (hillslope, terrace, hummocks, etc.): Lowland
Slope (%): 0-3	Local relief (concave, convex, none): filest to slightly concave
Pre-mapped Alaska LNG/NWI classification: / / C Z	Evidence of Wildlife Use: Mosse Browse
Are climatic/hydrologic conditions on the site typical for this time of year? Yes XNo (if no explain in Notes)	Are "Normal Circumstances" present: Yes_X No (If no, explain in Notes.)
Are Vegetation, Soil, or Hydrology Significantly Disturbed	? No <u>X</u> (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	s the Sampled Area within a Wetland? Yes No
Hydric Soil Present? Yes No W	Vetland Type: PFO4/1A
Wetland Hydrology Present? Yes K. No A	laska Vegetation Classification (Viereck): 102, 1107

Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor.

VEGETATION (use scientific names of plants)			
	Absolute	Dominant	Indicator	Dominance Test worksheet: 2
ree Stratum (Plot sizes: <u>26 Diang</u> ter	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC:
Picea Mariana	薄.1	-	FACIN	Total Number of Dominant Species Across All Strata: 33 (I) % Dominant Species that are OBL, FACW, or FAC: 133 (A)
Betula Neoalaskana	20	Y	FAC	
Picea Glacuos	19	ý	FACU	
				Prevalence Index worksheet:
Total Cover:	230		6	Total % Cover of: Multiply by:
50% of total cover:	2 15 20	% of total cov	ver: 0,8	OBL species:X1 =
apling/Shrub Stratum (20) Diameter	Absolute % Cover	Dominant Species?	Indicator Status	FACW species: $31 \times 2 = 32$ FAC species $372 \times 3 = -159 \times 216$
D. Ariulia	351	(Y/N)	RACU	FACU species 40/ 114 x4 = 456
Rosa Acicularis	15%	3	1	UPL speciesX 5 =
Fiburnum edule	107		FACU	Column Totals: (A) (A) (A) (B)
Werziesie ferrigines	107.	17	FORFAU.	PI = B/A = <u>3</u> , <u>6</u> 2
Vaccinium ultis-idaeq	87	N	Fac.	
Ribes triste	- 53	1	FOR	· · · · · · / · · · · · · · · · ·
Alnus Anticosa	. 31/	N	Fac.	
	~			
Total Cover:			<u> </u>	and the second second second second
50% of total cover:	23 20)% of total cov	ver: <u>9.2</u>	
and the formation of the state	Absolute	onanse est	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
erb Stratum (26' Diame)ter		Dentant	I	Ukudaa akudia Masatatian fadioatana.
		Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
	% Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test is > 50%
EquisetumAnens		Species?		$\begin{array}{c} \hline \\ Dominance Test is > 50\% \\ \hline \\ \hline \\ Prevalence Index is \leq 3.0 \end{array}$
U	% Cover	Species?	Status	Dominance Test is > 50%
Gympocarpium divopleris	% Cover	Species?	Status FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in
Gymmeorpium dryopleris Chamerion Angustifiium	% Cover	Species? (Y/N)	Status FAC FACU	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
· Gymmerion Angustifalium · Chamerion Angustifalium · Calamagrastis Canookasis	% Cover 35/ 10/ 3/. 3/	Species? (Y/N)	Status FAC FACU FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
Gympocorpium divopleris Chamerion Angustifalium Calamagrostis Canookasis Cornus Canadensis	% Cover 35/ 10/ 3/.	Species? (Y/N)	Status FAC FACU FACU	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Gympocarpium divopleris Chamerion Angustifalium Calamagrastis Canodensis Cornos Canadensis Coeocaulon lividium	% Cover 35/. 10/. 3/. 3)/. 30/.	Species? (Y/N)	Status FAC FACU FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Gymbocarpium divopleris Chamerion Angustifalium Calamagrastis Canadensis Cornos Canadensis Coenceulon lividium Oryopteris expansa	% Cover 35/ 10/ 3/. 3/. 30/ 8/	Species? (Y/N)	Status FAC FACU FAC FAC FAC FAC FACU FACU	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Chamerion Angustifalium Chamerion Angustifalium Calamagrastis Canookasis Cornos Canadonsis Coeocaulon lividium Oryopteris expansa Rubus arcticus	% Cover 35/ 10/ 3/ 30/ 8/ 15/	Species? (Y/N)	Status FAC FACU FAC FAC FAC FAC FAC FAC FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic % Bare Ground
Gympocorpium devopleris Chamerion Angustifalium Calamagrastis Canookasis Cornos Canadensis Cornos Cornos Cornos Cornos Cornos Cornos Cornos Cornos Cornos Cornos Cornos Cornos Cornos Cornos Corno	% Cover 35/. 10/. 3/. 3/. 30/. 8/. 15/. 31.	Species? (Y/N)	Status FAC FACU FACU FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (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
Chamerian Angustifalium Chamerian Angustifalium Calamagrastis Canochasis Cornos Canadensis Corno	% Cover 35/ 10/ 3/ 30/ 8/ 15/ 3/ 3/ 1/	Species? (Y/N)	Status FAC FACU FAC FAC FAC FAC FAC FAC FAC FAC	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (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
3. Chamerion Angustifiium 4. Calamagrostis Canookasis 5. Cornos Canadensis 5. Cornos	% Cover 35% 10% 3% 3% 3% 15% 3% 1% 1%	Species? (Y/N)	Status FAC FACU FACU FACU FACU FACU FACU FACU	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (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

Depth	Matrix		Redox Features						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
0-4								unschurated	
4-5			· · · · ·	19	8 1	2 4	MUCK	1, 11	
5-8.5	2.5YR 4/4	100	- ⁶ a	1	- ³⁰⁴	12	SiL	VeriRea. Bits of Organ	ict
1.5-10	5VR3/3	100	1				Corse Same	Land fine Sand	
0-15	101R2/1	100	- late	1	. ø		MK SiL	Large burled Wood Dubn"	1
5-16.5	7.54R4/4	IDO					Coarse Sar		1
4.5-24	5644/1	100				in the second	14Fino Sandy	loon	
Type: C=C	oncentration, D=Deple	tion, RM	=Reduced Matrix, C	S=Cov	ered or Co	ated Sand C	and the second se	n: PL=Pore Lining, M=Matrix.	
HYDRIC SC	IL INDICATORS	Inworks.		-791948	STATISTICS.	ALL STR	INDICATOR	FOR PROBLEMATIC HYDRIC	SOIL
Hístosol or H	Histel (A1)	1	Alaska Gleyed	(A13)			Alaska Color	Change (TA4) ⁴	N.
Histic Epipe	don (A2)	i antes	Alaska Redox	(A14)	N		Alaska Alpine	e Swales (TA5)	
Black Histic	(A3) N		Alaska Gleyed	Pores	(A15)			x with 2.5Y Hue	
Hydrogen S	ulfide (A4)				-	S ^A	Alaska Gleye Layer	d without 5Y Hue or Redder Unde	erlyin
Thick Dark	Surface (A12) N	-	1	1	_		the second se	n in Notes) A10	3
and the second	Present (Y/N):	7 rougho	d all horizon	9.10	o positi	iverkin	567.4/1 ho	nizon	のないたい
Notes: Org	vanies buried th							nizon (2 or more required)	のないであるの
Notes: Org	ani is buried the	FORS (a		ufficien	t) :		RY INDICATORS		
Notes: Of g	ani's buried th BY PRIMARY INDICAT	FORS (a	ny one indicator is s face Soil Cracks (B6 ndation,Visible on A4	ufficien		SECONDAR Water-staine Leaves (B9)	RY INDICATORS	(2 or more required) Stunted or Stressed Plants (D1)	2)
Notes: Org HYDROLOG Surface Wa	Table (A2)	FORS (a Sur Inui (B7 Spa	ny one indicator is s face Soil Cracks (B6 ndation,Visible on A4	ufficien	t) : <u> N</u> i agery i	SECONDAR Water-staine Leaves (B9) Drainage Pa	ed N	(2 or more required) Stunted or Stressed Plants (D1)	1
HYDROLOG Surface Wa	BY PRIMARY INDICAT ter (A1) Table (A2) A3)	FORS (a Sur Inuu (B7 Spa Cor	ny one indicator is s face Soil Cracks (B6 indation Visible on A6)arsely Vegetated	ufficien	t) : <u> N</u> agery	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh	tterns (B10) izospheres along (C3)	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2	1
Notes: Of g HYDROLOG Surface Wa High Water Saturation (Water Marks	BY PRIMARY INDICAT ter (A1) Table (A2) A3)	FORS (a Sur Inuu (B7 Spa Cor Man Hyd	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ac arsely Vegetated hcave Surface (B8)	ufficien) erial Im	t) : <u>N</u> agery -	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of	tterns (B10) (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic/	N
Notes: Of g HYDROLOG Surface Wa High Water Saturation (Water Marks	pani is buried the BY PRIMARY INDICAT ter (A1) \checkmark Table (A2) \checkmark A3) \checkmark s (B1) \land eposits (B2) \checkmark	FORS (a Sur (B7 Spa Cor Mar - Hyc Odd	ny one indicator is s face Soil Cracks (Be indation Visible on Ar arsely Vegetated incave Surface (B8)_ 1 Deposits (B15) drogen Sulfide	ufficien) erial Im	t) : : <u>N</u> agery - -	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	tterns (B10) (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	N
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Notes: Of G HYDROLOG Surface Wa High Water Saturation (Water Marks Sediment D Drift Deposi Algal Mat or Iron Deposit	$\frac{\text{BY PRIMARY INDICAT}}{\text{Table (A2) }}$ $\frac{\text{A3) }}{\text{S (B1) }}$ $\frac{\text{A3}}{\text{S (B1) }}$ $\frac{\text{A3}}{\text{Crust (B4) }}$	FORS (a Sur (B7 Spa Cor Man - Hyc Odd Dry Wa	ny one indicator is s face Soil Cracks (B6 indation Visible on A4 arsely Vegetated incave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2) er (Explain in Notes	ufficien s) erial Im 	t) : : <u>N</u> agery - -	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	tterns (B10) (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2 Shallow Aquitard (D3) Microtopographic Relief (D4)	N
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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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Persistent Aquatic Bed Forested-Deciduous-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) 73 Dwarf shrub (<0.5m)
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even _KHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 80%) X Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <25% Scattered/Peripheral Cover <a> 26-75% Scattered or Peripheral Cover <a> N/A <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) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) X 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
Inter/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Perennial Outlet Perennial Inlet/No Outlet Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perenninlet/Perennial Inlet/Perennial Inlet/Perenn
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated X Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perenninlet/Perennial Inlet/Perennial Inlet/Perenn
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Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No Intermittent Inlet/No OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No Outlet
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No 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/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Outlet Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Intet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Intet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/No Outlet
Intet/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 Outlet Perennial Inlet/No Outlet Perennial Wet: Perm. Flooded, Intermittent by Exposed, Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created Microrelief of Wetland Surface (P): No Evidence Observed × Sediment Observed on Wetland Substrate Pronounced (>18in.) Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs X Sediment (5.5-7.4) Alkaline (>7.4) Acid (<5.5)
Intet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/No Perennial Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Perennial Inlet/No Wet: Perennial Inlet/No Perennial Outlet Perennial Outlet Perennial Inlet/No Wet: Perennial Inlet/No Perennial Outlet Perennial Inlet/No Perennial Outlet Perennial Inlet/No Wet: Perm. Flooded, Intermittent Inlet/No Perennial Outlet Seliment Observed on Wetland Substrate Fluvaquent Soils Sediment Microrelle of Wetland Surface (P): No Seliment Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval 2-5 yrs Return Interval 2-5 yrs Perennial Geologic Deposit Under Wetland (5.5-7.4) Alkaline (>7.4) Acid (<5.5)

This form to be completed before leaving the field site.

Feature ID: <u>W85T10D8</u> Field Target: <u>15046</u> Date: <u>67115</u> 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?

Map

- Vegetation names are entered legibly for all strata present?
- S Cover calculations are complete and correct?
- Q 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?

S Appropriate hydric soil indicators are marked?

4. Hydrology

Appropriate hydrology indicators are marked?

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

Solution Section S

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

nderson Wetland Scientist (print)

6/7/15 ndne Signature / Date

6.7.15

Х

Field Crew Chief (print)

Signature / Date

Х

SITE DESCRIPTION	WHAT AND	in the second			all and the second		
Survey Type: Centerline 📈 Acce	ain) Fleld Target: 15273 Map #: 22% Map I			Map #: 228 Map Date: 6.4.15			
Date: 6/8/15	Project Name & No.:	G 60418403		Feature Id:	WESTI 009		
Investigators: JB, JB				Team No.: W85T1			
⁻ State: Alaska	Region: Alaska	Milepost:					
Latitude: 61°21'07.9	Latitude: 61°21'07.9 Longitude			2. 44.1		Datum: WGS84	
Logbook No.:	Logbook Page No.:		Picture No.:	P. 001	-004		
SITE PARAMETERS			The state of the s				
subregion: south Central			Landform (hillslope, terrace, hummocks, etc.): Lowland				
Slope (%): 0-3			Local relief (concave, convex, none): Flat				
Pre-mapped Alaska LNG/NWI classifica	ation:		Evidence of Wildlife Use:				
Are climatic/hydrologic conditions on the Yes <u>~</u> No (if no exp	Are "Normal Circumstances" present: Yes_X No (If no, explain in Notes.)						
Are Vegetation, Soil, or Hydrology_ Ze Significantly Disturbed? Nok (If yes, explain in Notes)							
Are Vegetation, Soil, or Hyd	drology_ 🚝 Naturally P	roblematic?	No_X	(If yes, exp	lain in Notes	.)	
SUMMARY OF FINDINGS	这些现象的 建铁铁 化化	中的主义		の設定の行ん	in state of	相対語言になっていた。「言語」	
Hydrophytic Vegetation Present? Ves	No X	le	the Sampled	Area within a	Wetland?	Yes No K	

Hydrophytic Vegetation Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Hydric Soil Present? Yes No_X	Wetland Type: + 6-2, 11-15-2 U
Wetland Hydrology Present? Yes NoX	Alaska Vegetation Classification (Viereck): / C 2, // B Z

Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor.

Page 1 of 4

VEGETATION (use scientific names of plants)			
Tree Stratum (Plot sizes: 26 Diamite	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: $\frac{2}{5}$ (A) Total Number of Dominant Species Across All Strata: $\frac{5}{5}$ (B)
1. Betula proalaskana	60	V	Facul	% Dominant Species that are OBL, FACW, or FAC: $\frac{2}{2}$ (A/B)
2. Angus wirder furticosta		/	Fac	
3.				
4.	<u>X</u>			Prevalence Index worksheet:
Total Cover:	60			Total % Cover of: Multiply by:
50% of total cover:	3 20	% of total cov	ver: 12	OBL species:X 1 =
Sapling/Shrub Stratum (Die Diano)ter	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: O $X 2 =$ O FAC species.55 $X 3 =$ 165FACU species1.31 $X 4 =$ 5.24
-1. rosa aciculoxis	T	N	Facy	UPL speciesX 5 =0
2. YIOURDUM edule	25%	\checkmark	Facu	Column Totals: 18 (0 (A) 689 (B)
3 Picea abura	T	N	Fac	PI = B/A =
4. Alpus Fruticosa	12	4	Fac	
5. Ribes triste	8%	N	FOC	
6.				
7,				
8.				and the second se
9.				the second s
Total Cover:	45			in the second
50% of total cover:	22.5 20)% of total cov	ver: 9	
VEGETATION (use scientific names of plants)			
Herb Stratum (26' Drayeler	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species?	Status	Dominance Test is > 50%
10	5%	(Y/N)		N_ Prevalence Index is ≤3.0
1. Calamanos tic canadonsis	Calle	1	FOR	Morphological Adaptations ¹ (Provide supporting data in
2. Equisitum anense	28%	- / - /	Far	Notes)
3. Gymnocarpium dryppteris 4.	40%		Fac U	Problematic Hydrophytic Vegetation ¹ (Explain)
cornus conodensis	31.		Facu	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
5. Rubus arcticus	T		Fac	
6. trientalis europasa	1%		Fary	
7. streptopus amplexitatius	21.		Far. U	% Bare Ground
8. Menzesia ferrugineer	T		Facy	% Cover of Wetland Bryophytes
⁹ . Envisetum sulvaticum	8%		Fac	Total Cover of Bryophytes
10.	_			Cover of Water
Total Cover:	81			Hydrophytic Vegetation Present (Y/N):/ Notes: (If observed, list morphological adaptations below):
50% of total cover:)% of total cov	ver: 16.1	Notes. (il observed, list morphological adaptations below):

					or confirm the absenc	
Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % T	/pe ¹ Loc ²	Texture	Notes
0-2						
2-5	10YR 2/1	100			Sandyloam	
5-7	7,5YR 3/2	100			Silt Loan	
7-10	7.54R 2.5/3BI	E 40		_	Sandy E	20
10-22	7:5 YR 3/3	30		5 1 1	Sal	Many Then shades of Red hve p Throught horizon
1	7.54124/4	30				Throught horizon
Type: C=C	oncentration, D=Deple	tion, RM	I=Reduced Matrix, CS=Covered	or Coated Sanc	Grains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SC	IL INDICATORS	Star N	en de la companya de	August Barris and	INDICATORS	FOR PROBLEMATIC HYDRIC SOI
Histosol or H	listel (A1)		Alaska Gleyed (A13)	N	Alaska Color C	hange (TA4) ⁴
Histic Epipe			Alaska Redox (A14)	N	Alaska Alpine	
Black Histic		100	Alaska Gleyed Pores (A1	5) N	Alaska Redox	and the second
Hydrogen Si				·/	Alaska Gleyed	without 5Y Hue or Redder Underlyin
Thick Dark S	Surface (A12) N				Other (Explain	in Notes)
		totion o	no primary indicator of watland	audrology and a	- Children	pe position must be present unless
	Present (Y/N):M	1	with ASK/E horizon on	er a Bh/Bh	s. All bimdarie	orewavy.
		1	with ASh/E horizon on	er a Bh/Bh	s. All binndarije	o are wavy.
Notes: Clas	sje upland Portot	Soil	with ASH/E horizon on	/	s. All landorige RY INDICATORS (2	
Notes: Class	sic upland forest	Sol	-	/	RY INDICATORS (2	
Notes: <i>Class</i> HYDROLOG Surface Wat	sic upland forest	TORS (a	ny one indicator is sufficient) face Soil Cracks (B6)	SECONDA Water-stain Leaves (BS	RY INDICATORS (2	or more required) Stunted or Stressed Plants (D1)
Notes: <i>Class</i> HYDROLOC Surface Wat High Water T	Bic opland forest	TORS (a Sur (B7 Spa	ny one indicator is sufficient) face Soil Cracks (B6)	SECONDA Water-stain Leaves (BS Y Drainage F Oxidized R	NRY INDICATORS (2 hed ∧ hed ∧ hizospheres along	or more required) Stunted or Stressed Plants (D1)
Notes; <i>Class</i> HYDROLOG Surface Wat High Water [–] Saturation (A	Sign of the second forest Sign PRIMARY INDICAT Sign (A1) Fable (A2) (3)	FORS (a Sur Inui (B7 Spa Cor	ny one indicator is sufficient) face Soil Cracks (B6)	SECONDA Water-stain Leaves (BS Drainage F Oxidized R Living Roo	NRY INDICATORS (2 Ded N D) N Vatterns (B10) N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Notes; <i>Class</i> HYDROLOG Surface Wat High Water T Saturation (<i>A</i> Water Marks	Sign of the second forest Sign PRIMARY INDICAT Sign (A1) Fable (A2) (3)	TORS (a Sur Inur (B7 Spa Cor Mar Hyc	ny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Imager) arsely Vegetated ncave Surface (B8)	SECONDA Water-stain Leaves (BS Drainage F Oxidized R Living Roo Presence o	ARY INDICATORS (2 hed <u>N</u> Patterns (B10) <u>N</u> hizospheres along ts (C3) <u>N</u> of Reduced	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
Notes: Char HYDROLOC Surface Wat High Water T Saturation (A Nater Marks Sediment De	B) C Opland Forest BY PRIMARY INDICAT er (A1) N Fable (A2) N (B1) N oposits (B2) N	TORS (a Sur Inur (B7 Spa Cor Mar Hyc Odc	ny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Imager) arsely Vegetated heave Surface (B8) 1 Deposits (B15) frogen Sulfide	SECONDA Water-stain Leaves (BS Drainage F Oxidized R Living Roo Presence of Iron (C4)_	ARY INDICATORS (2 hed <u>N</u> Patterns (B10) <u>N</u> hizospheres along ts (C3) <u>N</u> of Reduced	or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3)N Microtopographic Relief (D4)N
Notes: Char HYDROLOC Surface Wat High Water T Saturation (A Nater Marks Sediment De Drift Deposite	BY PRIMARY INDICAT er (A1) N Table (A2) N (B1) N eposits (B2) N s (B3) N	TORS (a Sur Inur (B7 Spa Cor Mar Hyc Odd Dry Wat	ny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Imager) arsely Vegetated ncave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2)	SECONDA Water-stain Leaves (BS Drainage F Oxidized R Living Roo Presence o Iron (C4) Salt Depos	ARY INDICATORS (2 hed <u>N</u> Patterns (B10) <u>N</u> hizospheres along ts (C3) <u>N</u> of Reduced	or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3)N Microtopographic Relief (D4)N
Notes: Char HYDROLOG Surface Wat High Water T Saturation (A Nater Marks Sediment De Drift Depositi	$\frac{(A1)}{N}$ $\frac{(B1)}{N}$ $\frac{(B2)}{N}$ $\frac{(B3)}{N}$ $\frac{(B4)}{N}$	TORS (a Sur Inur (B7 Spa Cor Mar Hyc Odd Dry Wat	ny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Imager) arsely Vegetated heave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2)	SECONDA Water-stain Leaves (BS Drainage F Oxidized R Living Roo Presence o Iron (C4) Salt Depos	ARY INDICATORS (2 hed <u>N</u> Patterns (B10) <u>N</u> hizospheres along ts (C3) <u>N</u> of Reduced	or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3)N Microtopographic Relief (D4)N
Notes: Char HYDROLOG Surface Wat High Water T Saturation (A Nater Marks Sediment De Drift Deposit Algal Mat or ron Deposits	B) C Upland Forest BY PRIMARY INDICAT er (A1) N Fable (A2) N (B1) N (B1) N oposits (B2) N s (B3) N Crust (B4) N s (B5) N	FORS (a Sur Inui (B7 Spa Cor Mar Hyc Odd Dry Wal Oth	ny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Imager) arsely Vegetated ncave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2) er (Explain in Notes):	SECONDA Water-stain Leaves (BS Drainage F Oxidized R Living Roo Presence o Iron (C4) Salt Depos	ARY INDICATORS (2 hed <u>N</u> Patterns (B10) <u>N</u> hizospheres along ts (C3) <u>N</u> of Reduced	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Char HYDROLOC Surface Wat High Water T Saturation (A Water Marks Sediment De Drift Deposite Algal Mat or ron Deposite	$\frac{(A1)}{N}$ $\frac{(B1)}{N}$ $\frac{(B2)}{N}$ $\frac{(B3)}{N}$ $\frac{(B4)}{N}$	FORS (a Sur Inui (B7 Spa Cor Mar Hyc Odd Dry Wal Oth	ny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Imager) arsely Vegetated ncave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2)	SECONDA Water-stain Leaves (BS) Drainage F Oxidized R Living Roo Presence o Iron (C4)_ Salt Depos Notes:	RY INDICATORS (2 ned <u>N</u> Patterns (B10) <u>N</u> hizospheres along is (C3) <u>N</u> of Reduced its (C5) <u>N</u>	or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Notes: Char HYDROLOC Surface Wat High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or ron Deposits Surface Wate	B) C Upland Forest BY PRIMARY INDICAT er (A1) N Fable (A2) N (B1) N (B1) N oposits (B2) N s (B3) N Crust (B4) N s (B5) N	TORS (a Sur Inui (B7 Spa Cor Mar Odd Dry: Wal Oth	ny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Imager) arsely Vegetated ncave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2) er (Explain in Notes):	SECONDA Water-stain Leaves (BS) Drainage F Oxidized R Living Roo Presence o Iron (C4)_ Salt Depos Notes:	ARY INDICATORS (2 hed <u>N</u> Patterns (B10) <u>N</u> hizospheres along ts (C3) <u>N</u> of Reduced	or more required) Stunted or Stressed Plants (D1)N Geomorphic Position (D2)1 Shallow Aquitard (D3)N Microtopographic Relief (D4)N FAC-Neutral Test (D5)N

Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated	
Dwarf and (b) (chigm) Tall hefto (2m) Short herbits (1m) Mose-Lichen, Floating, Submerged, Number of Wetlank (1pse) Evenness of Wetland Type Bids/Bublishution (M): Even High y Uneven Moderately even Vegetation Density/Domphance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- Birthsparsing (O Cover & Open Water (P): 100% Cover or Open Water -22% Scattered or Peripheral Cover 24-75% Scattered or Peripheral Cover NA Presence of Islands (M): Absent (holps) One or Few Several to Many NA Cover Distribution of Dominant Larger (P): No (S splatt species) Moderately Abundant (25-50% of surface) High (amail grouping, diverse and interspersed) High (Caster (Caste (Caster (Caster (Caster (Caster (Caste (Cast	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-
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 80%) Birtspersion Of Cover & Oppe Water (P): 100% Cover or Open Water Peripheral Cover >25% Scattered or Peripheral Cover N/A Prans Decise Diversity (P): Low (© plants species) Medium (5-25 species) High (25) Pracence of Islands (M): Absent (Inter) One or Few Several to Many N/A Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stams 1 or More Large Patches; Pars of Site Open Small Scattered Patches Continuous Cover N/A Over Distribution of Dominant Layer (P): No Veg Solitary, Scattered Stams 1 or More Large Patches; Pars of Site Dad Woody Material (P): Low Abundance (02%) of surface) Moderately Abundant (25% of surface) Abundant (25% of surface) Abundari (56%) Solitary, Scattered Patches Continuous Cover Moderately Abundant (25-50% of surface) Vegetative Interspersion (P): Low (Bran patches, obpoantric rings) Moderately Abundant (25% of surface) Moderately Abundant (25% Solitary, Scattered Patches Solit VARIABLES Histosol:Fibric Histosol:Fibric Histosol:Fibric Histosol:Fibric Perennial fund/Perennial Culter Perennial fund/	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)
80%)	Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Peripheral Cover	Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 80%) Very High Density (80-100%) Every Hig
Presence of Islands (M): Abeent (hone) One or Few	Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover
Cover Distribution of Dominant Layer (P) No VegSolitary, Scattered Stems1 or More Large Patches; Parts of Site OpenSmall Scattered Patches Continuous Cover Dead Woody Material (P): Low Abundance (0-25%) of surface) Moderately Abundant (25-50% of surface) Vegetative Interspersion (P): Low (large patches, cohoentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed) High (arge patches, cohoentric rings) Moderate (broken irregular rings) SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Fibric Mineral: Gravelly Mineral: Sandy Mineral: Sity Mineral: Clayey HYDROLOGIC VARIABLES No Inlet/Intermittent Outlet No Inlet/Intermittent Inlet/No Coultet Intermittent Inlet/No Coultet Intermittent Inde/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Weit Zewn: Rooded, Intermittent Standy Fooded Sediment Observed on Weifand Substrate Fluvaquent Solis Sediment Weit Zewn: Rooded, Intermittent Standy Seasonally Flooded, Sathrated Weit Perence Tooded Flooded (Sitemittent) Frequency of Overbank Flooding (P): No Evidence Observed on Weifand Substrate Fluvaquent Solis Sediment Contectef of Weiland Sur	Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species) High (>25)
OpenSmall Scattered PatchesContinuous Cover	Presence of Islands (M): Absent (none) One or Few Several to Many N/A
Abundant (>50% of surface) Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and Interspersed) Hoderate (broken irregular rings) High (small groupings, diverse and Interspersed) HGM Class (P): Solpe Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe SOIL VARIABLES Mineral: Caravely Mineral: Sandy Mineral: Sity Mineral: Clayey HYDROLOGIC VARIABLES Intervitent Intel/Intermittent Outlet No Intel/Intermittent Intel/No Intervitent Intel/No United Perennial Intel/Intermittent Outlet No Intel/Perennial Outlet Perennial Intel/No United Thermittent Intel/Intermittent Outlet Perennial Intel/No Perennial Intel/No Perennial Intel/No Wett Peren.Flooded, Intermittent Intel/Intermittent Outlet Perennial Intel/No Perennial Intel/No Perennial Intel/No Wett Peren.Flooded, Intermittent Intel/Intermittent Intel/No Perennial Intel/No Perennial Intel/No Perennial Intel/No Wett Peren.Flooded, Intermittent Intel/Intermittent Intel/No Perennial Intel/No Perennial Intel/No Perennial Intel/No Wett Peren.Flooded, Intermittent Intel/No Perennial Intel/No Perennial Intel/No Perennial	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 Or More Large Patches; Parts of Site
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: Henric Histosol: Sapric Mineral: Cravely Mineral: Sandy Mineral: Slity Mineral: Clayey HYDROLOGIC VARIABLES Intermittent Coultet No Intel/Parennial Outlet Intermittent Intel/Intermittent Outlet Intermittent Intel/No Interview Perennial Intel/Perennial Outlet No Intel/Parennial Outlet Perennial Intel/No Perennial Intel/No Wet1 Perm, Flooded, Intermittent View Perennial Intel/Perennial Outlet Perennial Intel/No Perennial Intel/No Wet1 Perm, Flooded, Intermittently Exposed, Samipern. Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed of Wetland Substrate Fluxaquent Soils Sediment Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) Wetl 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 So yrs Created Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits	
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol:Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey HYDROLOGIC VARIABLES Intermittent Intel/Intermittent Outlet No Intel/Perennial Outlet Intermittent Intel/No Intel/Outlet Class (P): No Intel/Outlet No Intel/Intermittent Intel/Perennial Outlet Perennial Intel/Perennial Outlet Perennial Intel/Perennial Outlet Intermittent Outlet Perennial Intel/Perennial Outlet No Intel/Perennial Outlet Perennial Intel/No Wetand Water Regime (P): Dire:: Seasonally Flooded, Temporarily Flooded, Saftyrated	
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral: Clayey HYDROLOGIC VARIABLES No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Intermittent Inlet/No Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perenet/Pire/Pirenet/Peren/Perennial Inlet/Perennial Inlet/Perennial I	HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol:Sapric Mineral: Gravelly Mineral: Sandy Mineral: Sitty Mineral: Clayey HYDROLOGIC VARIABLES No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/No Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Perennial Outlet Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Wet1 and Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet1and Substrate Fluvaquent Soils Sediment Created Wet2 and Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Perennial Interval Soils Sediment Created Wet2 and Water Regime (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 Outflow Restricted Outflow Unrestricted Qutflow Water Pl (P): No surface water Circumneutral (5.5.7.4) Alkaline (>7.4) Acid (<5.5)	
Inlet/Outlet Class (P): No Inlet/Outlet	Soil Factors (P): Soil Lacking Histosol: Fibric Histosol: Hemic Histosol: Sapric
Inlet/Outlet Class (P): No Inlet/Outlet	HYDROL OCIC VARIARI ES
Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed of Wetland Substrate Fluvaquent Solls 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)	Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No
Evidence of Sedimentation (P): No Evidence ObservedSediment Observed on Wetland SubstrateFluvaquent Soils Sediment Created	
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 Unrestricted Outflow Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading	Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Return Interval >5 yrs	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate
Water pH (P): No surface waterCircumneutral (5.5-7.4)Alkaline (>7.4)Acid (<5.5)pH Reading	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
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%)	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Glacial Till/Not Permeable Basin Topographic Gradient (M): Low Gradient (<2%)	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
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 Below 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)	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Only Connected Below Only Connected Below Only Connected Below Only Connected Above Noterate Intensity (i.e., forestry) Low Intensity (i.e. open space) 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)	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Only Connected Below 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)	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream Unknown Only Connected Below 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)	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
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)	Wet: Perm. Flooded, Intermittentily Exposed, Semiperm. Flooded
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized Size: Small (<10 acres)	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Crew Chief QA/QC check: GPS Technician QA/QC check:	Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
	Wet: Perm. Flooded, Intermittentity Exposed, Semiperm. Flooded

This form to be completed before leaving the field site.

Feature ID: <u>W85T1009</u> Field Target: <u>15273</u> Date: <u>6.8.15</u>

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

- K 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)?

Х nderson 6/8/15 Anderson Signature / Date Wetland Scientist (print)

Field Crew Chief (print)

Signature / Date

0

6/8/15

Brownlee

SITE DESCRIPTION		AN CAR	NI DECKER THE			as side all the	
Survey Type: Centerline X Acc	ess Road (explain)	Other (expl	ain)	Fleid Targ	get: 15014	Map #: <u>244</u>	Map Date: 6/4/15
Date: 6/9/15	Project Name & No.:	Alaska LNG	60418403		Feature Id	W85T10	and the second se
Investigators: JB, JA						Team No.: W	
State: Alaska	Region: Alaska	IA.	Milepost: 7	55.15		1 A 1	11. St 1.
Latitude: 6/14,40		Longitude	:1510 6.	72	1. J	Datum: WGS	84
Logbook No.:	Logbook Page No.:	9	Picture No.:	P-001	-004		19 - N - N
SITE PARAMETERS	· · · · · · · · · · · · · · · · · · ·	17835.63		A State State	State State	C. Harris & Martin	相談にないた
Subregion: Southcentral			Landform (hill	slope, terrac	e, hummock	s, etc.): 5Ma//	hill
Slope (%): (3-5)	1.		Local relief (c	oncave, con	vex, none): 🧹	onver	
Pre-mapped Alaska LNG/NWI classific	ation: U					at & brow,	ſ∉
Are climatic/hydrologic conditions on the Yes No (if no exp	ne site typical for this time plain in Notes)	of year?	Are "No Yes_>		stances" pre	sent: blain in Notes.)	Street and
Are Vegetation, Soil, or Hy	/drology Significant	ly Disturbed?	No <u>×</u>	_(If yes, exp	lain in Notes)	- 1.11.14	and the St
Are Vegetation, Soil, or Hy	/drology Naturally F	Problematic?	No_X	_ (If yes, exp	lain in Notes	.)	
SUMMARY OF FINDINGS		and the set			a can shared	Car Musel	使感到自己的问题
Hydrophytic Vegetation Present? Yes_	No <u>X</u>	Is 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	iska Vegetation	Classificatio	on (Viereck):	162.	101.
corridor. See map for sketch. Use topo 9 Cidar to Site is on a small to positions is wet.	Site was charged map dry #5 c fill and is mapp	ien to fin wet line ed corre	d pland	n othe anyth	ng in l	ont area	landscape
			1		17	e i	Q.

Page 1 of 4

VEGETATION (use scientific names of plants	5)	an and a se	不能超越的	
Tree Stratum (Plot sizes:O	Absolute	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 2
1. Prea mariana	15	Y	FACIN	% Dominant Species that are OBL, FACW, or FAC: $\underline{40}$ (A
Behrla neoa biskana	30	ý.	For.	
3. Picea Clauca	- 5	Ň	FACU	
			N	Prevalence Index worksheet:
Total Cover	50		1.0	Total % Cover of: Multiply by:
50% of total cover	: 25 20)% of total cov	/er: <u>10</u>	OBL species: X 1 =
Sapling/Shrub Stratum (26 Diam	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 15 $X2 = 30$ FAC species: 35 $X3 = 106$ FACU species: 133 $X4 = 532$
Pickaralauca			Fact	UPL species #83 X 5 =
Rosa acicularis	5	N	Facu	Column Totals: 183 (A) 667 (B)
Viburnum edite	40	Y	Fae. y	PI = B/A =
1. Menzesia Cerriginea	30	Y	Faren	
5. Linnaea Borealis	8.	N	Facu	and the second
· vaccinium Ovalifolium	T	N	FAC	A STATE AND A STATE
· Alans Fruticosa	T	N	FAC	
3. Stolous sitchensis	T	N	facy	
9. Horridus oplopanax	T	N	FACU	2
VEGETATION (use scientific names of plant	115 20	0% of total cov	ver:_16.6	
Herb Stratum (<u>26' Dia</u> n	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Heridus antonnas	1	$= \eta \int$	FACU	Prevalence Index is ≤3.0 <u>Morphological Adaptations</u> ¹ (Provide supporting data in
2. Cornus conadensis	.2	N	FACU	Notes)
3. Bubus Arcticus	5%	N	Fac	N/ Problematic Hydrophytic Vegetation ¹ (Explain)
4. Cahamerion Angustitolium	3	N	FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Trientalis europaea	30.	V	FACU	disturbed or problematic.
6. Geocaston lividium	2	N	FACU	
7. Gymnocarpium dryopteris	.8	N	FACU	% Bare Ground
8. Equis Arvens	T	N		% Cover of Wetland Bryophytes
9. Sylvaticum	T	N		Total Cover of Bryophytes
10.	100 - 100	192 34	12 - Y 11	% Cover of Water
Total Cove	AD	L		Hydrophytic Vegetation Present (Y/N):
50% of total cove		0% of total co	ver: 101	Notes: (If observed, list morphological adaptations below):

PAEShs

SOIL	Y Carrier Contraction	6280	Date 09-15 Fea	ture I	D W85	11010	The second state	Soil Pit Required (Y/N)	
SOIL PROFI	LE DESCRIPTION:	Describe	to the depth needed	to doc	ument the i	ndicator or co	onfirm the absence		
Depth	Matrix	2	Redox Features	240			1		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
0-3	organics	-	「このなながない」	1	- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	A Star	- where is		
3-6	101R 3/2	100		12.1	Section 2	- V Parger	VESAL		
68	10YR 5/2	100	and the second	1.45		1 1 1 1 Ste See	11 1.8	and the second se	
8-22	7.54R 2.5/3	20				1.0.75	NI - 11	Addition bright red B.s color	
	7.54R4/0	60	ill webber, sy	- Too	R LTIM ER	a the second	1. 1.	exist an 20% but are Not	
1.1.5	a starter	1		17 - T			1		
	a that a set of the	6		16.1			1.3	- Minthe -	
'Type: C=Co	ncentration, D=Depl	etion, RM	-Reduced Matrix, CS	=Cov	ered or Coa	ted Sand Gra	ains. ² Location:	PL=Pore Lining, M=Matrix.	
HYDRIC SOIL	INDICATORS	Section 2	Sentes to Viets		AS STREET	Carl and	INDICATORS F	OR PROBLEMATIC HYDRIC SOILS ³	
Histosol or Hi	stel (A1)	1	Alaska Gleyed (A13)_	N		Alaska Color Change (TA4) ⁴ N		
Histic Epipede	on (A2)	200	Alaska Redox (#	14)_	N	Ale and	Alaska Alpine Swales (TA5)		
Black Histic (A	A3) N	Star Charles	Alaska Gleyed F	ores	(A15) N	<u></u>	Alaska Redox w	vith 2.5Y Hue	
Hydrogen Sul	fide (A4)			N)			Alaska Gleyed v Layer	without 5Y Hue or Redder Underlying	
Thick Dark Su	Inface (A12) _ M				6485		Other (Explain i	n Notes)	
disturbed or p	of hydrophytic vege roblematic. of color change in No	No. 1 No.	ne primary indicator of	wetla	nd hydrolog	y, and an ap	propriate landscap	pe position must be present unless	
Restrictive La	ver (if present): Type	э:	De	pth (ir	nches):				
lydric Soil P	rèsent (Y/N):	N		-		And the second	the state of	A STATE OF LEW DIRES	
Notes: Soil P	it : All horizon bo	udarie:	s are wavy . N)	Service and the	1912-1-1			

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)				
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)			
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)			
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheresialong Living Roots (C3)	Shallow Aquitard (D3)			
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced	Microtopographic Relief (D4)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)			
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	1 Stanford Stations			
Algal Mat or Crust (B4)	Other (Explain in Notes):	the not prover the sector	1 - Barris and a second			
Iron Deposits (B5)	1	Minister V.	1511 18 6 - 1 -			
			The second second second second			
Surface Water Present (Y/N):	Depth (in):					
Water Table Present (Y/N):		Wetland Hydrology Present (Y/N):				
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC:				
Notes:	1 1 1 1 1 1 1 1 1 1					

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 Forested-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): 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%) Image: Comparison of the second se
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) Abundant (>50% of surface) Moderately Abundant (25-50% 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 Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Per
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Perennial Inlet/Perennial Outlet
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Perennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial Outlet Perennial Inlet/Perennial OutletPerennial Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Perennial Perennial Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Perennial
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Perennial Inlet/Perennial Outlet
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Perennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial Outlet Perennial Inlet/Perennial OutletPerennial Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Perennial Perennial Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created Created Created Created
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No Outlet_
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Perennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial Outlet Perennial Inlet/Perennial OutletPerennial Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial 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 ObservedSediment Observed on Wetland SubstrateFluvaquent 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 Degree of Outlet Restriction (P): No Outflow Restricted Outflow Unrestricted Outflow
Outlet
OutletIntermittent Inlet/Intermittent OutletPerennial OutletPerennial Inlet/No OutletPerennial Inlet/Interval Perennial Inlet/Interval Perennial Inlet/No OutletPerennial Inlet/No Outle
Outlet
Outlet
OutletIntermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Outlet
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Intel/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial WetLand Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated

Size: Small (<10 acres)

GPS Technician QA/QC check:

Medium (10-100 acres)_

Large (>100 acres)

Crew Chief QA/QC check:

Jessie Brounlee

This form to be completed before leaving the field site.

Feature ID: WESTIOIO

Field Target: <u>15014</u>

Date:

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?

map

- D 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?
- D 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)?

Х Anderson 4 Signature / Date Wetland ScientIst (print)

Х

Field Crew Chief (print)

Signature / Date

Jessie Browne

Vegetation Classification Data Form

Site Description	Sector Pressant Sec	State Balling			
Date:	Project Name		Field Target:		
6.9.15	Alaska LNG	26221306	15013		
Investigators:	-	Feature ID:			
JB,	215		WISTIOII		
Latitude:	° 14.37219 Longitude −151° (Datum: WGS84		
		- <u> </u> 5 ° (c.; Logbook Pag /D	Je #: Picture #: W85TI011 1-3		
Location Descrip	tion:				
pland 1 c 2,	11B2 vegos	top of a hills	Tope above totalands. Dry theat soi		
anothe American	Ŭ		*		
common Species	s Observed (Scier	ntific Name)			
Betula NeoAlao	kang	- (aymnocarpium dryopteris		
Alnus Fruitcosa			Coymnocarpium dryopteris Dryopteris expansa		
Picea Glava		. 8			
Harridus a	oplopmax Dominant Structure				
Percent Cover of E	ominant Structure	Level: 40			
abitat Descriptio					
ature Mixed Gress	+ with tall show	6 cover and t	thick understory Moss mat thick.		
		evel I, Level II, Le			
adda vegetation	Classification: L	Level I, Level II, Le			
1C2, 11B2					
lotes:		all and short			
ite is a dry ist	and surrounder	by wotland	Any clevation below this is wet.		
		of meridine	ing clevation second Mis 10 wet.		
eld Crew Chief: 🚽	win Ber in	aa	n. on		
	case inoune	Field	Scientist/Technician		

Vegetation Classification Data Form

Level I	Level II	Level III	
L Forest	A. Needleleaf (conifer) forest	 Closed needleleaf (conifer) forest Open needleleaf (conifer) forest Needleleaf (conifer) woodland 	
	B. Broadleaf forest	 Closed broadleaf forest Open broadleaf forest Broadleaf woodland 	
	C. Mixed forest	(1) Closed mixed forest (2) Open mixed forest (3) Mixed woodland	
II, Scrub	A. Dwarf tree scrub	 (1) Closed dwarf tree scrub (2) Open dwarf tree scrub (3) Dwarf tree scrub woodland 	
	B, Tall scrub	(1) Closed tall scrub (2) Open tall scrub	
	C, Low scrub	(1) Closed low scrub (2) Open low scrub	
	D, Dwarf scrub	 Dryas dwarf scrub Ericaceous dwarf scrub Willow dwarf scrub 	
III, Herbaceous	A. Graminoid herbeceous	 Dry graminoid herbaceous Mesic graminoid herbaceous Wet graminoid herbaceous (emergent) 	
	B, Forb herbaceous	 Dry forb herbaceous Mesic forb herbaceous Wet forb herbaceous (emergent) 	
	C. Bryoid herbaceous	(1) Mosses (2) Lichens	
×	D. Aquatic (nonemergent) herbaceous	 Freshwater aquatic herbaceous Brackish water aquatic herbaceous Marine aquatic herbaceous 	

II. Scrut

II. Sc	annp	
8a	Vegetation with at least 10 percent cover of dwarf trees	II.A Dwarf tree scrub 9
8b	Vegetation with at least 25 percent cover of shrubs and less than 10 percent cover of dwarf frees	
98	Dwarf tree canopy of 60-100 percent cover	.II.A.1 Closed dwarf tree scrub
9b.	Dwarf tree canopy of 25-59 percent cover	II.A.2 Open dwarf tree scrub
9c.	Dwarf tree canopy of 10-24 percent cover	
10a.	Shrubs more than 1.5 meters (5 ft) tall	
10b	Shrubs less than 1.5 meters (5ft)tall	
	Shrub canopy cover greater than 75 percent	
11 b	Shrub canopy cover of 25-74 percent	II B.2 Open tall scrut
12a	Shrubs 20 centimeters to 1.5 meters tall	II.C Low scrub 13
125	Shrubs under 20 centimeters in height	I.D Dwarf scrub 14
13a	Shrub canopy cover greater than 75 percent	Closed low scrub
13b	Shrub canopy cover of 25-74 percent, or as low as 2 percent if little or no other vigetation cover present	I.C.2 Open low scrub
14a	Dryas species dominant in the dwarf shrub layer	II.D.1 Dryas dwarf scrul
14b	Ericaceous species dominant in the dwarf shrub layer	II D.2 Encaceous dwarf scrub
14c.	Willow species dominant in the dwarf scrub layer	
81, 1	Herbaceous	
15a	Terrestrial vegetation, or if growing in the water, dominated by emergent vegetation	
15b	Dominant vegetation growing submerged in water or floating on the water surface. but not emerging above the water	

Desc	criptions of levels I, II, III, and IV follow the classification table.
la:	Trees over 3 meters (10 ft) tail are present and have a canopy cover of 10 percent or more
1 b,	Trees over 3 meters (10 ft) tall are absent or nearly so, Less than 10 percent cover. (Dwarf trees, less than 3 meters (10 ft) tall may be present and abundant7
i, Fo	vest
28	contributed by needleleaf (conifer) species
2b	Less than 75 percent of tree cover contributed by needleleaf (confler) species
36./	Tree canopy of 60-100 percent cover
3b.	Tree canopy of 25-59 percent cover LA.2 Open needleleaf forest
3c,	Tree canopy of 10-24 percent cover LA.3 Needlelesf woodland
4a;	Over 75 percent of tree cover contributed by broadleef species
4b.;	contribute 25 to 75 percent of the tree cover
5a,	Tree canopy of 60-100 percent cover
5b.	Tree canopy of 25-59 percent cover
5c.	Tree canopy of 10-24 percent cover
6a,	Tree canopy of 60-100 percent cover. http://www.accel.C.1 Closed mixed fores
6b.	Tree canopy of 25-59 percent cover
Bc.	Tree canopy of 10-24 percent cover
78,	Vegetation with at least 25 percent cover of erect to decumbent shrubs or with at least 10 percent cover of dwarf trees (less than 3 meters [10 t] tail)8
7b.	Vegetation herbaceous (may have up to 25 percent shrub cover)

16a, Grasses, sedges, or rushes (graminoid) plants dominant	17
16b, Forbs or bryophytes dominant	. 18
17a. Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes Typically (but not always) dominated by Eymus spp. Festuce spp. and Deschampsie spp.	eous
17b On moist sites, but usually not with standing water. Usually dominated by <i>Calamagrostis</i> spp., <i>Carex</i> spp. or <i>Eriophorum</i> spp., tussocks often present	eous
17c. On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet fundre. bogs, marshes, and fens	90US
18a, Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetails)	19
18b. Vegetation dominated by mosses or lichens.	20
19a. On dry sites, usually rocky and well drained, mostly tundra sites	ous
19b. On moist sites but without standing water, mostly within forested areas	BOUS
19c. On wet sites, usually with standing water for part of the year	BOUS
20a Vegetation cover dominated by mosses	055
20b. Vegetation cover dominated by lichens	ichen
21a Vegetation submerged or floating in fresh water. III.D.1 Freshwater aquatic herbac	eous
21 b. Vegetation submerged or floating in brackish water	eous
21c. Vegetation submerged or floating in salt water	eous

This form to be completed before leaving the field site.

Feature ID: <u>*W85710((*</u>) Field Target: <u>15013</u>

Date: 6-9

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

map

- □ 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)?

nderson Wetland Scientist (print)

Signature / Date

rowle

Field Crew Chief (print)

Signature / Date

Vegetation Classification Data Form

Site Description	Alex Alexan		R. Charles		
Date: 609.15	Project Nar Alaska I NO			Field Target:	
Investigators:	Investigators: JB, JA			7501Z	
Latitude:	JA	Longitudou	1	WBSTIDIZ	
Latitude: 61 14	. 22	Longitude:	.87	Datum: WGS84	
Logbook #:		Logbook Page #:		Picture #:	
Location Description	on: 0-3 5/01	oc, lowland.M	Xed fores	W8577012 Ø-3	
south of PEMH PSSYE	B Signatine		12.11		
i sye	113			· · · · · · · · · · · · · · · · · · ·	
Common Species (Observed (Scie	entific Name)	14 . 6 . 9 .		
		a particular a surface has			
Betula Neonias	lang		Menzi	es la ferrogines	
Picea Glauca			gymnocarpium dryopteris		
Edual Viburn	IM		rosa acicularis		
Caymnocarpium	Suppleri	3			
Percent Cover of Do	minant Structur	e Level:		N.	
Habitat Description Tall mature M. In elevention the	xed Foresa	+ w/ healty s Psignizignature	hrub und	enstory. Site is slightly highe	
Alaska Vegetation C	lassification:	Level I, Level II,	Level III		
162,11	CZ				
Notes:		Margareth,	20,003	and the second second second	
$\sum y \ 50 \ \ w \ \in 9.1$	3hs horison:	s. Nosigns a	g hydra.	logy.	
Field Crew Chief:	nke		ld Scientis	t/Technician fes and fund	

Vegetation Classification Data Form

Level I	Level II	Level III
I. Forest	A. Needleleaf (conifer) forest	 Closed needleleaf (conifer) forest Open needleleaf (conifer) forest Needleleaf (conifer) woodland
	B. Broadleaf forest	 Closed broadleaf forest Open broadleaf forest Broadleaf woodland
	C, Mixed forest	 Closed mixed forest Open mixed forest Mixed woodland
If Scrub	A. Dwarf tree scrub	 Closed dwarf tree scrub Open dwarf tree scrub Dwarf tree scrub woodland
	B. Tall scrub	(1) Closed tall scrub (2) Open tall scrub
	C. Low scrub	(1) Closed low scrub (2) Open low scrub
	D, Dwarf scrub	 Dryas dwarf scrub Ericaceous dwarf scrub Willow dwarf scrub
III, Herbeceous	A, Graminoid herbaceous	 Dry graminoid herbaceous Mesic graminoid herbaceous Wet graminoid herbaceous (emergent)
	B. Forb herbaceous	 Dry forb herbaceous Mesic forb herbaceous Wet forb herbaceous (emergent)
	C. Bryoid herbaceous	(1) Mosses (2) Lichens
, ×	D. Aquatic (nonemergent) herbaceous	 Freshwater aquatic herbaceous Brackish water aquatic herbaceous Marine aquatic herbaceous

II. Scrub

11. 00	
8a	Vegetation with at least 10 percent cover of dwarf tree scrub 9
8b ₋₅	Vegetation with at least 25 percent cover of shrubs and less than 10 percent cover of dwarf trees
9a	Dwarf tree canopy of 60-100 percent cover
9b.	Dwarf tree canopy of 25-59 percent cover ILA.2 Open dwarf tree scrub
9c.	Dwarf tree canopy of 10-24 percent cover IIA.3 Dwarf tree scrub woodland
10a	Shrubs more than 1,5 meters (5 ft) tall
10b	Shrubs less than 1,5 meters (5ft)tall
	Shrub canopy cover greater than 75 percent
11 b	Shrub canopy cover of 25-74 percent II.B.2 Open tall scrub
12a.	Shrubs 20 centimeters to 1.5 meters tall 1000 and 11 C Low scrub 13
12b	Shrubs under 20 centimeters in height
13a	Shrub canopy cover greater than II.C.I Closed low scrub
13b	Shrub canopy cover of 25-74 percent, or as low as 2 percent if little or no other vegetation cover present
14a	Dryas species dominant in the dwarf shrub layer II.D.1 Dryas dwarf scrub
14b	Ericaceous species dominant in the dwarf shrub layer
14c.	Willow species dominant in the dwarf scrub layer
III. E	Herbaceous
	Terrestrial vegetation, or if growing in the water, dominated by emergent vegetation
155	Dominant vegetation growing submerged in water or floating on the water surface. but not emerging above the water

CARDA	a there are not an
la.	Trees over 3 meters (10 R) tall are present and have a canopy cover of 10 percent or more
1 b.	Trees over 3 meters (10 ft) tall are absent or nearly so, Less than 10 percent cover, (Dwarf trees, less than 3 meters [10 ft) tall may be present and abundant
il; Fo	rest
28,	Over 75 percent of tree cover contributed by needleleaf (conifer) species
2b	Less than 75 percent of tree cover contributed by nectales! (conterl species4
38	Tree canopy of 60-100 percent cover
3b.	Tree canopy of 25-59 percent cover
3c.	Tree canopy of 10-24 percent LA3 Needleleef woodland
40	Over 75 percent of tree cover contributed by broadleaf species
4b	Broadleef or needleleaf species contribute 25 to 75 percent of the tree cover
5a.	Tree canopy of 60-100 percent cover
50.	Tree canopy of 25-59 percent cover
5c.	Tree canopy of 10-24 percent cover
68.0	Tree canopy of 60-100 percent cover,
8b.	Tree canopy of 25-59 percent cover
6c.	Tree canopy of 10-24 percent cover
74,	Vegetation with at least 25 percent cover of erect to decumbent shrubs or with at least 10 percent cover of dwarf trees (less than 3 meters [10 t] tail) 8
7b.	Vegetation herbaceous (may have up to 25 percent shrub cover)

Descriptions of levels I,

II. III. and IV.

follow the cla

16a. Grasses, sedges, or rushes (graminoid) plants dominant
16b. Forbs or bryophytes dominant 18.
17a. Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes. Typically (but not always) dominated by <i>Elymus</i> spp. Festuca spp. and <i>Deschampsia</i> spp. III.A.I Dry graminoid herbaceous
17b. On moist sites, but usually not with standing water. Usually dominated by <i>Calemegrostis</i> spp. <i>Carew</i> spp. or <i>Eriophorum</i> spp. tussocks often present
17c On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet fundra, bogs, marshes, and fens
18a. Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetails)
18b. Vegetation dominated by mosses or lichens
19a. On dry sites, usually rocky and well drained: mostly tundra sites
19b. On moist sites but without standing water, mostly within forested areas
19c, On wet sites, usually with standing water for part of the year
20a. Vegetation cover dominated by mosses
20b. Vegetation cover dominated by Ilchens
21a. Vegetation submerged or floating in fresh water. III.D.1 Freshwater aquatic herbaceous
21 b. Vegetation submerged or floating in brackish water
21c Vegetation submerged or floating in salt water

This form to be completed before leaving the field site.

Feature ID: WES TIOI2 Field Tar

Field Target: 5012

Date: 6.9.15

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

- □ 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)?

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

nderson Wetland Scientist (print)

6/9/15 An Signature / Date

monlee

Brownlow

Field Crew Chief (print)

Signature Date

Vegetation Classification Data Form

Investigators: Alaska LNG 26221306 Field Target: Investigators: Feature ID: WS STIOL3 Latitude: U14.29 Longitude: Datum: WGS84 Logbook #: Logbook Page #: Picture #: WSSTIOL3 I-3 Location Description: U2 U2 U2 U2 Coation Description: U2 WSSTIOL3 I-3 U2 Coation Description: U2 WSSTIOL3 I-3 U2 Common Species Observed (Scientific Name) WSSTIOL3 I-3 U2 U2 Menzesia ferrogineg Betula neoalastaria Picture #: U2 U2 Percent Cover of Dominant Structure Level: Superior U2 U2 U2 Percent Cover of Dominant Structure Level: Superior U2 U2 U2 U2 U2 Intel sprice f PSSI/EMCB for the South Markee Dry I ccc to the worth upsi U2 U2 U2 U2 U2 Integration: East Sprice f PSSI/EMCB for the South Markee Dry I ccc to the worth upsi U2 U2 U2 U2 U2 Integration: East Sprice f PSSI/EMCB for the South Markee Dry I cccc to the worth upsi U2	Date;	Project Name	e & #:	Field Target:
The state of the south of the south of the post of the south of the south of the post of the south of the south of the post of the	6.9.15	Alaska LNG	26221306	and the state of t
Latitude: P Latitude: P Latitude: -150° 6.8 Logbook #: Logbook Page #: Picture #: W85T1013 1-3 Location Description: Location Description: Location Description: Location Description: Location Interease to the North of the PS\$VEMIB signature steep ~ 20 to 3 Dommon Species Observed (Scientific Name) Menzesia ferroging Betula recoal askang Ricea Mariang ercent Cover of Dominant Structure Level: 50% abitat Description: Stuck sproce & PS\$V/EMIB by the South Mathie Dry 102 to the worth upst laska Vegetation Classification: Level I, Level II, Level III C2, 1103 otes: applicable Upland site Elevention Drived Wetland State a Line of the content of the second State State Description:	Investigators:	1011		Feature ID:
Longitude: -150° 6.8 Logbook #: Location Description: Clevation Description: Clevation increase to the North of the PSWEMIB signature sleep ~ 20 to 3 Common Species Observed (Scientific Name) Menzesia ferroginea Betula recalaskana Picea mariana ercent Cover of Dominant Structure Level: 50% abitat Description: Clevation Classification: Level I, Level II, Level III C2, 11C3.				1 M. Construction and Annual States
Logbook #: Location Description: Elevation increase to the North of the PS\$VEMIB signature steep ~ 20 to 3 Elevation increase to the North of the PS\$VEMIB signature steep ~ 20 to 3 Elevation Species Observed (Scientific Name) Menzesia ferruginea Betula neoalaskana Picea Mariana ercent Cover of Dominant Structure Level: 50% abitat Description: Black spruce & PS\$VEMUB to the South, Mature Dry 102 to the worth upst laska Vegetation Classification: Level I, Level II, Level III C2, 1103 otes: acep slope. Upland ste. Elevation Drived Wetland state a line and the state and the state a line and the state and state a line and the state a line and	6/14.2	9		
Picea Marchang Picea Marchang	LOGDOOK #:			
Common Species Observed (Scientific Name) Menzesia ferrugineg Betila Neoalaskana Picea Mariana ercent Cover of Dominant Structure Level: 50% abitat Description: Shack sprace & PSSI/EMCB & & the South, Madrie Dry IC2 to the North upsile laska Vegetation Classification: Level I, Level II, Level III C2, IIC3. Desc: eepsilpe Upland site. Elevention Drived Wetland States IM. and I.	Location Description	on:	W. State of the second second	10851013 -3
Menzesia ferrugineg Betala Neoalaskania Picea Mariana ercent Cover of Dominant Structure Level: 50% abitat Description: Suck sproce & 1551/EMCB & the South, Marine Dry 102 to the North upsil aska Vegetation Classification: Level I, Level II, Level III C2, 1103. Description: experience of the State of the South of the S	lope. Site taken a	m wet Dry Dog Doserved (Scien	tific Name)	115 Signatur, steep ~ 20 to 30
Betala Neoalaskang Picea Mariang ercent Cover of Dominant Structure Level: 50/ abitat Description: Pluck spruce & PSSI/EMIB & the South, Mature Dry IC2 to the worth upsi aska Vegetation Classification: Level I, Level II, Level III C2, IIC3 stes: pegslope Upband site Elevention Drives wetland states in an interview			une wante)	
Betala Neoalaskang Picea Mariang ercent Cover of Dominant Structure Level: 50/ abitat Description: Plack spruce & PSSI/EMIB & the South, Mature Dry IC2 to the worth upsi aska Vegetation Classification: Level I, Level II, Level III C2, IIC3 Mess: Repslope. Upband ste. Elevention Orives wetland states in the model in the interview of the states in the states in the interview of the states in the interview of the states in the interview of the states in the states in the interview of the states in the interview of the states in the sta	Menzesia fe	rusines		
ercent Cover of Dominant Structure Level: 50% abitat Description: Shuck spruce & PSSI/EMCB to the South, Madue Dry ICZ to the North upsile aska Vegetation Classification: Level I, Level II, Level III CZ, IIC3 otes: aeg slope. Upbind site. Elevention Drives wetland states in the second states in the interview of the states in the interview of the states in the states in the second states in the states in the second stat	0.11			
ercent Cover of Dominant Structure Level: 50% abitat Description: Stack spread & PSSI/EMCB to the South, Madue Dry 102 to the North upsile aska Vegetation Classification: Level I, Level II, Level III C2, 1103 otes: perpsident site. Elevention Drives wetland states in a interview interview.	Betala Neoal	askang		
ercent Cover of Dominant Structure Level: 50% abitat Description: Stack spread & PSSI/EMCB to the South, Madue Dry 102 to the North upsile aska Vegetation Classification: Level I, Level II, Level III C2, 1103 otes: perpsident site. Elevention Drives wetland states in a interview interview.	P			
ercent Cover of Dominant Structure Level: 50% abitat Description: Stack spruce & PSSI/EMB to the South, Mature Dry IC2 to the North upsi aska Vegetation Classification: Level I, Level II, Level III C2, IIC3 otes: eep slope. Upband site. Elevention Drives wetland states in a interview	Picea Marian	19		2
abitat Description: Black spruce & PSSI/EMCB to the South, Mature Dry ICZ to the worth upsi laska Vegetation Classification: Level I, Level II, Level III CZ, IIC3 otes: eep slope. Upland site, Elevention Drives wetland states in a continue of the model of the second states in				
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Black spruce & PSSI/EMCB to the South, Mature Dry ICZ to the worth upsil laska Vegetation Classification: Level I, Level II, Level III CZ, IIC3. Dies: eepslope. Uphind site. Elevention Drives wetland states in an intervention	50/r			
aska Vegetation Classification: Level I, Level II, Level III CZ, IIC3 otes: acp slope. Upland site. Elaurition Drives wetland state a un or intervention				
Laska Vegetation Classification: Level I, Level II, Level III CZ, IIC3 otes: eep slope. Upland site, Elevention Drives wetland state a un or intervention	Jack Spruce 9	Pacific na (D	hull a bull	
aska Vegetation Classification: Level I, Level II, Level III CZ, IIC3 otes: acp slope. Upland site. Elaurition Drives wetland state a un or intervention		BURGHER	to the south, Madure	Dry IC2 to the North upston
CZ, 11C3 Dites: eepslope. Upland site. Elevention Drives wetland states (1) or internet				
eepslope. Upland site. Elevention Drives wetland states was and in the	a solution o	assincation: L	ever I, Level II, Level III	
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eepslope. Upland site. Elevention Drives wetland states (1) or in the initial	(7,11/2			
pping connections (see map)	LL III D			
pping connections (see may)				
pping connections (see map)	otes:	And the States		
	otes:	Site Flourste	n Otting a south 1 at	
0	otes: eepslope. Uphno	site Eleventic	m prives wetland st	atus. use montons & Lidar for

Field Scientist/Technician

Vegetation Classification Data Form

Level I	Level II	Level III
L Forest	A_Needleleaf (conifer) forest	 Closed needleleaf (conifer) forest Open needleleaf (conifer) forest Needleleaf (conifer) woodland
	B. Broadleaf forest	 Closed broadleaf forest Open broadleaf forest Broadleaf woodland
	C. Mixed forest	 Closed mixed forest Open mixed forest Mixed woodland
II. Scrub	A. Dwarf tree scrub	 Closed dwarf tree scrub Open dwarf tree scrub Dwarf tree scrub woodland
	B. Tail scrub	(1) Closed tall scrub (2) Open tall scrub
	C. Low scrub	(1) Closed low scrub (2) Open low scrub
	D. Dwarf scrub	 Dryas dwarf scrub Ericaceous dwarf scrub Willow dwarf scrub
III, Herbsceous	A. Graminoid herbacsous	 Dry graminoid herbaceous Mesic graminoid herbaceous Wet graminoid herbaceous (emergent)
	B. Forb herbaceous	 Dry forb herbaceous Mesic forb herbaceous Wet forb herbaceous (emergent)
	C. Bryold herbaceous	(1) Mosses (2) Lichens
	D. Aquatic (nonemergent) herbaceous	 Freshwater aquatic herbaceous Brackish water aquatic herbaceous Marine aquatic herbaceous

II. Se	crub
8a.	Vegetation with at least 10 percent
8b.	Vegetation with at least 25 percent cover of shrubs and leas than 10 percent cover of dwarf trees
9a.	Dwarf tree canopy of 60-100 percent
9b.	Dwarf tree canopy of 25-59 percent
	Dwarf tree canopy of 10-24 percent iI.A.3 Dwarf tree scrub woodland
	. Shrubs more than 1.5 meters (5 ft) tall
1	Shrubs less than 1.5 meters [5ft]tall
	a Shrub canopy cover greater than 75 percent
11	b. Shrub canopy cover of 25-74 percent
126	Shrubs 20 centimeters to 1.5 meters tall
128	Shrubs under 20 centimeters in height 2000 and 2000 . II.D Dwarf scrub 14
	a. Shrub canopy cover greater than 75 percent II.C.I Closed low scrub
1	b. Shrub canopy cover of 25-74 percent, or as low as 2 percent if little or no other vegetation cover present
B	a. Dryas species dominant in the dwarf shrub layar
	b) Ericaceous species dominant in the dwarf shrub layer
14	c. Willow species dominant in the dwarf scrub layer
111.	Herbaceous
	a. Terrestrial vogetation, or if growing in the water, dominated by emergent vegetation
15	b. Dominant vegetation growing submerged in water or floating on the water surface, but not emerging above the water

Desc	riptions of levels I, II, III, and IV follow th	se classification table.
in	Trees over 3 meters (10 ft) tail are present and have a canopy cover of 10 percent or more	L Forest 2
1 b.	Trees over 3 meters (10 ft) tail are absent or nearly so, Less than 10 percent cover. (Dwarf trees, less than 3 meters [10 ft] tail may be present and abundant.	
I. Fo	rest	
2a,	Over 75 percent of tree cover contributed by needleleaf (conlifer) species	1.A Needleleaf forest 3
2b.	Less than 75 percent of tree cover contributed by needleleaf (conifer) species	
30.	Tree canopy of 60-100 percent cover	I.A.1 Closed needleleaf forest
3b.		I.A.2 Open needleleaf forest
3c.		LA3 Needleleef woodland
4a.	the state of the s	I.B Broadleaf forest 5
4b.	Broadleaf or needleleaf species contribute 25 to 75 percent of the tree cover	
58.	Tree canopy of 60-100 percent cover	LB.1 Closed broadleef forest
5b.	Tree canopy of 25-59 percent cover	I.B.2 Open broadlear torest
5c.	Tree cappy of 10-24 percent cover	I.B.3 Broedleaf woodland
68	Tree canopy of 60-100 percent cover.	I.C.1 Closed mixed forest
6b.	Tree canopy of 25-59 percent cover.	I.C.2 Open mixed forest
6c.	Tree canopy of 10-24 percent cover	LC.3 Mixed woodland
7a	a local and the second	8
76	Vegetation herbaceous (may have up to 25 percent shrub cover)	

6a (Grasses, sedges, or rushes (graminoid) plants dominant.	
IRF. 1	Forbs or broophytes dominant	18
17a	Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes Typically (but not always) dominated	III.A.I Dry graminoid herbaceous
1 7b .	On moist sites, but usually not with standing water. Usually dominated by <i>Celamagrostis</i> spp.	III A.2 Mesic graminoid herbaceous
17c	On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens	III.A.3 Wet graminoid herbaceous
18a	Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetalls)	III.8 Forb herbaceous 19
18b	Vegetation dominated by mosses or lichens	III C Bryoid herbaceous 20
	On dry sites, usually rocky and well drained: mostly tundra sites	III.B.1 Dry forb herbaceous
	On moist sites but without standing water, mostly within forested areas	
19c	On wet sites, usually with standing water for part of the year	III B 3 Wet forb herbeceous
20a	Vegetation cover dominated by mosses	III.C.1 Bryoid moss
206	and the second sec	III.C.2 Bryoid licher
21a	Contraction of the second or floating	ss - III.D.1 Freshwater aquatic herbaceous
21	Menatotion submarriad or floating	III.D.2 Brackish water equatic herbaceous
210	Vegetation submerged or floating in salt water	

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID:
 W85T0/3
 Field Target:
 150/2
 Date:
 6+9+15

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

- K 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 Wetland Scientist (print)

Signature / Date

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Fleid Crew Chief (print)

Signature / Date

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W85T1014

SITE DESCRIPTION				時间に対応	135 A.	如此已有其他的事件实现的 的 事件。但是可以
Survey Type: Centerline X Acce	ss Road (explain)	Other (expla	ain)	Field Target:_	5059	Map #: <u>203</u> Map Date: <u>6.4.15</u>
Date: 6.0.15	Project Name & No.:	Alaska LNG	60418403	Fe	ature Id:	W8STIO14
Investigators: JB, KV			ia)	1		Team No.: 6/85
State: Alaska	Region: Alaska		Milepost:	710,45	-	
Latitude: 61 43,20203		Longitude	-150° a	13.27562	4	Datum: WGS84
Logbook No.:	Logbook Page No.:	13	Picture No.:	WESTIO	14 1-	- 4
SITE PARAMETERS		Statistics and service		ANK ANT BE	SERVICE .	
Subregion: South Central			Landform (hi	llslope, terrace, h	ummocks	s, etc.): lowland
Slope (%): 0-3	1		Local relief (concave, convex,	none): _F	flat to slightly concave
Pre-mapped Alaska LNG/NWI classific	ation: PSSI/EMIB		Evidence of	Wildlife Use: at	nimal	game trail
Are climatic/hydrologic conditions on th		of year?	Are "N Yes_	ormal Circumsta χ No	nces" pre (If no, exp	sent: blain in Notes.)
Are Vegetation, Soil, or Hy	drology Significant	ly Disturbed?	? No <u>X</u>	(If yes, explain	in Notes)
Are Vegetation, Soil, or Hy	/drology Naturally F	Problematic?	No_X	_ (If yes, explair	n in Notes	.)
SUMMARY OF FINDINGS	化内拉卡尔 法法规定公司	to kill the	Series (M	Service and		
Hydrophytic Vegetation Present? Yes_	<u> </u>	Is	the Sampled	Area within a W	etland?	Yes No
Hydric Soil Present? Yes_	X No	W	Wetland Type: PSSI/EMIC			
Wetland Hydrology Present? Yes_	<u>Қ</u> No	— A	laska Vegetatio	/ on Classification (Viereck):	11.C.1, 111 AZ
Notes and Site Sketch: Please include corridor. Mapping Notes Wetler Than a Bing	difier. Suggest	Changi	ing to a	C. Hot	and l	Pater retly
				Δ.		

?

W85T1014

VEGETATION (use scientific names of plants)			
Tree Stratum (Plot sizes: 60')i supto	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 4
1. Picea Mariang	2		Facu	 Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC:O (A/B)
2.				% Dominant Species that are OBL, FACW, or FAC:(A/B)
3.				
4.	0			Prevalence Index worksheet:
Total Cover: 50% of total cover:)% of total cov	(Ar.	$\begin{array}{c c} \underline{\text{Total \% Cover of:}} & \underline{\text{Multiply by:}} \\ \hline \text{OBL species:} & \underline{2G} & X1 = \underline{2G} \\ \end{array}$
Sapling/Shrub Stratum (210 Dladeter	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $5 \times 2 = 10$ FAC species $78 \times 3 = 234$
1. Betula mana	50	Y	FAC	FACU speciesX 4 = UPL speciesX 5 =
2. myrica gale	25	Y	OBL	Column Totals:(A)(B)
3. Spireaa stevenil	5	Ň	FACU	PI = B/A = 2.54
4. Rhadadendrum tomentosum	T	N	FACW	
5. vaccintum oralifolium 6. Saliv 50	Ŧ	N	FAC	
- and a	T		F-4 1 .	
7. picea mariana 8.	3	/ V	FACW	-
9.				
Total Cover:	92			
50% of total cover:	46 20	% of total cov	er: 18,4	
VEGETATION (use scientific names of plants)	A CONTRACTOR OF THE		de la filia	The second s
Herb Stratum (_210' Diaseter	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species? (Y/N)	Status	Dominance Test is > 50%
1. Equisetum foluviatile	1 -	$\mathcal{N}_{\mathcal{A}}$	OBI	Prevalence Index is ≤3.0
2. Equisition 58.	5	N		Notes)
3. Equisctum Arvens	15	N	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Epilobium palustre	10	Y	OBL:	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Trientalis europaco	T	N	FACI	disturbed or problematic.
6. Calamagrostis Canadensis	20	Y	FAC.	
7. <u>E</u>	5			% Bare Ground
8. 9.				<u>(Q)</u> % Cover of Wetland Bryophytes
				Total Cover of Bryophytes % Cover of Water
10.				Hydrophytic Vegetation Present (Y/N):
Total Cover:_ 50% of total cover:_		Notes: (If observed, list morphological adaptations below):		



SOIL			Date 610-15 F					Soil Pit Required (Y/N)	
SOIL PROF	ILE DESCRIPTION: (D	escrib	e to the depth neede	d to doc	ument the	ndicator or	confirm the abser	nce of indicators.)	
Depth	Matrix		Redox Features						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
0-11	organics								
11-16	organics		-					frozen	
		-							
-									
¹ Type: C=C	oncentration, D=Deplet	ion, RI	// M=Reduced Matrix, (CS=Cov	ered or Co	ated Sand C	Grains. ² Location: PL=Pore Lining, M=Matrix.		
HYDRIC SC	IL INDICATORS	Parts in	北京市市市市市	7.52.783	Martin 120	111111111111	INDICATORS FOR PROBLEMATIC HYDRIC SOIL		
Histosol or I	Histel (A1)	Alaska Gleyed (A13)				Alaska Color Change (TA4) ⁴ N			
Histic Epipe	don (A2)	Alaska Redox (A14)				Alaska Alpine Swales (TA5)N			
Black Histic	(A3) N	Alaska Gleyed Pores (A15)				Alaska Redo	ex with 2.5Y Hue		
Hydrogen Sulfide (A4)							Alaska Gleyed without 5Y Hue or Redder Underlying Layer		
	Surface (A12) N	_						in in Notes) —	
³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present und disturbed or problematic. ⁴ Give details of color change in Notes. Restrictive Layer (if present): Type: <u>Starsonal</u> <u>frost</u> Depth (inches): <u></u>									
Notes: Dug	to 16", All orgu	ni c.	Frozen @ 11"	č.					

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)			
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)		
High Water Table (A2) $\underline{\gamma}$	Inundation Visible on Aerial Imagery	Drainage Patterns (B10)	Geomorphic Position (D2)		
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)		
Water Marks (B1)N	Marl Deposits (B15) N	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)		
Sediment Deposits (B2)	Hydrogen Sulfide, Odor (C1)	Salt Deposits (C5)	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)					
		在1995年4月,國際發展了2013年2月17日的			
Surface Water Present (Y/N):	Depth (in):		,		
Water Table Present (Y/N):	Depth (in): 4 'M	Wetland Hydrology Present (Y/N):			
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC: 96			
Notes: PH 5.81 ~10% of plot has fanding u	sate between hommocks.	*			

AQUATIC SITE ASSESSMENT DATA FORM

W85T1014

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 Forested-Deciduous-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) 2 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%) K
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover26-75% 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 1 Or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance (0-25% of surface) Abundant (>50% of surface) Moderately Abundant (25-50% 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: 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 Inlet/Perennial Outlet Intermittent Outlet Perennial Inlet/Perennial Outlet Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Outlet
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated X
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 Return Interval 2-5 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 5.7
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits X 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 Only Connected Below
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

Crew Chief QA/QC check: Jessin Brankle G. 10.13

Small (<10 acres)_

Size:

GPS Technician QA/QC check:

Large (>100 acres)

X

Medium (10-100 acres)_

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: (DSSTICIY) Field Target: 15059 Date: 6.70.75For 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?

Map

- **D** 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?
- X 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

- X 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)?

X hale per 6-10-15 ature / Date Wetland Scientist

unlee

issie Brond

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	En signification	and the fact			S. A. S. INFE	
Survey Type: Centerline X Acces	ss Road (explain)	Other (expla	in)	Field Targ	et: <u>1506</u>]	Map #: 203 Map Date: 6.4.15
Date: 6-10-15	Project Name & No.: /	Alaska LNG	60418403	- F	Feature Id:	W85TI015
Investigators: JB, XV						Team No.: WS5
State: Alaska	Region: Alaska		Milepost:	710.z	-5	
Latitude: 6043,260	820' N	Longitude	: 150° Z	22,89	4806'W	Datum: WGS84
Logbook No.: 1	Logbook Page No.:	5	Picture No.:	WESTIO	15-1-4	1 Seig
	to be a set of the set of the set	All Allies Broker (2)	The second second	1	ALL	
SITE PARAMETERS		8 M. 1991		XESS 19480	the state	

SITE PARAMETERS					
Subregion: Sarthcentral	Landform (hillslope, terrace, hummocks, etc.):				
Slope (%): () – 3	Local relief (concave, convex, none): $f(at)$				
Pre-mapped Alaska LNG/NWI classification: PS51/EM1B	Evidence of Wildlife Use: # Shrew observed				
Are climatic/hydrologic conditions on the site typical for this time of year? Yes_X,No(if no explain in Notes)	Are "Normal Circumstances" present: Yes_XNo (If no, explain in Notes.)				
Are Vegetation, Soil, or Hydrology Significantly Disturbe	d? No_X(If yes, explain in Notes)				
Are Vegetation, Soil, or Hydrology Naturally Problemation	c? No_X (If yes, explain in Notes.)				
SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area within a Wetland? Yes No				
Hydric Soil Present? Yes No	Wetland Type: PSS4/1B				
Wetland Hydrology Present? Yes No	Alaska Vegetation Classification (Viereck): 11 A 2, 11 C Z				

Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey See map for boundaries & codes. Site is strated black spruce open forest with thick corridor.

sphanum moss cover."

W85TI015

WETLAND DETERMINATION DATA FORM

	5)			
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:
1.			1	Total Number of Dominant Species Across All Strata:
2.				% Dominant Species that are OBL, FACW, or FAC: 100 (A)
3.				
4				Prevalence Index worksheet:
Total Cover				Total % Cover of: Multiply by:
50% of total cover	:20	% of total cov	/er:	OBL species: $3 \times 1 = 3$
Sapling/Shrub Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $\sqrt[6]{2}$ $X_2 = \frac{124}{15}$ FAC species $\frac{15}{15}$ $X_3 = \frac{45}{15}$ FACU species 0 $X_4 = 0$
1. Picea mariana	40	Y	FACW	UPL speciesX5 =
2: Betula nana	7	N	FAC	³ Column Totals: <u>80</u> (A) <u>72</u> (B)
3. Phododendrum tomentos	um 10	N	FACW	PI=B/A= 2.15
4 Empetrum nigrum	3	N	FAC	
5. Chamaedaphne calyulata	-7	N	FACW	2
6. Vaccinium uliginosum	5	N	FAC	9
7. Vaccinium litis-idaea	trace.	N	FAC	l.
8. Vaccinium Oxycorcus	1	N,	OBL	1
9. Andromeda polisolia	2	N	FACW	1
Total Cover:				
50% of total cover:	3 1.5 20	% of total cov	er: <u>15</u>	· · · · · · · · · · · · · · · · · · ·
VEGETATION (use scientific names of plants)			
Herb Stratum ()	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species?	Status	Dominance Test is > 50%
1. R. bir champagness	3	(Y/N)	FACINE	Prevalence Index is ≤ 3.0
1. RUDIS Chamaemorus 2. Poo 80	3	Ŷ	FAC W	Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
2. Poa 30	3		FAC W	Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
2. Poa 30 3. Sphagnum	-	Ŷ		Prevalence Index is ≤3.0 \underbrace{N} Morphological Adaptations ¹ (Provide supporting data in Notes) \underbrace{N} Problematic Hydrophytic Vegetation ¹ (Explain)
2. Poa 30 3. Sphagnum 4. Equisetum Fluviatil	-	Ŷ	OBL	Prevalence Index is ≤3.0 Notes) Notes) Noteson Notes
2. Poa 30 3. Sphagnum 4. Equisetum Fluviatile 5. And	-	Ŷ	OBL	Prevalence Index is ≤ 3.0 N Morphological Adaptations ¹ (Provide supporting data in Notes) Notes) Noteship Problematic Hydrophytic Vegetation ¹ (Explain)
2. Poa 30 3. Sphagnum 4. Equisetum fluviatik 5. 6. Drospira rotundisolia	-	Ŷ	OBL	Image: Notes Prevalence Index is ≤3.0 Image: Notes Morphological Adaptations ¹ (Provide supporting data in Notes) Image: Notes Image: Notes I
2. Poa 30 3. Sphagnum 4. Equisetum fluviatile 5. And 6. Drospira rotundisolia 7. Carex SP	-	Ŷ	OBL	Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) <u>N</u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
2. Poa SQ 3. Sphagnum 4. Equisetum fluviatik 5. And 6. Drospira rotundisolia 7. Carex SQ 8.	-	Ŷ	OBL	Prevalence Index is ≤3.0 Notes) Not
2. Poa Se 3. Sphagnum 4. Equisetum fluviatik 5. And 6. Drosera rotundisolia 7. Carex Se 8. 9.	-	Ŷ	OBL	Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) <u>N</u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. <u>O</u> % Bare Ground <u>TO</u> % Cover of Wetland Bryophytes
2. Poa Se 3. Sphagnum 4. Equisetum fluviatik 5. 6. Drosera rotundisolia 7. Carex se 8. 9.	-	Ŷ	OBL	Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
2. Poa Se 3. Sphagnum 4. Equisetum fluviatik 5. And 6. Drosena rotundisolia 7. Carex se 8.		Ŷ	OBL	Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
2. Poa Se 3. Sphagnum 4. Equisetum fluviatile 5. 6. Drosera rotundisolia 7. Carex se 8. 9. 10.	*	Ŷ	OBL COBL	Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

W85T1015

WETLAND DETERMINATION DATA FORM

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SOIL	和武器是在自行		Date Feature I			<u>1347 N. 2813</u>	Soil Pit Required (Y/N)
SOIL PROFIL	E DESCRIPTION: (Describe	e to the depth needed to doc	ument the	indicator or o	confirm the absend	ce of Indicators.)
Depth	Matrix		Redox Features		5 e		
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture	Notes
0-24	organics				_		
	0						
		_					•
		=					
					_		
Tuno: C=Co		tion Rt	M=Reduced Matrix, CS=Cov	ered or Co	ated Sand G	Prains ² Location	: PL=Pore Lining, M=Matrix.
	L INDICATORS	tion, txr					FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or His		198-torall	Alaska Gleyed (A13)	N	ALL STREET		Change (TA4) ⁴
Histic Epipede			Alaska Redox (A14)	N	-		Swales (TA5)
	r		Alaska Gleyed Pores	(A15) A	/		with 2.5Y Hue
Black Histic (A				(A10)			without 5Y Hue or Redder Underlying
	urface (A12) N	_	16			Other (Explain	n in Notes) —
³ One indicato	or of hydrophytic vege	tation, c	ne primary indicator of wetla	and hydrol	ogy, and an		ape position must be present unless
disturbed or p	problematic.		And Shine	-			· · · · · · · · · · · · · · · · · · ·
"Give details of Restrictive La	of color change in No ayer (if present): Type	tes.	J0 Depth (i	inches):			
1	Present (Y/N):						
1	Present (Y/N):				-		
Hydric Soil P Notes:		TORS (any one indicator is sufficien	t)	SECONDAR	RY INDICATORS (2 or more required)
Hydric Soil P Notes:	Y PRIMARY INDICA		any one indicator is sufficien ırface Soil Cracks (B6)	1	SECONDAR Water-staine Leaves (B9)	ed f	2 or more required) Stunted or Stressed Plants (D1)
Hydric Soil P Notes: HYDROLOG	Y PRIMARY INDICA	Su	urface Soil Cracks (B6)	/	Water-staine Leaves (B9)	ed f	Stunted or Stressed Plants (D1)
Hydric Soil P Notes: HYDROLOG [*] Surface Wate	Y PRIMARY INDICA er (A1) able (A2)Y	Su Inu (B	urface Soil Cracks (B6)	l	Water-staine Leaves (B9) Drainage Pa	ed tterns (B10) izospheres along	Stunted or Stressed Plants (D1)
Hydric Soil P Notes: HYDROLOG [*] Surface Wate High Water T	Y PRIMARY INDICA er (A1) able (A2) 3)	- Su - Int - (B - Sp - Co	urface Soil Cracks (B6) undation Visible on Aerial Im 7) parsely Vegetated	lagery	Water-staine Leaves (B9) Drainage Pa Oxidized Rh	ed ttterns (B10) izospheres along (C3)	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Hydric Soil P Notes: HYDROLOG [*] Surface Wate High Water T Saturation (A	Y PRIMARY INDICA er (A1) able (A2) Y 3) Y (B1)	Su Inu (B) Sp Co Ma Hy	urface Soil Cracks (B6) undation Visible on Aerial Im 7) parsely Vegetated oncave Surface (B8)	lagery	Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of	ed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) / Microtopographic /
Hydric Soil P Notes: HYDROLOG [*] Surface Wate High Water T Saturation (A Water Marks	Y PRIMARY INDICA er (A1) able (A2) 3) Y (B1) N iposits (B2)	Su Inu (B Sp Cc Cc Ma Ma Hy Oc Dr	urface Soil Cracks (B6) undation Visible on Aerial Im 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) ydrogen Sulfide	lagery	Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	ed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) ^ Microtopographic Relief (D4)
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Hydric Soil P Notes: HYDROLOG ⁷ Surface Water High Water T Saturation (A: Water Marks Sediment Dep Drift Deposits Algal Mat or O Iron Deposits	Y PRIMARY INDICA er (A1) able (A2) 3) Y (B1) N eposits (B2) A s (B3) V	- Inu (B Sp Cc Ma - Hy OC Dr W	urface Soil Cracks (B6) undation Visible on Aerial Im 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) vdrogen Sulfide dor (C1) y-Season ater Table (C2)	agery	Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	ed itterns (B10) izospheres along (C3) Reduced s (C5)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) / Microtopographic Relief (D4) FAC-Neutral Test (D5)
Hydric Soil P Notes: HYDROLOG [®] Surface Wate High Water T Saturation (A Water Marks Sediment Dep Drift Deposits Algal Mat or Q Iron Deposits Surface Wate	Y PRIMARY INDICA er (A1)	- Inu (B Sp Cc Ma - Hy OC Dr W	urface Soil Cracks (B6) undation Visible on Aerial Im 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) dor (C1) y-Season ater Table (C2) ther (Explain in Notes):	agery	Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	ed	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) / Microtopographic Relief (D4) FAC-Neutral Test (D5)
Hydric Soil P Notes: HYDROLOG [®] Surface Wate High Water T Saturation (A Water Marks Sediment Dep Drift Deposits Algal Mat or Q Iron Deposits Surface Wate	Y PRIMARY INDICA er (A1)	- Inu (B Sp Cc Ma - Hy OC Dr W	urface Soil Cracks (B6) undation Visible on Aerial Im 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) drogen Sulfide dor (C1) y-Season ater Table (C2) ther (Explain in Notes): Depth (in):	agery	Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	ed itterns (B10) izospheres along (C3) Reduced s (C5)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) _/_ Shallow Aquitard (D3) // Microtopographic Relief (D4) FAC-Neutral Test (D5)

W85T1015

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-Non-persistent Persistent Aquatic Bed Forested-Deciduous-Needle-leaved Forested-Deciduous-Broad-leaved
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): 3 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
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)
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 X Riverine Estaurine Fringe
SOIL VARIABLES
Soil VARIABLES Soil Factors (P): Soil Lacking Mineral: Gravelly Mineral: Silty Mineral: Gravelly Mineral: Silty
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 Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennia
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
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.) K 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 >5 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 Carbonic Description Alkaline (>7.4) Acid (<5.5)
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%) 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 Below Only Connected Below Only Connected Determine the connected Above Only Connected Upstream & Downstream // Unknown
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)_X
Watershed Land Use: 0-5% Rurat 5-25% Urbanized 25-50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medium (10-100 acres) Large (>100 acres)

Size: Small (<10 acres) Crew Chief QA/QC check:

Browlee

GPS Technician QA/QC check:

Large (>100 acres)_

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

10

Feature ID: $W \$5T1\delta15$ Field Target: <u>15041</u> Date: <u>U \$15</u> 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?

Map

- 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?

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?
- I 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)?

Wetland Scientist (print)

Signature / Date alenvalter 6-10-15

ownler

m 4.10.15 103

Field Crew Chief (print)

Signature / Date

ACTIVE STATE			and the second second second	THE REAL PROPERTY AND
SITE DESCRIPTION	NUME IN A DECK OF THE OWNER		AND AND AND A STATE	
Survey Type: Centerline Acce	ss Road (explain) Other (exp	plain)	Field Target: 19056	
Date: 6-11-15	Project Name & No.: Alaska LN	G 60418403	Feature Id:	WESTIOIG
Investigators: JB, KV				Team No.: W85
State: Alaska	Region: Alaska	Milepost:	716.6	
Latitude: 6/0 39, 21995	50° N Longitud	le: 150°	29:223137	Datum: WGS84
Logbook No.:	Logbook Page No.:	Picture No.:	P_W85TIO16_001. P_W85TIOK_00	VEG P-W85TIONG_002-V D3-PIT, P-W85TION-004
SITE PARAMETERS		State State State		The second second second second
Subregion: Southchm	tra)	Landform (hi	llslope, terrace, hummocks	s, etc.): lowland
Slope (%): ()-3		_		lat to slightly convex
Pre-mapped Alaska LNG/NWI classifica	ation: PSCLIB			browsing evidence + dr
Are climatic/hydrologic conditions on th			ormal Circumstances" pre	
Are Vegetation, Soil, or Hy	drology Significantly Disturbed	1? No V	(If yes, explain in Notes)	
Are Vegetation, Soil, or Hy	drology Naturally Problematic	? No_/	(If yes, explain in Notes	.)
SUMMARY OF FINDINGS	A CLAD, MINISTRATING CONVERTIN			
Hydrophytic Vegetation Present? Yes_	No I	s the Sampled .	Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	NoN	Wetland Type: (
Wetland Hydrology Present? Yes_	No,	Alaska Vegetatio	n Classification (Viereck):	IC2, 182
Notes and Site Sketch: Please include corridor. Dry Site. Tall noture neoalaskana while un Mesalaskana, Much Nossigno of hydr Signs of Seasonal poekets of Seasonal maternal	Mixed forest. Upper ca denstory contains dead/downed I ology, pssilent frost	mopy is de white sp spruce to Spodie	ure, Distances from Center ominated by, Bla roce primari rees, Thick for soils with a water as a atomations is	ck spirice + Betula ly w/Betula cathernoss, a few a few
	1			



VEGETATION (use scientific names of plants) **Dominance Test worksheet:** Absolute Dominant Indicator Tree Stratum (Plot sizes: 60 Ft) % Cover Species? Status No. of Dominant Species that are OBL, FACW, or FAC: 4 (A) (Y/N) Total Number of Dominant Species Across All Strata: 7 (B) 1. Vicea -AW NO Mariana % Dominant Species that are OBL, FACW, or FAC: 57% (A/B) 2. Betula neoalaskana FAC 0 3. 4. Prevalence Index worksheet: 20 Total Cover: Total % Cover of: Multiply by: 0 \mathcal{O} \bigcirc X1= 50% of total cover: 20% of total cover: **OBL** species: 2 4 X 2 = 26 FH FACW species: Sapling/Shrub Stratum (Indicator Absolute Dominant 33 % Cover Species? Status 11 X3= FAC species (Y/N)28 7 X4 = FACU species_ FACU 1. Picea alarca 0 0 X 5 = 1 UPL species setula nestasyana 65 20 FAC 0 Column Totals: (A) (B) alix RUICHRA 3,25 FACW PI = B/A = N 4. Empetrum nigrum N 5. Rhododendrum a roenlandicum Ł N U 6. Vaccinium Vitis-idora FAC N 2 FXCU 7. Linnaea borealis N 8. Spirren Stevenii FACV 9. approximista sorras. FACU Sortus Λ 46 40 Vaccinium Ulikin OSMTotal Cover: 13 20% of total cover: 9.8 FAC 1% 50% of total cover: FAC salix bebbianon VEGETATION (use scientific names of plants) Herb Stratum (_26 Ft) Hydrophytic Vegetation Indicators: Absolute Dominant Indicator % Cover Species? Status Dominance Test is > 50% (Y/N) N Prevalence Index is ≤3.0 suggice FACU 1. Cornus N Morphological Adaptations¹ (Provide supporting data in 2. Equisetim sulvation N AC Notes) 2 3. Trientalis evonea Ņ EACU N Problematic Hydrophytic Vegetation¹ (Explain) 4. Geocarlon lividium FACU ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. 5. Rubus pedatus f Ar 6. Chambrian angusto Colimn 7. Drypperis exercise FACL 5 % Bare Ground FACU ゼN % Cover of Wetland Bryophytes 8. Calambarostis lapponio 2 Ň FAC. 10 Total Cover of Bryophytes 🞣 9. Streptopus amplexicalius FACU ♡ % Cover of Water 10. Spinulum annotinum FACU 10 Hydrophytic Vegetation Present (Y/N): 38 Total Cover: CEANOUNDES Notes: (If observed, list morphological adaptations below): C 20% of total cover: 50% of total cover: La 0,0% Spagnum, seather · plat contains 7% down or dead we : <tera condata N T

WS5 TIOK

01

	Matrix		Redox Features			ndicator or confirm the absence				
Depth inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Note	es	
7-2	organics					_				
2-3	7.54R 5/1	100	and a second second	-		_	SIL	1110	vy Houndardes & in	po.
3-8	7.54R 2.5/2	105		1			FSaL	+	hroughout Profile	
50	7.51R 4/4	35					/ 04			
8-20	INR 4/2	165	101R5/2	D	5	M	FSel	pock	kets of silt Loan	
A de	10YR 5/4	25	101 R 1/4	C	5	M		/		
Type: C=C	oncentration, D=Deple	etion, RM	/ /=Reduced Matrix, C	S=Cov	ered or Co	bated Sand C	and the second se		Pore Lining, M=Matrix.	
Contraction of the second second	IL INDICATORS	AN SAL	and the second second second	Sec. 15	Line has	Salar -	INDICATOR	S FOR P	ROBLEMATIC HYDRIC S	OIL
Histosol or H	osol or Histel (A1) Alaska Gleyed (A13)					_	Alaska Color	Change	(TA4) ⁴	
	don (A2) _	h	Alaska Redox	(A14)	N	- 1	Alaska Alpine	e Swales	(TA5) N	
	(A3) N		Alaska Gleyed		(A15)	N	Alaska Redo	x with 2.5	5Y Hue _ N	
	ulfide (A4)								t 5Y Hue or Redder Under	lyin
Thick Dark S	Surface (A12)						Other (Explai		es) 📈	
Restrictive I	a of color change in No. ayer (if present): Typ	e: N	Ć C	epth (i	nches):	~				_
Hydric Soll	Present (Y/N): Spadic Fore	\checkmark								
Hydric Soll	Present (Y/N): Spodic Fore	V 257	581					10		
Hydric Soll	Present (Y/N):	V 257	581	ufficien		The second second second	RYINDICATORS	(2 or mo	the second se	
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Hydric Soll Notes: D HYDROLOG Surface Wa	Present (Y/N): / Spadic Fore SY PRIMARY INDICA	xtors (SL - (B	≤ອ່(any one indicator is s Irface Soil Cracks (B6 undation Visible on Ac 7)	i) r	J agery	Water-staine Leaves (B9) Drainage Pa	ed atterns (B10)	_	Stunted or Stressed	
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Hydric Soll Notes: D HYDROLOG Surface Wa High Water Saturation (Water Marks	Present (Y/N):	TORS (SL B St CC Ma	Sə' (any one indicator is s irface Soil Cracks (B6 undation Visible on Ac 7) barsely Vegetated oncave Surface (B8)) erial Im N	agery	Water-staind Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	atterns (B10) _ / atterns (B10) _ / izospheres along s (C3) _ N	_	Stunted or Stressed Plants (D1) <u>N</u> Geomorphic Position (D2) Shallow Aquitard (D3) <u>N</u> Microtopographic,	
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Hydric Soll Notes: D HYDROLOG Surface Wa High Water Saturation (Water Marks Sediment D Drift Deposi	Present (Y/N): $(\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		Sei (any one indicator is s inface Soil Cracks (B6 undation Visible on Ac 7) Vegetated oncave Surface (B8) arl Deposits (B15) /drogen Sulfide dor (C1) y-Season ater Table (C2)	i)r erial Im N	agery	Water-staind Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	ed atterns (B10)/ izospheres along s (C3) Reduced	_	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)A Microtopographic Relief (D4)A	
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Hydric Soll Notes: D HYDROLOG Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposit Surface Wa	Present (Y/N): $(\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		Sei (any one indicator is s inface Soil Cracks (B6 undation Visible on Ac 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) /drogen Sulfide dor (C1) y-Season ater Table (C2) ther (Explain in Notes	i)r erial Im N		Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	ed atterns (B10)/ izospheres along s (C3) Reduced		Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)A Microtopographic Relief (D4)A	
Hydric Soll Notes: D HYDROLOG Surface Wa High Water Saturation (a Water Marks Sediment D Drift Deposi Algal Mat or Iron Deposit Surface Wa Water Table	Present (Y/N): $(\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		Sai (any one indicator is s inface Soil Cracks (Be undation Visible on Ac 7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) /drogen Sulfide dor (C1) y-Season ater Table (C2) ther (Explain in Notes	i)r erial Im N		Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	atterns (B10) <u>J</u> atterns (B10) <u>J</u> izospheres along s (C3) <u>N</u> Reduced s (C5) <u>N</u>		Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)A Microtopographic Relief (D4)A FAC-Neutral Test (D5)	

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AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, N	I= Matrix
Primary Vegetation Type (P): Vegetation La Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	cking 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-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≱r	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) m) Short herb (<1m) Moss-Lichen Floating 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% 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)
	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 intersperse	patches, concentric rings) Moderate (broken irregular rings) ed)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
Soil Factors (P): Soil Lacking Mineral: Gravelly Mineral: Sandy	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	
Outlet Intermittent Inlet/Intermittent Outlet Perennial Ir	No Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Outlet
Wet: Perm. Flooded, Intermittently Exposed, S	
Evidence of Sedimentation (P): No Evidence	
118	Semiperm. Flooded Fluvaquent Soils Sediment
Evidence of Sedimentation (P): No Evidence Created	Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent_ Frequency of Overbank Flooding (P): No O	Semiperm. Flooded 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 *
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 Cidence water	Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) verbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Restricted Outflow Unrestricted Outflow Alkaline (>7.4) Acid (<5.5) pH Reading
Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent	Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) verbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Restricted Outflow Unrestricted Outflow rcumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
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 (Comparison)	Semiperm. Flooded 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 verbank Flooding Restricted Outflow Restricted Outflow Unrestricted Outflow rcumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Evidence of Sedimentation (P): No Evidence 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 Ci Surficial Geologic Deposit Under Wetland (Glacial Till/Not Permeable) Ci	Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) verbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs verbank Flooding Restricted Outflow rcumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Evidence of Sedimentation (P): No Evidence Created Microrelief of Wetland Surface (P): Absent	Semiperm. Flooded 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 verbank Flooding Restricted Outflow Restricted Outflow Unrestricted Outflow rcumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
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 (Semiperm. Flooded Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.) Nerbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Restricted Outflow Unrestricted Outflow rcumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading

Wetland Juxtaposition: Only Connected Above_		Wetlands withi eam & Downstream_	n 400m, Not Connected Unknown	Only Connected Below	1 alt
Wetland Land Use:	High Intensity (i.e., ag.)	Moderate In	tensity (i.e., forestry)	Low Intensity (i.e. open space)	1 Y 1
Watershed Land Use:	0-5% Rural 5-	25% Urbanized	25-50% Urbanized	>50% Urbanized	
Size: Small (<10 ac	res) 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.

Feature ID: W8571016

Field Target: 1505 6 Date: 6.11.2015

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?
- Digital 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? cæ 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

- K 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

Eour 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 Kalley Jalger G-11-15 Signature / Date

1e-11-15 X ic Brownel X

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	17 Demonstration of the	A SAME				and the second second	
Survey Type: Centerline X Acces	ss Road (explain)	Other (exp	(explain) Fleld Target:/5이역			Map #: 239 Map Date: 6-4-1	
Date: 6-11-15	Project Name & No.:	Alaska LN	IG 60418403	_	Feature Id:	W85TI017	
Investigators: JB, KV						Team No.: W85	
State: Alaska	Region: Alaska		Milepost:	751.1			
Latitude: 61º [7.45 2854' N		Longitud	le: 151° 3.1	74488	W	Datum: WGS84	
Logbook No.:	Logbook Page No.:	16	Picture No.:	W85M	コート 1-5	5	
SITE PARAMETERS	De la constante de la constante		1.1.7				
Subregion: Southcent	mal	0	Landform (hill	lslope, terrac	e, hummock	s, etc.): Lowland	
Slope (%): 0-3			Local relief (c	oncave, conv	/ex, none): A	Fat	
Pre-mapped Alaska LNG/NWI classifica	tion:		Evidence of V	Vildlife Use:		C. C. Maria	
Are climatic/hydrologic conditions on the YesNo(if no expl	e site typical for this time ain in Notes)	of year?	Are "No Yes_V	mal Circum		sent: blain in Notes.)	
Are Vegetation, Soil, or Hyd	drologySignificant	ly Disturbed	1? No_	_(If yes, exp	lain in Notes		
Are Vegetation, Soil, or Hyd	drology Naturally F	Problematic	? No_/	_(If yes, exp	lain in Notes	.)	
SUMMARY OF FINDINGS	and the second second	1. 例如四日	W. C. P. L.	2019年4月19		Value and the state of the	
Hydrophytic Vegetation Present? Yes_	No	[:	s the Sampled A	rea within a	Wetland?	Yes X No	
Hydric Soil Present? Yes_	No	v	Wetland Type:	PF01/4	<		
Wetland Hydrology Present? Yes_	No	— A	laska Vegetatior	Classification	on (Viereck):	102,1182	
Notes and Site Sketch: Please include D	Directional & North Arrow	, Centerline	e, Length of featu	re, Distances	from Center	line, Photo Locations, and Survey	
corridor. Area much wetter than To the West if gains was located ~ 50 Area is wat to 4	MC NOT		out only was sti	ding wa gets A wet ains	ter ~, wetter - abov in elec	10% to plot. c. & spring sthat, Jation	
See map for dete	NWOG	Plot			1 1 2		

) Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes: <u>CeO ^{ft}</u>)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC:
1. Betula negalaskana	25	Y	FAC	Total Number of Dominant Species Across All Strata: (F % Dominant Species that are OBL, FACW, or FAC:(A/
2. Picea Mariana	1015	Y	FACW	
3. Anos virilitis proticoso		N	FAR	
4. Picea glavea	2015	Y	FACU	Prevalence Index worksheet:
Total Cover 50% of total cover	_52_	0% of total cov	ver: \\	Total % Cover of: Multiply by: OBL species: Image: A line with the species in the spe
Sapling/Shrub Stratum (2697)	Absolute	Dominant	Indicator	FACW species: X 2 = 2
Re la	% Cover	Species? (Y/N)	Status	FAC species <u>5</u> X 3 = <u>74</u> FACU species <u>7</u> X 4 = <u>24</u>
1. Picen alauca	1	N	FACU	UPL species X 5 =
2. Menziesia ferruginea	15	Y	FACU	Column Totals: 17 (A) 51 (B)
3. Vallinium or, folium	5	NF	FAC	² PI = B/A = <u>3</u>
4. Spirea stevenii	T	N	FACU	2
5. Vaccinium Vitis-idaea	20	N	FAC	3
6. Altrus viridis fruticos	30	<u> </u>	FAC	
8.				
9.				
Total Cover	61		and the second second	-
rotar Cover.				
50% of total cover		0% of total cov	ver: 11.2	the second second second
50% of total cover	28 20	0% of total cov		
50% of total cover	28 20) Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
50% of total cover	: <u>28</u> 20			Dominance Test is > 50%
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>·26 ft</u>) 1. Earis et M Grvense.	Absolute % Cover	Dominant Species?	Indicator	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>・26 代</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50%
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>2674</u>) 1. Equisetum arvense 2. Gymnocarrium arvense 3. Comarum Palustre	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 M Morphological Adaptations ¹ (Provide supporting data in
50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Equisetum arvense 2. Aymnocarrium arvense 3. Comarum Palustre	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FAC FACV	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 N Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (2694) 1. Equisetum arvense 2. Gumnocaspium dryopters 3. Comarum Palustre 4. Cornus suecica	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FAC FACV	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Norphological Adaptations ¹ (Provide supporting data in Notes) N N Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>2697</u>) <u>1. Equisetum arvense</u> <u>2. Gymnocarrium arvense</u> <u>3. Comarum Palustre</u> <u>4. Cornus suecica</u>	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FAC FACV OBL FAC	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 N Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>2697</u>) 1. Equisetum arvense 2. Gymnocarrium arvense 3. Como carrium arvense 4. Cornus suecica 5. Spinulum anotinum 6. Equisetum fluviatile	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status FAC FACV OBL FAC	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 N Morphological Adaptations ¹ (Provide supporting data in Notes) N Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>2647</u>) 1. Equisetum arvense 2. Gymnocarrium dryopters 3. Como carrium dryopters 5. Spinutum anotinum 6. Equisetum spinite 7. Equisetum spi 8. Mubus padatus	Absolute % Cover 60 1- 1- 1- 1- 7 T T	Dominant Species? (Y/N) Y N N N N N	Indicator Status FAC FAC OBL FAC FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 M Morphological Adaptations¹ (Provide supporting data in Notes) M Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground Ø % Cover of Wetland Bryophytes
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (2697) 1. Equisetum arvense 2. Gymnocarrium arvense 3. Cornus suecica 5. Spinulum anotinum 6. Equisetum fluviatile 7. Equisetum sp 8. Mubus padatus	Absolute % Cover	Dominant Species? (Y/N) Y N N N N N	Indicator Status FAC FACV OBL FAC FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) M M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground 30 % Cover of Wetland Bryophytes 40 Total Cover of Bryophytes
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (2697) 1. Equisetum arvense 2. Gumocarrium arvense 3. Cornus suecica 5. Seinulum anotinum 6. Equisetum fluviatile 7. Equisetum fluviatile 7. Equisetum sp 8. Mubus padatus 9. Linnea borealis	Absolute % Cover 60 1- 1- 1- 1- 7 T T	Dominant Species? (Y/N) Y N N N N N	Indicator Status FAC FAC OBL FAC FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 M Morphological Adaptations¹ (Provide supporting data in Notes) M Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground 30 % Cover of Wetland Bryophytes 40 Total Cover of Bryophytes 0 % Cover of Water
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (2694) 1. Equisetum arvense 2. Gymnocarrium dryopters 3. Cornus suecica 5. Spinutum annotinum 6. Equisetum suecica 5. Spinutum annotinum 6. Equisetum suecica 7. Equisetum sue 8. Rubus padatus 9. Linnea borealis 10. Tricatalis europaea	$\frac{28}{60} = 20$ $\frac{28}{60}$ $\frac{1}{10}$ $$	Dominant Species? (Y/N) Y N N N N N	Indicator Status FAC FAC FAC FAC	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground 30 % Cover of Wetland Bryophytes 40 Total Cover of Bryophytes 10 % Cover of Water Hydrophytic Vegetation Present (Y/N): Y
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (2694) 1. Equisetum arvense 2. Gymnocaspium dryopter 3. Cornus suecica 5. Spinutum appalustre 4. Cornus suecica 5. Spinutum appatinum 6. Equisetum fluviatile 7. Equisetum fluviatile 7. Equisetum sp 8. Rubus padatus 9. Linnea borealis 10. Tricatalis europaea	$\frac{28}{60} = 20$ Absolute % Cover $\frac{60}{1}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{7}{7}$ $\frac{7}{7}$ $\frac{7}{74}$	Dominant Species? (Y/N) Y N N N N N	Indicator Status FAC FAC OBL FAC FACU FACU FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 M Morphological Adaptations¹ (Provide supporting data in Notes) M Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground 30 % Cover of Wetland Bryophytes 40 Total Cover of Bryophytes 0 % Cover of Water
50% of total cover VEGETATION (use scientific names of plants Herb Stratum (2694) 1. Equisetum arvense 2. Gumocagnium dryoptens 3. Cornus suecica 5. Spinnum anotinum 6. Equisetum fluviatile 7. Equisetum fluviatile 7. Equisetum sp 8. Aubus padatus 9. Linnea borealis 10. Tricatalis europaea Mulus deminum	$\frac{28}{60} = 20$ Absolute % Cover $\frac{60}{1}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{7}{7}$ $\frac{7}{7}$ $\frac{7}{74}$	Dominant Species? (Y/N) V N N N N N N N N N N N N N N N N N N	Indicator Status FAC FAC OBL FAC FACU FACU FACU	Y Dominance Test is > 50% Y Prevalence Index is ≤3.0 M Morphological Adaptations¹ (Provide supporting data in Notes) M Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground 30 % Cover of Wetland Bryophytes 40 Total Cover of Bryophytes 10 % Cover of Water Hydrophytic Vegetation Present (Y/N): Y

WETLAND	DETERMINATION	DATA FORM
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SOIL PROFI				-				
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist) % T	ype ¹	Loc ²	Texture	Note	S
0-2	organics _	-				-		-
2-3	2543/1	160				Sand	San	d Lens throughout horizon
3-14	organics			Tender .	115	-		U
14-17	7.54R3/2	(00)				Gill		
17-+	Rocks	100				Rocks	Ka	xkbayer. Angdar
- Aler				-				
T		lation DA	- Deduced Metrix CS=Covere	d or Cooto	d Cand (DI -D	ore Lining, M=Matrix.
THE R. P. LEWIS CO., MILLION.	IL INDICATORS	etion, Riv	1=Reduced Matrix, CS=Covere	U OF COALE	au Sanu C	the second se	the second second	ROBLEMATIC HYDRIC SOI
State of the second state in	V-077-003804950-950540-9	C 1 P NH	Alaska Olavad (A12)	N	ALC: NOTE: N	Alaska Color	Contract Street	A A A A A A A A A A A A A A A A A A A
	listel (A1) <u>N</u>	-	Alaska Gleyed (A13)	1				and the second se
TALL DO TO THE OWNER OF THE OWNER	don (A2) X Yes	š	Alaska Redox (A14)			Alaska Alpine		
Black Histic (and the second se	_	Alaska Gleyed Pores (A1	5)	- inter	Alaska Redox		5Y Hue or Redder Underlyi
Hydrogen Su	Ilfide (A4)	10 - A	Company of the second second	. i	*	Layer M		of fide of fielder of deligi
	Surface (A12)		ne primary indicator of wetland			Other (Explain		
	Present (Y/N):		in entraction silty	laver	0	ind horiz	ong	Kocks is
			ion entraction. Silty	layer	9 50	and horre	on g	5 Rocks is
Notes: Sol 1 Acting (Pitke a rest	down f	inny one indicator is sufficient)		4	and harrs		5 Rocks is
Notes: Soil 1 Acting (HYDROLOG	Pitke a rest	tors (SE	4	ty INDICATORS (2 or mor	e required) Stunted or Stressed Plants (D1)
Notes: Soil 1 Acting (HYDROLOG Surface Wate	Pitke a rest	ATORS (a	ny one indicator is sufficient) face Soil Cracks (B6)/ ndation Visible on Aerial Image	SE Wa Lea	CONDAR ater-staine aves (B9)	ty INDICATORS (2 or more	Stunted or Stressed
Notes: Sol 1 AcHing (HYDROLOG Surface Water T	$\frac{1}{2} \frac{1}{2} \frac{1}$	ATORS (a Su - (B7 Sp	ny one indicator is sufficient) face Soil Cracks (B6)/ ndation Visible on Aerial Image	SE Wa Lea Iry Dra Oxi	CONDAR Iter-staine aves (B9) ainage Pa idized Rh		2 or more	Stunted or Stressed Plants (D1)
Notes: Sol 1 AcHing (HYDROLOG Surface Water High Water T Saturation (A	$\begin{array}{c} \text{Primary indication} \\ \text{Primary indication} \\$	ATORS (a Sun (B7 Co	face Soil Cracks (B6) \cancel{N} ndation Visible on Aerial Image	SE4 Wa Lea Pry Dra Oxi Livi Pre	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots	tterns (B10)	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Notes: Sol 1 AcHing (HYDROLOG Surface Water High Water T Saturation (A Water Marks	$\begin{array}{c} \text{Primary indication} \\ \text{Primary indication} \\$	ATORS (a Su - (B7 Co Ma Hyu	face Soil Cracks (B6) face Soil Cracks (B6) ndation Visible on Aerial Image) arsely Vegetated ncave Surface (B8)	SE4 Wa Lea Iny Dra Oxi Livi Pre Iror Sal	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots esence of n (C4) t Deposit	tterns (B10) izospheres along (C3) Reduced	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5)
Notes: Sol (AcHing (HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De	Price a rest Price a rest P	ATORS (a Su (B7 Co Ma Hy Od Dry	nny one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Image n arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide	SE4 Wa Lea Iny Dra Oxi Livi Pre Iror Sal	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots esence of n (C4) t Deposit	tterns (B10) izospheres along (C3) Reduced	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5)
Notes: Sal (AcHing (HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposits	Price a rest Price a rest P	ATORS (a Sun - (B7 Co Ma - Od Dry Wa	Introduction is sufficient) face Soil Cracks (B6) Indation Visible on Aerial Image b) arsely Vegetated incave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1) -Season	SE4 Wa Lea Iny Dra Oxi Livi Pre Iror Sal	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots esence of n (C4) t Deposit	tterns (B10) izospheres along (C3) Reduced	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5)
Notes: Sol (AcHing (HYDROLOG Surface Water High Water T Saturation (A Nater Marks Sediment De Drift Deposits	Price a rest Price a rest Price a rest Price a rest Price (A1) Price (A2) (B1) (B1) (B1) posits (B2) s (B3) Crust (B4)	ATORS (a Sun - (B7 Co Ma - Od Dry Wa	Introduction is sufficient) face Soil Cracks (B6) Indation Visible on Aerial Image arsely Vegetated Incave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2)	SE4 Wa Lea Iny Dra Oxi Livi Pre Iror Sal	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots esence of n (C4) at Deposit tes: from	tterns (B10) izospheres along (C3) Reduced	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Star table to sur
Notes: Sol (AcHing (HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or G ron Deposits	Primary indications for the set of the set	ATORS (a Sun - (B7 Co Ma - Od Dry Wa	In y one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Image) arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2) her (Explain in Notes): $$	SE4 Wa Lea Iny Dra Oxi Livi Pre Iror Sal	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots esence of n (C4) at Deposit tes: from	tterns (B10) izospheres along (C3) Reduced s (C5) ding wate	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Star table to sur
Notes: Sol (AcHing (HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or G ron Deposits	Price a rest Price a rest Price a rest Price a rest Price (A1) Price (A2) (B1) (B1) (B1) posits (B2) s (B3) Crust (B4)	ATORS (a Sun - (B7 Co Ma - Od Dry Wa	Introduction is sufficient) face Soil Cracks (B6) Indation Visible on Aerial Image arsely Vegetated Incave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2)	SE4 Wa Lea Vy Dra Oxi Livi Pre Iror Sal Not Sph	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots assence of n (C4) t Deposit tes: from a t Deposit	ry INDICATORS (ad	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Star table to sur
Notes: Sol 1 AcHag (HYDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or (ron Deposits Surface Wate	Primary indications for the set of the set	ATORS (a Sun - (B7 Co Ma - Od Dry Wa	In y one indicator is sufficient) face Soil Cracks (B6) ndation Visible on Aerial Image) arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2) her (Explain in Notes): $$	SE4 Wa Lea Vy Dra Oxi Livi Pre Iror Sal Not Sph	CONDAR ater-staine aves (B9) ainage Pa idized Rh ing Roots assence of n (C4) t Deposit tes: from a t Deposit	tterns (B10) izospheres along (C3) Reduced s (C5) ding wate	2 or more	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5) FAC-Neutral Test (D5) Star table to sur

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 Forested-Evergreen-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) Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) ZO Dwarf shrub (<0.5m)
Number of Wetland Types (M): Image: Comparison of Wetland Type Distribution (M): Even Highly Uneven Moderately even X
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 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)X 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 CoverX
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) X 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: 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/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Nou
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated X Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed <u>K</u> 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 K 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)X pH Reading 5.4
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%) X High Gradient (<2%) Evidence of Seeps and Springs (P): No Seeps or Springs Seeps Observed Intermittent Spring Perennial Spring X
LANDSCAPE VARIABLES (M)
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & Downstream X Unknown Only Connected Below
Wetland Land Use: High Intensity (i.e., ag.) Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space) X
Watershed Land Use: 0-5% Rural 5-25% Urbanized 25-50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medium (10-100 acres) 人 Large (>100 acres)

W85T1017

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.

Feature ID: WESTIDIE Field Target: 15019 Date: 6.11.2015

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

1. Site Description

D Site description, site parameters and summary of findings are complete? A detailed site sketch is included in logbook3

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?
- Z 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

- Division 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

- 应 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)?

Х Volper Wetland Scientist (print)

X haley valen 6-4-15 signature / Date

-15

Sronly X

Vegetation Classification Data Form

Site Description			
Date:	Project Name	& #:	Field Target:
6.14.15	Alaska LNG 2	6221306	15024
G.19.15 Investigators: JB	11 :		Feature ID:
JIS	,KV		W85TIOI8
Latitude: Longitud			Datum: WGS84
61-1	61° 18,77215 N 151°0.		283
Logbook #: /		Logbook Page	
		21	W85T1018 1-3
Location Descri	ption:		
~ 1 miles to A	he east of FTI	Sozy can't get	there due to veg + ferraine Everything
detta C 11	17 711/ 9 .	in full when the	
Comme Fast to	LZ 748.8 is as Observed (Scient	met derpite the	veg synarme.
Common Specie	es Observed (Scient	unc Name)	00
Betula Neoala	sten an		osa Acicularis
A RIVIA IVEORIO	orang	/#	OSU FICICIPARTS
Picea Colauc	G		×
LICER LOWNE	۹		
Monziesia	ferruginea		
	0		
Calensacosos	< Campdanse	4	
Percent Cover of	S Canadense Dominant Structure	Level:	
trees: 50	1. Shrub 70	1.	¢
Habitat Descript	tion:		
Tall mature E	Betula Nebalaskana	+ white spruce ope	en frest with thick understory of Menz.
ferriginea . 1	loux do med trace Sit	leis a slight till	compared to terrain to the East
Alaska Vegetati	on Classification: L	evel I. Level II. Lev	el III
117 111 -	7		n
162, 11 6 7			
Notes:			
6 11 1	11 .		
See Note boo	of I map -D	235	2
	ok & map -p		
i p	"year		
	Soncia Q	manalan	160100 10100
Field Crew Chief:	ussit M	Field	Scientist/Technician halen Volre

- 14

Vegetation Classification Data Form

Level	Level II	Level III		
I Forest	A Needleleaf (conifer) forest	 Closed needleleaf (conifer) forest Open needleleaf (conifer) forest Needleleaf (conifer) woodland 		
	B. Broadleaf forest	 Closed broadleaf forest Open broadleaf forest Broadleaf woodland 		
	C. Mixed forest	 Closed mixed forest Open mixed forest Mixed woodland 		
II. Scrub	A. Dwarf tree scrub	 Closed dwarf tree scrub Open dwarf tree scrub Dwarf tree scrub woodland 		
Ŧ	B Tail scrub	(1) Closed tall scrub (2) Open tall scrub		
	C. Low scrub	(1) Closed low scrub(2) Open low scrub		
	D. Dwarf scrub	 Dryas dwarf scrub Ericaceous dwarf scrub Willow dwarf scrub 		
III_Herbaceous	A, Graminoid herbaceous	 Dry graminoid herbaceous Mesic graminoid herbaceous Wet graminoid herbaceous (emergent) 		
	B. Forb herbaceous	 Dry forb herbaceous Mesic forb herbaceous Wet forb herbaceous (emergent) 		
	C, Bryoid herbaceous	(1) Mosses (2) Lichens		
	D. Aquatic (nonemergent) herbaceous	 Freshwater aquatic herbaceous Brackish water aquatic herbaceous Marine aquatic herbaceous 		

II. Scrub

11, 5	crub
8a.	Vegetation with at least 10 percent cover of dwarf trees
8b	Vegetation with at least 25 percent cover of shrubs and less than 10 percent cover of dwarf frees
9a	Dwarf tree canopy of 60-100 percent cover
9b.	Dwarf tree canopy of 25-59 percent cover
9c.	Dwarf tree canopy of 10-24 percent cover II.A.3 Dwarf tree scrub woodland
10a	Shrubs more than 1.5 meters (5 ft) tall
10b	Shrubs less than 1.5 meters (5ft) tell
11 a	Shrub canopy cover greater than 75 percent. II.8.1 Closed tall scrub
11 E	Shrub canopy cover of 25-74 percent Section and Section II B.2 Open tall scrub
12a	Shrubs 20 centimeters to 1.5 meters tall
126	Shrubs under 20 centimeters in height and a state and the II.D Dwarf scrub 14
13a	Shrub canopy cover greater than 75 percent II C.I Closed low scrub
13b	Shrub canopy cover of 25-74 percent, or as low as 2 percent if little or no other vegetation cover present
14a	Dryas species dominant in the dwarf shrub layer
14b.	Ericaceous species dominant in the dwarf shrub layer
†4c.	Willow species dominant in the dwarf scrub layer
10.1	Herbaceous
15a	Terrestrial vegetation, or if growing in the water, dominated by emergent vegetation
15b	Dominant vegetation growing submerged in water or floating on the water surface, but not emerging above the water

Des	criptions of levels I, II, III, and IV follow the classification table,
la :	Trees over 3 meters (10 ft) tall are present and have a canopy cover of 10 percent or more L Forest 2
	Treea over 3 meters (10 ft) tail are absent or nearly'so, Less than 10 percent cover. (Dwaif trees, less than 3 meters (10 ft) tail may be present and abundant
l, Fo	rest
20_	Over 75 percent of tree cover contributed by needleleaf (confer) species I.A Needleleaf forest 3
2b	Less than 75 percent of tree cover contributed by needleleaf (conifer) species
3a,	Tree canopy of 60-100 percent IA.1 Closed needleleaf forest
3b.	Tree canopy of 25-59 percent cover I.A.2 Open needleleaf forest
3c.	Tree canopy of 10-24 percent LA.3 Needleleaf woodland
4a	Over 75 percent of tree cover contributed by broadleaf species
4b	Broadleaf or needleleaf species contribute 25 to 75 percent of the tree cover
5a.	Tree canopy of 60-100 percent cover I.B.1 Closed broadleaf forest
5b.	Tree canopy of 25-59 percent cover1B.2 Open broadleaf forest
5c.	Tree canopy of 10-24 percent cover
6a.	Tree canopy of 60-100 percent cover I.C.1 Closed mixed foresi
6b.	Tree canopy of 25-59 percent cover. I.C.2 Open mixed forest
6c.,	Tree canopy of 10-24 percent cover
7a.	Vegetation with at least 25 percent cover of erect to decumbent shrubs or with at least 10 percent cover of dwarf trees (less than 3 meters [10 ft]tail) 8
7b	Vegetation herbaceous (may have up to 25 percent shrub cover)

	Grasses, sedges, or rushes (graminoid) plants dominant
16b	Forbs or bryophytes dominant
17a	Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunas. Typically (but not always) dominated by <i>Elymus</i> spp. <i>Festicae</i> spp., and <i>Deschampsia</i> spp
17b	On moist sites, but usually not with standing water. Usually dominated by <i>Celamagrostis</i> spp., <i>Carex</i> spp. or <i>Enophorum</i> spp.; tussocks often present
17c	On wet sites, standing water present for part of the year: dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens
16a	Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetails)
18b.	Vegetation dominated by mosses or lichens
19a	On dry sites, usually rocky and well drained; mostly tundra sites
19b	On moist sites but without standing water, mostly within forested areas
19c	On wet sites, usually with standing water for part of the year III B 3 Wet forb herbaceous
20a	Vegetation cover dominated by mosses
206	Vegetation cover dominated by III C.2 Bryoid lichen
21a	Vegetation submerged or floating in fresh water. III.D.1 Freshwater aquatic herbaceous
21 b	Vogetation submerged or floating In brackish water aquatic herbaceous
21c.	Vegetation submerged or floating in salt water

Vegetation Classification Data Form QA/QC Checklist

This form is to be completed before leaving the field site.

Feature ID: <u>W85710</u> Field Target: <u>15024</u> Date: <u>6-14-15</u>

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

1. General Information

- K Location data recorded?
- X Photo taken and photo number recorded?

2. Location Description

X Location of site recorded with enough detail to help relocate?

3. Common Species

- Scientific name of common species recorded?
- M Percent cover of dominant structure level noted?

4. Habitat Description

✓ Habitat described?

5. Classification

All three levels of classification recorded?

6. Field Log Book

- Field form entries consistent with log book?
- 10? Logbook clearly identifies the Field Target ID and Feature ID?

X Jussie Brownleve X pro 6-14.15

Field Technician (urint)

per X haley Valper G-14-15

SITE DESCRIPTION							
Survey Type: Centerline Acces	s Road (explain)	Other (expla	in) off row	Field Targ	et: <u>1524</u> 2	Map #: <u>229</u> Map Date: <u>6.4.1</u> 5	
Date: 6-15-15	Project Name & No.:	Alaska LNG	60418403	2	Feature Id:	W85 T1019	
Investigators: 5B, KV							
State: Alaska	Region: Alaska		Milepost:	744.1			
Latitude: (e) ° 20.760035		Longitude:	-150, 53	079529	7	Datum: WGS84	
Logbook No.: /	Logbook Page No.:	22	Picture No.:	P-W85	571019	-001 thru -004	

SITE PARAMETERS	the second s		
Subregion: Southcentral	Landform (hillslope, terrace, hummocks, etc.): Lowland		
Slope (%): 0 - 3	Local relief (concave, convex, none): Undulating		
Pre-mapped Alaska LNG/NWI classification: 182, 1182	Evidence of Wildlife Use: $\sqrt{\partial}$		
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 Disturbe	ed? No_V_(If yes, explain in Notes)		
Are Vegetation, Soil, or Hydrology Naturally Problemation	c? No (If yes, explain in Notes.)		
SUMMARY OF FINDINGS			
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area within a Wetland? Yes No		
Hydric Soil Present? Yes No/	Wetland Type: 🥠		
Wetland Hydrology Present? Yes No	Alaska Vegetation Classification (Viereck): [C2, IIBZ		

Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. See log back + Map for additional info Change mapping from 182, 11132 to 102, 1182

VEGETATION (use scientific names of plants	5)			
Tree Stratum (Plot sizes: 60 ft)	Absolute	Dominant	Indicator	Dominance Test worksheet:
Thee Stratum (Flot sizes. (00)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC: (A)
1. Betula Neoalaskana	30	Y	FAC.	Total Number of Dominant Species Across All Strata:(B)
2. Picea Glauca	25	Y	FACU	% Dominant Species that are OBL, FACW, or FAC: _20/_ (A/B)
3.			FIC	
4.	8.7			Prevalence Index worksheet:
Total Cover	55	1		Total % Cover of: Multiply by:
50% of total cover	27.5 20	% of total cov	rer:	OBL species:X1 =
Sapling/Shrub Stratum (26 f-t)	Absolute	Dominant	Indicator	FACW species: 2 X 2 = 4
	% Cover	Species?	Status	FAC species $57 \times 3 = 171$
1. Oplopanax horridus	30	(Y/N)	MARIT	FACU species <u>201</u> x 4 = <u>809</u>
0 11 1 0	50	Y.	FACU,	UPL species $()$ X 5 = $()$
² Menziesia terngineg ³ rosa acieularis	5	N	FACU	Column Totals: 260 (A) 779 (B) PI = B/A = 3.76
4. Linnaca borealis	1	N	FACU	$PI = B/A = \qquad \qquad$
5. Ribest triste	2	N	FAC	
6. Warchimim Vitigidaen		N	FAC	
7. Pirea Glanca	10	N	FACU	
8. Betula neoalaskana	1	N	FAC	and the second se
9. Sarbus sp		N		
Spiren Steven: 3 Total Cover:			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
FACU 50% of total cover:	52 20	% of total cov	er: <u>20.8</u>	
VEGETATION (use scientific names of plants)		in the second	
Herb Stratum (Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
6	% Cover	Species? (Y/N)	Status	Dominance Test is > 50%
1. Gymnocarpivm dryppteris	65	N N	FACU	\underline{N}_{f} Prevalence Index is ≤ 3.0
2. Spinulum annotinum	3	N	FACU	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Trientalis Europaea	5	N	FACU	Notes)
4. Streptopus amplexitatius	2:	N	FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Equisetum sylvaticum	T	N	FAC	disturbed or problematic.
6. Cornus Suecica	10	N	FAC	
7. Rubus Pedatus	10	N.	FAC	% Bare Ground
8. Equisetum Arvens	4	N	FAC	
9. Equisetum pratense	2	N	FACW	Total Cover of Bryophytes
10. Dryopteris expuse	1	N	FACU.	% Cover of Water
Chamerion Total Cover:	103			Hydrophytic Vegetation Present (Y/N):
Given strain 50% of total cover: $51,5$ 20% of total cover: 30.6 FACU $1^{0}(0)$				Notes: (If observed, list morphological adaptations below):
FACU 10(0				2

W8571019

Coethiomeritik-ilacon KAC

WETLAND	DETERMINATION	DATA	FORM
---------	---------------	------	------

						confirm the absen	
Depth	Matrix	1	Redox Features	1 - 1	1. 2		
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture	Notes
0-2		_					
2-4	7.5YR 2.5/2	100				FSal	1/2 horizon is wood y del
4-5	101R4/2	100				FSal	wary boundaries & in pock
5-24	7.5YR 3/4	30	5YR 4/4 2	RC.	RC		slight Bhs Features Not.
	7.54R4/4	70				-	feu relie concentrations
¹ Type: C=C	oncentration, D=Deple	etion, RN	4=Reduced Matrix, CS=Cov	ered or C	oated Sand (Grains. ² Location	n: PL=Pore Lining, M=Matrix.
HYDRIC SO	IL INDICATORS			1. 中国	"是你的你	INDICATORS	FOR PROBLEMATIC HYDRIC SO
Histosol or H	listel (A1)		Alaska Gleyed (A13)	N	_	Alaska Color	Change (TA4) ⁴
Histic Epiper	don (A2) N		Alaska Redox (A14)	N	t	Alaska Alpine	Swales (TA5)
Black Histic	(A3) N		Alaska Gleyed Pores	(A15) _ N	l		k with 2.5Y Hue <u>N</u>
	ulfide (A4) N					Layer_N	d without 5Y Hue or Redder Underly
	Surface (A12)					Other (Explain	n in Notes) N cape position must be present unless
	Present (Y/N): fors faken dry,		Foust Sorl		+		
Notes: (๑/	ors taken dry,	Dry	Foust Soil	it)	SECONDA	RY INDICATORS ((2 or more required)
Notes: (๑/	ors faken dry, By PRIMARY INDICA	Dy TORS (SECONDAI Water-stain Leaves (B9)	ed	(2 or more required) Stunted or Stressed Plants (D1)
Notes: Col HYDROLOG Surface Wat	ors faken dry, By PRIMARY INDICA	Dy TORS (any one indicator is sufficien rface Soil Cracks (B6) <u>N</u> Indation Visible on Aerial Im		Water-stain Leaves (B9) Drainage Pa	ed)N atterns (B10)N	Stunted or Stressed Plants (D1)
Notes: Col HYDROLOG Surface Wat	ors faken dry, BY PRIMARY INDICA ter (A1) Table (A2)N	Dy TORS (Su - (B Sp	any one indicator is sufficien rface Soil Cracks (B6) <u>N</u> Indation Visible on Aerial Im		Water-stain Leaves (B9) Drainage Pa	ed)N atterns (B10)N nizospheres along	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)N
Notes: () () HYDROLOG Surface Water	ors faken dry, BY PRIMARY INDICA ter (A1) N Table (A2) N	Dry Su Su International Sp Cc	any one indicator is sufficien rface Soil Cracks (B6) <u>N</u> indation Visible on Aerial Im 7) N		Water-stain Leaves (B9) Drainage Pa Oxidized Rh	ed)N atterns (B10)N nizospheres along s (C3)N	Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Notes: Cor HYDROLOG Surface Wat High Water Saturation (Water Marks	ors faken dry, BY PRIMARY INDICA ter (A1) N Table (A2) N	Dry TORS (Su - Int - (B Sp Cc Ma Hy	any one indicator is sufficien rface Soil Cracks (B6) <u>N</u> indation Visible on Aerial Im 7) <u>N</u> arsely Vegetated incave Surface (B8) <u>N</u>		Water-stain Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence o	ed 	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)N Microtopographic
Notes: Cor HYDROLOC Surface Wat High Water Saturation (Water Marks Sediment D	ors faken dry, GY PRIMARY INDICA ter (A1) N Table (A2) N A3) N s (B1) N	Dry TORS (Su Int (B Sp Cc Ma Hy Oc Dr	any one indicator is sufficien rface Soil Cracks (B6) <u>N</u> indation Visible on Aerial Im 7) <u>N</u> arsely Vegetated incave Surface (B8) <u>N</u> arl Deposits (B15) <u>N</u> drogen Sulfide		Water-stain Leaves (B9 Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	ed 	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Cor HYDROLOC Surface Wat High Water Saturation (A Water Marks Sediment D Drift Deposi	ors faken dry, BY PRIMARY INDICA ter (A1) N Table (A2) N A3) N s (B1) N eposits (B2) N	Dry TORS (Su Int (B Sp Cc Ma Ma Dr W	any one indicator is sufficien rface Soil Cracks (B6) <u>N</u> indation Visible on Aerial Im 7) <u>N</u> arsely Vegetated incave Surface (B8) <u>N</u> arl Deposits (B15) <u>N</u> drogen Sulfide lor (C1) <u>N</u>	agery	Water-stain Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposi	ed 	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Cor HYDROLOC Surface Wat High Water Saturation (A Water Marks Sediment D Drift Deposi Algal Mat or	ors faken dry, BY PRIMARY INDICA ter (A1) N Table (A2) N A3) N s (B1) N eposits (B2) N ts (B3) N	Dry TORS (Su Int (B Sp Cc Ma Ma Dr W	any one indicator is sufficien rface Soil Cracks (B6)N indation Visible on Aerial Im 7) arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide lor (C1)N y-Season ater Table (C2)	agery	Water-stain Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposi	ed 	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Cor HYDROLOG Surface Wat High Water Saturation (Water Marks Sediment D Drift Deposi Algal Mat or Iron Deposit	ors faken dry, BY PRIMARY INDICA ter (A1) N Table (A2) N A3) N s (B1) N eposits (B2) N ts (B3) N Crust (B4) N	Dry TORS (Su Int (B Sp Cc Ma Ma Dr W	any one indicator is sufficien rface Soil Cracks (B6)N indation Visible on Aerial Im 7) arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide lor (C1)N y-Season ater Table (C2)		Water-stain Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposi Notes:	ed N	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)N Microtopographic Relief (D4) FAC-Neutral Test (D5)
Notes: Col HYDROLOC Surface Wat High Water Saturation (A Water Marks Sediment D Drift Deposit Algal Mat or Iron Deposit Surface Wa	ors faken dry, BY PRIMARY INDICA ter (A1) N Table (A2) N A3) N s (B1) N eposits (B2) N ts (B3) N · Crust (B4) N ts (B5) N ter Present (Y/N): N	Dry TORS (Su Int (B Sp Cc Ma Ma Dr W	any one indicator is sufficient face Soil Cracks (B6) Indation Visible on Aerial Im 7) arsely Vegetated Incave Surface (B8) ard Deposits (B15) drogen Sulfide lor (C1) drogen Sulfide lor (C1) her (Explain in Notes):		Water-stain Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposi Notes:	ed 	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)N Microtopographic Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, M=	= Matrix
Primary Vegetation Type (P): Vegetation Lac Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent	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) Tall shrub (2-6m) Short shrub (0.5-2m)) Short herb (<1m) Moss-Lichen Floating Submerged
Number of Wetland Types (M):	Evenness of Wetland Type Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0 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 sp	becies) 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): N 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 (0 Abundant (>50% of surface)	-25% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large p High (small groupings, diverse and interspersed	atches, concentric rings) Moderate (broken irregular rings) d)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES	A STATE OF A
Soil Factors (P): Soil Lacking	Histosol:FibricHistosol:HemicHistosol: Sapric Mineral: SiltyMineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent C Inlet/Intermittent Outlet Perennial Inlet	Dutlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
Wet: Perm. Flooded, Intermittently Exposed, Se	
Evidence of Sedimentation (P): No Evidence Created	e Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
	Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Over Return Interval >5 yrs	erbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs
Degree of Outlet Restriction (P): No Outflow_	Restricted Outflow Unrestricted Outflow
	cumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (P Glacial Till/Not Permeable	
Basin Topographic Gradient (M): Low Gr Evidence of Seeps and Springs (P): No Seep	radient (<2%) High Gradient (≥%) s or Springs Seeps Observed Intermittent Spring Perennial Spring
LANDSCAPE VARIABLES (M)	The second se
Wetland Juxtaposition: Wetland Isolated Only Connected Above Connected	Wetlands within 400m, Not Connected Only Connected Below Upstream & Downstream Unknown
Wetland Land Use: High Intensity (i.e., ag	Moderate Intensity (i.e., forestry) Low Intensity (i.e. open space)

5-25% Urbanized_ Watershed Land Use: 0-5% Rural_

Medium (10-100 acres)

Size: Small (<10 acres)

GPS Technician QA/QC check:

Large (>100 acres)

Crew Chief QA/QC check: gesser Bronila

haley Volper

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Date: 6-15-15 Field Target 5242 Feature ID: W85 T

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?
- A Indicator status is correct for each species?
- Dominance Test and Prevalence Index have been completed?

3. Soil

A 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)?

se Brownle

Wetland Scientist

Signature / Date

6-15-15 Signature / Date Field Crew Chief (print)

Vegetation Classification Data Form

Site Description		teals of the same first	
Date: 6.15.15	Project Name & # Alaska LNG 2622		Field Target: 15024
Investigators:	B, KV		Feature ID: W857/0ZO
Latitude:			Datum: WGS84
Logbook #:			Picture #: W85T10Z0_/-3
Location Descrip	tion:		House and the first
Dry sandy site see Notebook	Creek to sonthe for more defield	1 occasional over 1 11 Page 22	oanks, site is dry
Common Species	s Observed (Scientifie	c Name)	
0.1			
Calamagrostis	Canadensis		
Athyrium C	yclosorum		2.
Urtica die			
Percent Cover of I	Dominant Structure Lev	vel: Herb cour 95% fe	
Habitat Description	on:	MELD COULY TOTAL	is ball depressions.
Thick tall lady fe	rn opening in Forest f cotton wood, Bi	· Ferns & grass over s inch & spruce all -	tall. Surrounding Forest is fall. Very little veg diversity he
Alaska vegetatio	n Classification: Lev	ei I, Levei II, Levei III	0
11/AZ			and the second s
Notes:			
see note bos	K / page 22		
Field Crew Chief:	Jessie Brownlee	Field Scientist/	Technician halen Volper

TIC 20-0P

Vegetation Classification Data Form

Level I	Level II	Level III
L Forest	A Needleleaf (conifer) forest	 Closed needleleaf (conifer) forest Open needleleaf (conifer) forest Needleleaf (conifer) woodland
	B. Broadleaf forest	 Closed broadleaf forest Open broadleaf forest Broadleaf woodland
	C. Mixed forest	 Closed mixed forest Open mixed forest Mixed woodland
II, Scrub	A, Dwarf tree scrub	 (1) Closed dwarf tree scrub (2) Open dwarf tree scrub (3) Dwarf tree scrub woodland
	B. Tall scrub	(1) Closed tall scrub (2) Open tall scrub
	C, Low scrub	 Closed low scrub Open low scrub
	D. Dwarf scrub	 Dryas dwarf scrub Ericaceous dwarf scrub Willow dwarf scrub
III. Herbaceous	A. Graminoid herbaceous	 Dry graminoid herbaceous Mesic graminoid herbaceous Wet graminoid herbaceous (emergent)
	B. Forb herbaceous	 Dry forb herbaceous Mesic forb herbaceous Wet forb herbaceous (emergent)
	C. Bryoid herbaceous	(1) Mosses (2) Lichens
	D. Aquatic (nonemergent) herbaceous	 Freshwater aquatic herbaceous Brackish water aquatic herbaceous Marine aquatic herbaceous

II. So	rub
8a	Vegetation with at least 10 percent cover of dwarf trees
8b.	Vegetation with at least 25 percent cover of shrubs and less than 10 percent cover of dwarf trees
9a	Dwarf tree canopy of 60-100 percent cover
9b.	Dwarf tree canopy of 25-59 percent cover
9c.	Dwarf tree canopy of 10-24 percent cover
10a.	Shrubs more than 1.5 meters (5 ft) tall
10b.	Shrubs less than 1.5 meters (5ft)tall
11 a	Shrub canopy cover greater than 75 percent
11 b	Shrub canopy cover of 25-74 percent
12a.	Shrubs 20 centimeters to 1.5 meters tall
126	Shrubs under 20 centimeters in height
	Shrub canopy cover greater than 75 percent
13b.	Shrub canopy cover of 25-74 percent, or as low as 2 percent if little or no other vegetation cover present
14a.	Dryas species dominant in the dwarf shrub layer
14b.	Ericaceous species dominant in the dwarf shrub layer
14c.	Willow species dominant in the dwarf scrub layer
10; E	erbaceous
15a	Terrestrial vegetation, or if growing in the water, dominated by emergent vegetation
156	Dominant vegetation growing submerged in water or floating on the water surface, but not emerging above the water

la.	Trees over 3 meters (10 ft) tall are present and have a canopy cover of 10 percent or more
1 b.	Trees over 3 meters (10 ft) tail are absent or nearly so, Less than 10 percent cover. (Dwarf trees, less than 3 meters [10 ft] tail may be present and abundant
l: Fo	rest
2a	Over 75 percent of tree cover contributed by needleleaf (conifer) species. IA Needleleaf forest
2b	Less than 75 percent of tree cover contributed by needleleaf (contier) species.
3a	Tree canopy of 60-100 percent I.A.1 Closed needleleaf forest
3b	Tree canopy of 25-59 percent LA.2 Open needleleaf fores
3c	Tree canopy of 10-24 percent cover
4a.	Over 75 percent of tree cover contributed by broadleaf species
4b.	Broadleaf or needleleaf species contribute 25 to 75 percent of the tree cover
5a.	
	Tree canopy of 60-100 percent cover
5b.	Tree canopy of 25-59 percent cover
5c.	Tree canopy of 10-24 percent cover
6a.	Tree canopy of 60-100 percent cover. I.C.1 Closed mixed fores
6b.	Tree canopy of 25-59 percent cover I.C.2 Open mixed fores
BC.	Tree canopy of 10-24 percent cover
7a.	Vegetation with at least 25 percent cover of erect to decumbent shrubs or with at least 10 percent cover of dwarf trees (less than 3 meters
7b.	[10前]編] 0 Vegetation herbaceous (may have up to 25 percent shrub cover)
16a,	Grasses, sedges, or rushes
	(graminoid) plants dominant III.A Graminoid herbaceous
16b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 18 Grasslands of well-drained, dry sites, such as south-facing bluffs,
16b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant II Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes. Typically (but not always) dominated by <i>E/mus</i> spp., <i>Festuce</i> spp.
16b 17a.	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant III. Grasslands of well-drained, dry sites, such as south-facing bluffs, oid beaches, and sand dunes. 1 Typically (but not always) dominated by <i>E/muss</i> spp., <i>Festure</i> spp., and <i>Deschampsie</i> spp. III.A.I Dry graminoid herbaceou On moist sites, but usually not with standing water, Usually dominated by <i>Calemagroslia</i> spp., III.A.I Dry graminoid herbaceou
16b 17a. 17b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant III. Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes. 1 Typically (but not always) dominated by <i>Elymus</i> spp., <i>Festuce</i> spp., and <i>Deschampsia</i> spp. III.A.I Dry graminoid herbaceou On moist sites, but usually not with standing water. Usually dominated by <i>Calamegrostics</i> spp., <i>Carex</i> spp., or <i>Enophorum</i> spp.; III.A.2 Mesic graminoid herbaceou
16b 17a. 17b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry sites, such as south-facing bluffs, oid beaches, and sand dunes. 14 Typically (but not always) dominated by <i>Elymus</i> spp. <i>Feduce</i> spp. and <i>Deschampsie</i> spp. 11 On moist sites, but usually not with standing water. Usually dominated by <i>Calemagrapsils</i> spp. <i>Carex</i> spp. or <i>Enophorum</i> spp.; tussocks often present III.A.1 Dry graminoid herbaceou: On wet sites, standing water present for part of the year; dominated by either sedges or careses: includes wet tundra III.A.2 Mesic graminoid herbaceou:
16b 17a 17b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant III. Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes. 1 Typically (but not always) dominated by <i>Elymus</i> spp., <i>Festure</i> spp., and <i>Deschampsia</i> spp. III.A.I Dry graminoid herbaceou On moist sites, but usually not with standing water. Usually dominated by <i>Calemegrostic</i> spp., <i>Carex</i> spp., or <i>Enophorum</i> spp.; III.A.2 Mesic graminoid herbaceou On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens
16b 17a 17b 17c	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry 14 sites, such as south-facing bluffs, 01 old beaches, and sand dunes. 12 Typically (but not always) dominated by <i>E/mus spp., Festuce</i> spp. and <i>Deschampsie</i> spp. III.AI Dry graminoid herbaceous On moist sites, but usually not with standing water. yressorks often present III.A.2 Mesic graminoid herbaceous On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens III.A.3 Wet graminoid herbaceous Vegetation dominated by forbs III.A Forb herbaceous 18 Yespetation dominated by mosses
16b 17a. 17b 17c 18a 18b.	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry sites, such as south-facing bluffs, oid beaches, and sand dunes. 14 Typically (but not always) dominated by <i>Elymus</i> spp. <i>Festure</i> spp. and <i>Deschampsie</i> spp. III.A.I Dry graminoid herbaceou: On moist sites, but usually not with standing water. Usually dominated by <i>Calemagenselis</i> spp. <i>Carex</i> spp. or <i>Enophorum</i> spp.; tussocks often present III.A.2 Mesic graminoid herbaceou: On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens III.A.3 Wet graminoid herbaceous Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetails) III.B Forb herbaceous 11 Vegetation dominated by mosses or lichens III.C Bryoid herbaceous 12 On dry sites, usually rocky and well 11 11 11
16b 17a. 17b 17c 18a 18b. 19a.	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes. 14 Typically (but not always) dominated by E/ymus spp., Fesfuce spp., and Deschampsia spp. III.A.I Dry graminoid herbaceous On moist sites, but usually not with standing water. Usually dominated by Celamagrostic spp., Carex spp., or Eriophorum spp.; III.A.2 Mesic graminoid herbaceous On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens. III.A.3 Wet graminoid herbaceous Vegetation dominated by forbs III.A.5 Forb herbaceous 11 Vegetation dominated by mosses III.C Bryoid herbaceous 12 On dry sites, usually rocky and well drained, mostly fundra sites III.B.1 Dry forb herbaceous 24
16b 17a. 17b 17c 18a 18b. 19a. 19b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry sites, such as south-facing bluffs, oid beaches, and sand dunes. 13 Typically (but not always) dominated by <i>Elymus</i> spp., <i>Festuce</i> spp., and <i>Deschampsie</i> spp. III.A.I Dry graminoid herbaceous On moist sites, but usually not with standing water. Usually dominated by <i>Calemagenselis</i> spp., <i>Carex</i> spp. or <i>Enophorum</i> spp.; tussocks often present III.A.2 Mesic graminoid herbaceous On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens III.A.3 Wet graminoid herbaceous Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetails) III.B Forb herbaceous 14 Vegetation dominated by mosses or lichens III.C Bryoid herbaceous 14 On dry sites, usually rocky and well drained, mostly tundra sites III.B, 1 Dry forb herbaceous 14
16b 17a 17b 17c 18a 18b 19a 19b 19c 20a	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry sites, such as south-facing bluffs, old beaches, and sand dunes. 13 Typically (but not always) dominated by E/ymus spp., Fesfuce spp., and Deschampsie spp. III.A.I Dry graminoid herbaceous On moist sites, but usually not with standing water. Usually dominated by Celamagrostic spp., Carex spp., or Enophorum spp.; III.A.2 Mesic graminoid herbaceous On wet sites, standing water present for part of the year; dominated by eather sedges or grasses; includes wet tundra, bogs, marshes, and fens. III.A.3 Wet graminoid herbaceous Vegetation dominated by mosses or lichens III.B. Forb herbaceous 14 Vegetation dominated by mosses or lichens III.C Bryoid herbaceous 24 On dry sites, usually rocky and well drained, mostly tundra sites III.B.1 Dry forb herbaceous 24 On moist sites but without standing water, mostly within forested areas III.B.2 Mesic forb herbaceous 24 On moist sites, usually rocky and well drained, mostly tundra sites III.B.2 Mesic forb herbaceous 24 On moist sites but without standing water, mostly within forested areas III.B.2 Mesic forb herbaceous 24 On wet sites, usually with standing water for part of the year III.B.3 Wet forb herba
16b 17a. 17b 17c 18a 18b. 19a. 19b 19c 20a 20b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry sites, such as south-facing bluffs, oid beaches, and sand dunes. 13 Typically (but not always) dominated by <i>Elymus</i> spp, <i>Festure</i> spp, and <i>Deschampsie</i> spp, and <i>Deschampsie</i> spp, and <i>Deschampsie</i> spp, spp, <i>Festure</i> spp, and <i>Deschampsie</i> spp, spp, <i>Festure</i> spp, and <i>Deschampsie</i> spp, spp, <i>Festure</i> spp, and <i>Deschampsie</i> spp, and <i>Deschampsie</i> spp, spp, spp, spp, spp, spp, spp, spp
16b 17a. 17b 17c 18a 18b. 19a. 19b 19c 20a 20b 21a	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry sites, such as south-facing bluffs, oid beaches, and sand dunes. 14 Typically (but not always) dominated by E/ymus spp., Festure spp., and Deschampsie spp. III.A.I Dry graminoid herbaceou: On moist sites, but usually not with standing water. Usually dominated by Calemagnesite spp. III.A.I Dry graminoid herbaceou: On moist sites, but usually not with standing water. Usually dominated by calemagnesite spp. III.A.2 Mesic graminoid herbaceou: On wet sites, standing water present for part of the year; dominated by either sedges or grasses; includes wet tundra, bogs, marshes, and fens. III.A.3 Wet graminoid herbaceous Vegetation dominated by forbs (broadleaf herbs, ferns, or horsetalls) III.A.3 Wet graminoid herbaceous 12 On dry sites, usually rocky and well drained, mostly undra sites III.C.Bryoid herbaceous 21 On dry sites, usually rocky and well drained, mostly within forested areas III.B.2 Mesic forb herbaceous 21 On wet sites, usually with standing water (rop and of the year. III.B.2 Mesic forb herbaceous 21 On wet sites, usually with standing water or part of the year. III.B.2 Mesic forb herbaceous 21 On wet sites, usually with standing water III.B.1 Bry oid herbaceou
16b 17a. 17b 17c 18a 18b. 19a. 19b 19c 20a 20b 21a 21 b	(graminoid) plants dominant III.A Graminoid herbaceous 1 Forbs or bryophytes dominant 13 Grasslands of well-drained, dry 14 sites, such as south-facing bluffs, 01 old beaches, and sand dunes. 12 Typically (but not always) dominated by <i>Eymus spp., Festice</i> spp. and <i>Deschampsie</i> spp. III.A1 Dry graminoid herbaceous On moist sites, but usually not with standing water. yressers, includes wet tundra, III.A.2 Mesic graminoid herbaceous On wet sites, standing water grasses; includes wet tundra, pogs, marshes, and fens III.A.3 Wet graminoid herbaceous Vegetation dominated by forbs III.C Bryoid herbaceous (broadleaf herbs, ferns, or horsetalls) III.C Bryoid herbaceous On moist sites but without standing III.B.1 Dry forb herbaceous On moist sites, usually with standing Water, mostly within forested areas On wet sites, usually with standing III.B.3 Wet forb herbaceous Vegetation cover dominated by III.B.3 Wet forb herbaceous On wet sites, usually with standing III.C.1 Bryoid mess Vegetation cover dominated by III.C.2 Bryoid licher

Vegetation Classification Data Form QA/QC Checklist

This form is to be completed before leaving the field site.

Feature ID: <u>W85</u> T1020 Field Target: <u>15026</u> Date: <u>6-15-15</u>

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

1. General Information

- **X** Location data recorded?
- Photo taken and photo number recorded?

2. Location Description

DA Location of site recorded with enough detail to help relocate?

3. Common Species

- Scientific name of common species recorded?
- Percent cover of dominant structure level noted?

4. Habitat Description

✓☑ Habitat described?

5. Classification

☆ All three levels of classification recorded?

6. Field Log Book

- Field form entries consistent with log book?
- Logbook clearly identifies the Field Target ID and Feature ID?

yer X Maley Valper G-15-15 Signature

X fissie Brownlee X JAR

Field Crew Chief (print)

SITE DESCRIPTION	a sha an	the state				
Survey Type: Centerline X Acces	ss Road (explain) C	Other (expla	ain)	Field Target: 15045	Map #: 733, Map Date: 6.9.15	
Date: 6-16-2015	Project Name & No.: A	laska LNG	60418403	Feature Id	W85T1021	
Investigators: 5B, KV		M			Team No.: $W85$	
State: Alaska	Region: Alaska		Milepost:	783.7		
Latitude: (e/ ° 26:617576	5.97°	Longitude	-/50°	39.606167	Datum: WGS84	
Logbook No.:		5	Picture No.		01 thru 004	
			TRUCK, STATE & Local			
SITE PARAMETERS						
Subregion: Sathcente	31		Landform (hil	lslope, terrace, hummock	s, etc.): Jeger All in Contant	
Slope (%): 0-3					Convex undulating	
Pre-mapped Alaska LNG/NWI classifica	tion:	κ.	Evidence of V	Wildlife Use: brow &	2 veg moose droppin	
Are climatic/hydrologic conditions on the Yes No (if no expl	e site typical for this time of lain in Notes)	f year?	Are "N Yes	ormal Circumstances" pre No (If no, ex	esent:	
Are Vegetation, Soil, or Hyd	drology Significantly	Disturbed?	No_	(If yes, explain in Notes		
Are Vegetation, Soil, or Hyd	drology Naturally Pro	oblematic?	No_V	_ (If yes, explain in Notes	s.)	
SUMMARY OF FINDINGS	The Market Hard					
Hydrophytic Vegetation Present? Yes_	No/	ls	the Sampled A	Area within a Wetland?	Yes No/	
Hydric Soil Present? Yes_	No_ <u>N</u>	_ w	etland Type:	V		
Wetland Hydrology Present? Yes	No	- Ala	iska Vegetation	n Classification (Viereck):	182 11AZ	
Notes and Site Sketch: Please include E corridor.	Directional & North Arrow, C	Centerline,	Length of featu	re, Distances from Cente	rline, Photo Locations, and Survey	

W8571021

VEGETATION (use scientific names of plants)			
Tree Stratum (Plot sizes:60 F}	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A)
1. Betula Neoalaskang	20	Y	FAC	Total Number of Dominant Species Across All Strata: 7 (B) % Dominant Species that are OBL, FACW, or FAC: 29 (A/B)
2. Populos balsamifera	1.5	Y	FACU-	
3. Picea glang	5	N	FACU	
4.				Prevalence Index worksheet:
Total Cover			•	Total % Cover of: Multiply by:
50% of total cover	: <u>20</u> 20	% of total cov	er: 8	OBL species: $X = O$
Sapling/Shrub Stratum (ZG FF)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $43 \times 2 = 86$ FAC species $40 \times 3 = 120$ FACU species $97 \times 4 = 388$
1. Viburnun edule	20	· Y	FACU	UPL species
2. Ribes triste	5	N	FAC	Column Totals: 80 (A) 59.4 (B)
3. Rosa Acicularis	15	Y	FACU	PI = B/A = 3.3
4. Oplopanax horridus	10	Ň	FACU	
5. Rubus idaeus	L.	N	FACU	
6. Actaea rubra	2	N	FAC	
7. Salix Sp-		N	-	
8. Almis Fruticom 9.	3	N	FAC	
Total Cover 50% of total cover VEGETATION (use scientific names of plants	28,5 20	0% of total cov	er: <u>11,4</u>	
Herb Stratum (<u>26 F+)</u>	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: <u>N</u> Dominance Test is > 50%
1. Mertensia paniculata	3	N	FACU	Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
2. Calamagrostis canadensis	5	N	FAC	Notes)
3. Equesetum pratense	40	Y	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Triantalis europaca	4	N	FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Chamerion ansustitutium	3	N	FACU	disturbed or problematic.
6. Heracleum Maximum	10	Y	FACU	
7. Galium trikidum	3	N	FACW	% Bare Ground
8. Galium SP.	5	N	~	Cover of Wetland Bryophytes
9. Gumnoracpium dryop	10	Y	FACU	Total Cover of Bryophytes
10. Cothus suecica	5	N	FAC	% Cover of Water
Streptorus FKU Total Cover anne lexifatius 50% of total cover	89)% of total cov		Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):
1º/D N				

SOIL			6.16.15	_	And the second s	1021		
	Strange KS	나니지 말라.	DateF	eature ID	112.97		THE STATE OF	Soil Pit Required (Y/N)
SOIL PROF	ILE DESCRIPTION:	(Describe	e to the depth needed	d to docur	ment the	ndicator or o	confirm the absen	ce of indicators.)
Depth	Matrix		Redox Features					Lare a
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-4								
4-5	10YR 2/2	100					VF SaL	
C It'	107R 4/3	100		++			FSal	A BARREN
$\frac{2}{11}$ in	1017R 4/3	100		+ +				burid organics @ 11"
11-181					-		Sal	Durido organics C. (1
18-21	104/R 3/4	100					Sal	
		_						
¹ Type: C=C	oncentration, D=Dep	letion, RM	M=Reduced Matrix, (CS=Cover	ed or Co	ated Sand G	Grains. ² Location	n: PL=Pore Lining, M=Matrix.
HYDRIC SO	IL INDICATORS	Transit .	C. article 1		U Alter	TYN S	INDICATORS	FOR PROBLEMATIC HYDRIC SOIL
Histosol or H	Histel (A1)		Alaska Gleyed	(A13)	N		Alaska Color	Change (TA4) ⁴
	don (A2) _/	-	Alaska Redox	(A14)	N		Alaska Alpine	Swales (TA5) N
Black Histic	. 1		Alaska Gleyed		15) N			with 2.5Y Hue
Hydrogen Si			3				Alaska Gleye	d without 5Y Hue or Redder Underlyin
-		_				_	Layer N	Notes) of
	Surface (A12) <u>N</u>						Other (Explai	cape position must be present unless
	ayer (if present): Ty	lotes. pe: <u>/</u>		Depth (inc	ches):	N	G	
Hydric Soil	ayer (if present): Ty	pe: <u>^</u>				N. Top	5" were 3	Falid roots
Hydric Soil	ayer (if present): Ty	pe: <u>^</u>				N. Top	5" were s	falid roots
Hydric Soll	ayer (if present): Ty	pe: <u>^</u> J Dense	e rootmet t	s cet	through		(P	Falid roots 2 or more required)
Hydric Soll	ayer (if present): Ty Present (Y/N): Sandy Soi), SY PRIMARY INDIC	Dense Dense	e rootmet t	sufficient)	throw s		Y INDICATORS (
Hydric Soll Notes: Dry HYDROLOG Surface Wat	ayer (if present): Type Present (Y/N): Sandy Soi/, BY PRIMARY INDIC/ ter (A1)	Dense Dense ATORS (2 Su	any one indicator is s rface Soil Cracks (Bu	sufficient)	throug s	ECONDAR Vater-staine eaves (B9)	Y INDICATORS (2 or more required) Stunted or Stressed Plants (D1)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water	ayer (if present): Type Present (Y/N): Sandy Soi/, BY PRIMARY INDIC/ ter (A1) Table (A2)	Dense Dense ATORS (: Su – (B) Sp	any one indicator is s rface Soil Cracks (Bu	sufficient)	throw s 	ECONDAR Vater-staine eaves (B9) Prainage Pat	Y INDICATORS (^d N tterns (B10)N zospheres along	2 or more required) Stunted or Stressed Plants (D1)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water ⁻ Saturation (A	ayer (if present): Type Present (Y/N): Sandy Soil, BY PRIMARY INDIC/ ter (A1) Table (A2) A3)	ATORS (1 Su - (B) Co	any one indicator is s inface Soil Cracks (Br indation Visible on A 7) arsely Vegetated	sufficient) a) erial Imag	throw s 	ECONDAR Vater-staine eaves (B9) prainage Pat	Y INDICATORS (d tterns (B10)N zospheres along (C3)	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water ⁻ Saturation (A Water Marks	ayer (if present): Type Present (Y/N): Sandy Soil, BY PRIMARY INDIC/ ter (A1) Table (A2) A3)	ATORS (A Demon ATORS (A Su - (B Sp Co Ma Hy	any one indicator is s rface Soil Cracks (Be indation Visible on A 7) N arsely Vegetated ncave Surface (B8)	sufficient) a) erial Imag	throw s L geny C L F III S	ECONDAR Vater-staine eaves (B9) Prainage Pat Dividized Rhi iving Roots Presence of I on (C4) alt Deposits	Y INDICATORS (d N	2 or more required) 2 or more required) Stunted or Stressed Plants (D1)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water ⁻ Saturation (A Water Marks Sediment De	ayer (if present): Type Present (Y/N): Sandy Soil, BY PRIMARY INDIC/ ter (A1) Table (A2) A3) s (B1)	ATORS () ATORS () Su Inu (B) Co Ma Hy Od Dr	any one indicator is s rface Soil Cracks (Br indation Yisible on A 7) arsely Vegetated ncave Surface (B8) irl Deposits (B15) drogen Sulfide ,	sufficient) a) erial Imag	throw s L geny C L F II S	ECONDAR Vater-staine eaves (B9) Prainage Pat Dividized Rhi iving Roots Presence of on (C4)	Y INDICATORS (d N	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water ⁻ Saturation (<i>J</i> Water Marks Sediment De Drift Deposit	Present (Y/N): Present (Y/N): Sandy Soi $/$. BY PRIMARY INDIC/ ter (A1) Table (A2) A3) s (B1) eposits (B2)	ATORS (A Demon Demon Su Su Su Su (B Sp Co Ma Ma Ma Od Dr Wa	any one indicator is s rface Soil Cracks (Bi indation Visible on A 7) arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide lor (C1) y-Season	sufficient) sufficient) s) erial Imag N N	throw s L geny C L F II S	ECONDAR Vater-staine eaves (B9) Prainage Pat Dividized Rhi iving Roots Presence of I on (C4) alt Deposits	Y INDICATORS (d N	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water ⁻ Saturation (<i>J</i> Water Marks Sediment De Drift Deposit Algal Mat or	ayer (if present): Type Present (Y/N): $Sandy Soill,$ SY PRIMARY INDIC/ ter (A1) Table (A2) A3) s (B1) N eposits (B2) ts (B3)	ATORS (A Demon Demon Su Su Su Su (B Sp Co Ma Ma Ma Od Dr Wa	any one indicator is s rface Soil Cracks (Bi indation Yisible on A 7) arsely Vegetated ncave Surface (B8) irl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	sufficient) sufficient) s) erial Imag N N	throw s L geny C L F II S	ECONDAR Vater-staine eaves (B9) Prainage Pat Dividized Rhi iving Roots Presence of I on (C4) alt Deposits	Y INDICATORS (d N	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water ⁻ Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or	ayer (if present): Type Present (Y/N): $Sandy Soil Sandy Soil BY PRIMARY INDIC ter (A1) Table (A2) A3) s (B1) N eposits (B2) ts (B3) Crust (B4) s (B5) $	ATORS (A Demon Demon Su Su Su Su (B Sp Co Ma Ma Ma Od Dr Wa	any one indicator is s fface Soil Cracks (Bu indation Visible on A 7) arsely Vegetated ncave Surface (B8) inf Deposits (B15) drogen Sulfide jor (C1) y-Season ater Table (C2) her (Explain in Notes	sufficient) sufficient) s) erial Imag N N	throw s L geny C L F II S	ECONDAR Vater-staine eaves (B9) Prainage Pat Dividized Rhi iving Roots Presence of I on (C4) alt Deposits	Y INDICATORS (d N	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Hydric Soll Notes: Dry HYDROLOG Surface Wat High Water Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit	ayer (if present): Type Present (Y/N): $Sandy Soill,$ SY PRIMARY INDIC/ berrow (A1) Table (A2) A3) s (B1) s (B1) be (B2) Crust (B4)	ATORS (A Demon Demon Su Su Su Su (B Sp Co Ma Ma Ma Od Dr Wa	any one indicator is s rface Soil Cracks (Bi indation Yisible on A 7) arsely Vegetated ncave Surface (B8) irl Deposits (B15) drogen Sulfide lor (C1) y-Season ater Table (C2)	sufficient) sufficient) s) erial Imag N N	throw Sery C L Sery C L S N	ECONDAR Vater-staine eaves (B9) Prainage Pat Dividized Rhi iving Roots tresence of on (C4) att Deposits lotes:	Y INDICATORS (d N	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)

EC:_N

 Saturation Present (Y/N): (includes capillary fringe)
 Notes: No 51 grs of hydrology

Depth (in):

_

Page 3 of 4

AQUATIC SITE ASSESSMENT DATA FORM

WETIOZI

VEGETATION VARIABLES P= Plot, M	= Matrix
Forested-Evergreen-Needle-leaved	cking 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 (≥1r	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) n) Short herb (<1m) Moss-Lichen Floating 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% Scattered	100% Cover or Open Water <25% Scattered/Peripheral Cover
Plant Species Diversity (P): Low (< 5 plants	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
AL	0-25% of surface) Moderately Abundant (25-50% of surface)
High (small groupings, diverse and intersperse	patches, concentric rings) Moderate (broken irregular rings) bd)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
Soil VARIABLES Soil Factors (P): Soil Lacking Mineral: Gravelly Mineral: Sandy	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet	No Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Iet/Perennial Outlet
Wetland Water Regime (P): Drier: Seaso Wet: Perm. Flooded, Intermittently Exposed, S	onally Flooded, Temporarily Flooded, Saturated
Evidence of Sedimentation (P): No Evidence	e Observed Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Poorly Developed (6in.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overb	
Degree of Outlet Restriction (P): No Outflow	Restricted Outflow Unrestricted Outflow
	rcumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (Glacial Till/Not Permeable	P): High Permeability Stratified Deposits Low Permeability Stratified Deposits
Basin Topographic Gradient (M): Low C Evidence of Seeps and Springs (P): No See	Gradient (<2%) High Gradient (≥2%) ps or Springs Seeps Observed Intermittent Spring Perennial Spring
LANDSCAPE VARIABLES (M)	V,
Wetland Juxtaposition: Wetland Isolated	Wetlands within 400m, Not Connected Only Connected Below
	Wettands within 400m, Not Connected Only Connected Delow
Wetland Land Use: High Intensity (i.e., a	g.) 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

Medium (10-100 acres)

Crew Chief QA/QC check:

Small (<10 acres)

Size:

GPS Technician QA/QC check:

Large (>100 acres)

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: **U85T102** Field Target: <u>15045</u> Date: <u>6.16.15</u>

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

- DY 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?
- A Indicator status is correct for each species?
- む Dominance Test and Prevalence Index have been completed?

3. Soil

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

4. Hydrology

ZY Appropriate hydrology indicators are marked?

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

5. Functions and Values

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

6. Field Logbook

- I Notes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate?
- A 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)?

Wetland Scientist (print

X Kaley Valper 6-16-15 Signature / Date

6.16.15

Х Jessie R. unlee

Field Crew Chief (print)

Signature Date

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID:
 U8571022
 Field Target:
 15034
 Date:
 (o·llo·l_5)

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?
- X 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?
- X 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)?

6-16-15 Signature / Date 10/02 Wetland Scientist (print)

X Jessie Brownlee

Field Crew Chief (print)

Signature / Date

6:16.15

SITE DESCRIPTION		ST WE WAR	月1日日1日	上前開設1403		
Survey Type: Centerline X Acces	ss Road (explain)	Other (expl	ain)	Field Target:	19034	Map #: <u>227</u> Map Date: <u>6/4/</u> [5
Date: 6-16-15	Project Name & No.:	Alaska LNC	LNG 60418403 Feature Id: W85T) 02			
Investigators: JB, KI						Team No.: W85
State: Alaska	Region: Alaska		Milepost:	743.3	5	
Latitude: 61 21,352861		Longitude	: -150 5 0	2.35899/	1	Datum: WGS84
Logbook No.:					22_00	1. thru - 004
SITE PARAMETERS	V CHILDREN STATE	15- 10-00-00	1 10 100 1 2	State of the State of the State	the state of a	
Subregion: Southcent	CA		Landform (hill	slope, terrace, h	nummocks	, etc.): (avland
Slope (%): 0-3			Local relief (c	oncave, convex,	, none): ر	ndulating
Pre-mapped Alaska LNG/NWI classifica	tion: V		Evidence of V		Ø	0
Are climatic/hydrologic conditions on the Yes No (if no expl	site typical for this time ain in Notes)	of year?	Are "No Yes_\	No		ent: lain in Notes.)
Are Vegetation, Soil, or Hyd	Irology Significantl	ly Disturbed	? No <u>/</u>	_(If yes, explain	in Notes)	
Are Vegetation, Soil, or Hyd	Irology Naturally P	Problematic?	No <u>/</u>	_ (If yes, explain	n in Notes.)
SUMMARY OF FINDINGS		IN STRAIL TH	Main her Million			
Hydrophytic Vegetation Present? Yes_	<u> </u>	Is	the Sampled A	rea within a We	etland?	Yes No
Hydric Soil Present? Yes_	X No	w	etland Type:	PFO1/	14.B	
Wetland Hydrology Present? Yes	<u> </u>	— AI	aska Vegetatior	Classification (Viereck):	1C2,11B2
Notes and Site Sketch: Please include E corridor. See Moy	pirectional & North Arrow		Length of featu	re, Distances fro	om Centerl	ine, Photo Locations, and Survey

WETLAND DETERMINATION DATA FORM W85T10ZZ

	ts)			
Tree Stratum (Plot sizes: <u>(0</u> ++)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 4
1. Betula Negalaskans	20	Y	FAC	* Nominant Species that are OBL, FACW, or FAC: $\frac{300}{100}$ (A
2. Picea Glavea	3	N	FACU	
3. Picea MASiana	10	Y	FACW	
4.				Prevalence Index worksheet:
Total Cove				Total % Cover of: Multiply by:
50% of total cove	r: <u>(</u> 45 20	0% of total cov	/er: <u>6.6</u>	OBL species:X 1 =
Sapling/Shrub Stratum (26 PH	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 17 $x_2 = 34$ FAC species 91 $x_3 = 273$ FACU species 41 $x_4 = 164$
1. Rora Acicularis	10	N	FACJ	UPL species $X 5 =$
2. Viburnum ed de	13	Y	FACU	Column Totals: 154 (A) 476 (B)
3. Alaus Frashicosa	30	Y	FAC	PI = B/A = 3, 0 9
4. Linners borealis	BA	N	FACU	
5. Spiraer Stevenii	5	N	FACU	
6. Vaccinium vitis-idaea	T	N	FAC	
7. Rubus sp	5	N		
8. Aubus champemorus	2	N	FACW	
9.				
				*
Total Cove		<u> </u>	12.0	-
)% of total cov	ver: <u>13.2</u>	
Total Cove 50% of total cove VEGETATION (use scientific names of plant	r: <u>33</u> 20)% of total cov	rer: <u>\3•2</u>	
Total Cove 50% of total cove VEGETATION (use scientific names of plant	r: <u>33</u> 20	0% of total cov Dominant Species? (Y/N)	rer: <u>\3.2</u> Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
Total Cove 50% of total cove VEGETATION (use scientific names of plant	r: <u>33</u> 20 is) Absolute	Dominant Species?	Indicator	Dominance Test is > 50% Prevalence Index is ≤ 3.0
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (<u> </u>	r: <u>33</u> 20 (S) Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50%
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (<u>Uo</u> EX) <u>1. Equisetum Arvence</u>	r: <u>33</u> 20 (s) Absolute % Cover 40	Dominant Species? (Y/N)	Indicator Status	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (<u>UOSK</u>) 1. Equigetum Arvence 2. Tricotatis Europaea	r: <u>33</u> 20 (s) Absolute % Cover 40	Dominant Species? (Y/N) Y	Indicator Status	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (<u>UoST</u>) 1. Equigetum Arvence 2. Tricontatis Europaed 3. viola sp 4. Calium trifidum 5. C	r: <u>33</u> 20 (s) Absolute % Cover 40	Dominant Species? (Y/N) Y N N	Indicator Status FAC FACIU FACIU	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (<u>UoST</u>) <u>1. Equigetum Arvense</u> <u>2. Tricontalis Europaec</u> <u>3. viola sp</u> <u>4. Calium trifidum</u>	r: <u>33</u> 20 (s) Absolute % Cover 40 3 1 4 7 4 5	Dominant Species? (Y/N) V N N	Indicator Status FAC FACIJ FACIJ FACW OBL	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (<u>Uo ST</u>) <u>1. Equigetum Arvence</u> <u>2. Tricentatis Europaea</u> <u>3. viola sp</u> <u>4. Cratium trifidum</u> <u>5. Comarum palustre</u>	r: <u>33</u> 20 (s) Absolute % Cover 40 3 [40 3 [40 5	Dominant Species? (Y/N) V N N N	Indicator Status FAC FACIU FACIU	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (<u>Uo EX</u>) 1. Equigetum Arvense 2. Tricentatis Europaea 3. viola <u>sp</u> 4. Coalium trifidum 5. Comarum palustre 6. Cornus Canadenses	r: <u>33</u> 20 (s) Absolute % Cover 40 3 1 4 7 4 5	Dominant Species? (Y/N) V N N N N	Indicator Status FAC FACIJ FACIJ FACW OBL	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (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 VEGETATION (use scientific names of plant Herb Stratum (UO ST) 1. Equisetum Asvense 2. Tricatatis Europaea 3. viola 50 4. Coalium trifidum 5. Comarum palustre 6. Cornus canadenses 7. orchid 50 8. Streptopus amplex's fairs 9. C	$\begin{array}{c} r: 33 20\\ \hline r: 33 20\\ \hline r: 33 \\ \hline r: 33$	Dominant Species? (Y/N) V N N N	Indicator Status FAC FACIJ FACIJ FACJ OBL FACJ	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (UOST) 1. Equiretum Arvence 2. Tricontatis Europaea 3. viola 50 4. Coalium trifidum 5. Comarum palustre 6. Cornus canadenses 7. orchid 50 8. Streptops amplexisation 9. Sanceisscha canadenses 10. 000	$\begin{array}{c} r: 33 20\\ \hline r: 33 20\\ \hline r: 33 \\ \hline r: 33$	Dominant Species? (Y/N) V N N N N N N N	Indicator Status FAC FACV FACV FACU FACU	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Total Cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (10 st) 1. Equigetum Arvense 2. Tricontatis Europaea 3. viola 50 4. Coalium trifidum 5. Comarum palustre 6. Cornus canadenses 7. orchid 50 8. Streptops amplexisations 9. Sandy Socha canadenses	r: 33 20 (3) Absolute % Cover 40 3 1 1 5 1 5 1 5 1 1 5 1 1 5 1 1 1 5 1	Dominant Species? (Y/N) V N N N N N	Indicator Status FAC FACIJ FACIJ FACU FACU FACU	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (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 Cove 50% of total cove 50% of total cove VEGETATION (use scientific names of plant Herb Stratum (UO ST) 1. Equigetum Acvence 2. Tricontatis Europaea 3. viola 50 4. Coalium trifidum 5. Comarum palustre 6. cornus canadenses 7. archid 50 8. Streptops amplex; Sains 9. Sanoyisscha canadenses 10. Spinulum anatinum	r: 33 20 (s) Absolute % Cover 40 3 1 40 3 1 1 40 3 1 1 5 5 7 ($\frac{1}{5}$ 5 7 ($\frac{1}{5}$ ($\frac{1}{5}$	Dominant Species? (Y/N) V N N N N N N N	Indicator Status FAC FAC FAC OBL FAC FAC FAC FAC FAC FAC FAC FAC	Y Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

14.14

797

SOIL PROFI	LE DESCRIPTION: (D	escrib	e to the depth neede	d to doc	ument the i	indicator or	confirm the abser	nce of indicators.)
Depth	Matrix		Redox Features	0.00105	32-1 P			* - · · · · · · · · · · · · · · · · · ·
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-21	organics		5					
A.	0		- A					
			· · · · ·				E.F. C	
		1		-	110		4 4 62 1 A K	
		_			1.2	2	11.11.1	
						1.5	- LANG	
- Eg					<u> </u>		Star 1 1 /	
¹ Type: C=Co	oncentration, D=Deple	tion, R	M=Reduced Matrix, (CS=Cov	ered or Coa	ated Sand C	Grains. ² Locatio	n: PL=Pore Lining, M=Matrix.
HYDRIC SO	LINDICATORS						INDICATOR	S FOR PROBLEMATIC HYDRIC SOIL
Histosol or H	istel (A1)		Alaska Gleyed	d (A13)	1	-6	Alaska Color	Change (TA4)4 /
Histic Epiped	on (A2)		AlaskasRedox	(A14)_	r · ·		Alaska Alpine	e Swales (TA5)/
Black Histic (A3)/		Alaska Gleyed	Pores	(A15)/~	/	Alaska Redo	x with 2.5Y Hue
Hydrogen Su	lfide (A4) /	-		n - 21	Sec. St	Normalia .	Alaska Gleye	d without 5Y Hue or Redder Underlyin
Thick Dark S	urface (A12)/	_		1.1	1.5	S.31	Other (Expla	in in Notes) κ'
disturbed or ⁴ Give details	oroblematic. of color change in Not	es.	2					cape position must be present unless
Restrictive La	ayer (if present): Type	:N	0	Depth (i	nches):	-		
Hydric Soil I	Present (Y/N):	Y						8
Notes:	-		10				_	

HYDROLOGY PRIMARY INDICATO	ORS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)				
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)			
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)			
Saturation (A3) $\underline{\gamma}$	Sparsely Vegetated Concave Surface (B8)/	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)			
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)			
Drift Deposits (B3) <u>N</u>	Dry-Season Water Table (C2)	Notes: porifive XX in organic	- 5			
Algal Mat or Crust (B4)	Other (Explain in Notes):		19			
Iron Deposits (B5)						
Surface Water Present (Y/N):	Depth (in):		V			
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):				
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC: 104 5,(pH .			
Notes: Water in hole is from	episativation and therefore i	vot calling a water-table.				
1999. 1993 I.						

AQUATIC SITE ASSESSMENT DATA FORM

W85TIOZZ !

VEGETATION VARIABLES P= Plot, M= Matrix	
Primary Vegetation Type (P): Vegetation Lacking Forested-Deciduous-Nee Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Needle-leaved Persistent Aquatic Bed Scrub Shrub-Evergreen-Needle-leaved	Scrub Shrub-Deciduous-Broad-leaved
Percent Cover (P): Tree (>5 dbh, >6m tall) 33 Sapling (<5 dbh, <6m tall) Dwarf shrub (<0.5m)	Tall shrub (2-6m) 30 Short shrub (0.5-2m) 28 Moss-Lichen 20 Floating Submerged
Number of Wetland Types (M): Evenness of Wetland Type Distribution	on (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) 80%) Very High Density (80-100%)	Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): 100% Cover or Open Water Peripheral Cover >75% Scattered or Peripheral Cover N/A	<25% Scattered/Peripheral Cover 26-75% Scattered or
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 specie	s)/ High (>25)
Presence of Islands (M): Absent (none) one or Few Sever	al to Many N/A
Cover Distribution of Dominant Layer (P): No Veg Solitary, Scattered St Open Small Scattered Patches Continuous Cover	ems1 or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (>50% of surface)	y Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) X Me High (small groupings, diverse and interspersed)	oderate (broken irregular rings)
HGM Class (P): Slope Flat Lacustrine Fringe Depressio	nal Riverine Estaurine Fringe
Soil Variables Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemid Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral	c Histosol: Sapric eral: Clayey
Soil Factors (P): Soil Lacking Histosol: Fibric Histosol: Hemi	c Histosol: Sapric eral: Clayey
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemin Mineral: Gravelly Mineral: Sandy Mineral: Silty Mineral	No Inlet/Perennial Outlet Intermittent Inlet/No
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemin Mineral: Gravelly Mineral: Sandy Mineral: Silty	No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial
Soil Factors (P): Soil Lacking	No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial uratedK
Soil Factors (P): Soil Lacking	No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial uratedK
Soil Factors (P): Soil Lacking	eral: Clayey No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial urated ed on Wetland Substrate, Fluvaquent Soils Sediment
Soil Factors (P): Soil Lacking	eral: Clayey No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial urated ed on Wetland Substrate Fluvaquent Soils Sediment Well Developed (6-18in.) Pronounced (>18in.) val 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow
Soil Factors (P): Soil Lacking	Peral: Clayey No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet uratedX ed on Wetland Substrate Perennial Inlet/No Outlet uratedX ed on Wetland Substrate Pronounced (>18in.) Vell Developed (6-18in.) Val 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow (>7.4) Acid (<5.5)
Soil Factors (P): Soil Lacking	Peral: Clayey No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial uratedX ed on Wetland Substrate Fluvaquent Soils Sediment Well Developed (6-18in.) Pronounced (>18in.) val 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow (>7.4) Acid (<5.5) PH Reading
Soil Factors (P): Soil Lacking	eral: Clayey No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial uratedK ed on Wetland Substrate Fluvaquent Soils Sediment Well Developed (6-18in.) Pronounced (>18in.) val 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow (>7.4) Acid (<5.5) pH Reading <u>5.66</u> Low Permeability Stratified Deposits_X
Soil Factors (P): Soil Lacking	No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial urated ed on Wetland Substrate Fluvaquent Soils Sediment Well Developed (6-18in.) Pronounced (>18in.) val 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow (>7.4) Acid (<5.5) pH Reading
Soil Factors (P): Soil Lacking	No Inlet/Perennial Outlet Intermittent Inlet/No nial Outlet Perennial Inlet/No Outlet Perennial urated ed on Wetland Substrate Fluvaquent Soils Sediment Well Developed (6-18in.) Pronounced (>18in.) val 1-2 yrs Return Interval 2-5 yrs Unrestricted Outflow (>7.4) Acid (<5.5) pH Reading

Wetland Juxtaposition: Only Connected Above_		Wetlands withi tream & Downstream_	n 400m, Not Connected Unknown	Only Connected Below	
Wetland Land Use:	High Intensity (i.e., ag.)_	Moderate In	tensity (i.e., forestry)	_ Low Intensity (i.e. open space)	
Watershed Land Use:	0-5% RuralX	5-25% Urbanized	25-50% Urbanized	>50% Urbanized	58
Size: Small (<10 ac	res) Medium (1	0-100 acres)	Large (>100 acres)	" · · · · · · · · · · · · · · · · · · ·	1

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.

 Feature ID:
 U8571022
 Field Target:
 15034
 Date:
 (o·llo·l_5)

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?
- X 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?
- X 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)?

6-16-15 Signature / Date 10/02 Wetland Scientist (print)

X Jessie Brownlee

Field Crew Chief (print)

Signature / Date

6:16.15

SITE DESCRIPTION				· · · ·		
Survey Type: Centerline <u>×</u> Acces	ss Road (explain)	Other (expla	in)	Field Targ	et: <u>13047</u>	Map #: <u>212_</u> Map Date: <u>6/9</u>
Date: 6/17/15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W8571023
Investigators: JB , JA	6					Team No.: W85
State: Alaska	Region: Alaska		Milepost: 7	245		3
Latitude: 61°32,98		Longitude	150° 32	7-		Datum: WGS84
Logbook No.:	Logbook Page No.: 2	28	Picture No.:	P 001-	-004	

SITE PARAMETERS	
Subregion: South central	Landform (hillslope, terrace, hummocks, etc.): Lowland
Slope (%): 0-3	Local relief (concave, convex, none): flat to slightly concare
Pre-mapped Alaska LNG/NWI classification: PSS4/IB	Evidence of Wildlife Use: game trail
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_ <u></u> No (If no, explain in Notes.)
Are Vegetation, Soil, or Hydrology Significantly Disturbed	$1?$ No_ \succeq (If yes, explain in Notes)
Are Vegetation, Soil, or Hydrology Naturally Problematic	? No_ $\underline{\succ}$ (If yes, explain in Notes.)
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes <u>X</u> No I	s the Sampled Area within a Wetland? Yes X No No
Hydric Soil Present? Yes No	Netland Type: $P \leq_S 4 / IB$
Wetland Hydrology Present? Yes X No No	Alaska Vegetation Classification (Viereck): 1 A 3, 1 C 2

Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor.

See map 212 and Not book

VEGETATION (use scientific names of plants	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes:)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC: 4
1,		0	1	Total Number of Dominant Species Across All Strata:
				- % Dominant Species that are OBL, FACW, or FAC: <u>↓∩ O/</u> (
B				
L				Prevalence Index worksheet:
Total Cover:				Total % Cover of: Multiply by:
50% of total cover	: 20	0% of total cov	/er:	OBL species: <u>30</u> X 1 = <u>30</u>
apling/Shrub Stratum (76' Diamete	Absolute	Dominant	Indicator	FACW species: <u>365</u> X 2 = <u>7, 2</u>
	% Cover	Species?	Status	FAC species $(3 - 189)$
2		(Y/N)		FACU species X 4 = 4
Pirea Mariana	20%	Y	FACH	UPL speciesOX 5 =O
Betula nana	30%	Y	FAC	Column Totals: 130 (A) _295 (B)
Rhododendrum to mentorum	107	N	FACUL	PI = B/A =
Andromeda polifolia	31	N	FACW	Equisetum palustre 2% Fac W
Vaccinium Oxycoccus	31	N	OBL.	forser of partitions and the re-
Empetrum nigrum	10-	N	FAC	
- Al alla				
	UZ -	N	FACW	
Salix fuscescens	17. 17.	N	FACW	
Salix fuscescens murica gale Alars tenuifodia	17.	N N N		i de la compañía de l
· Salix fuscescens	17.	N N N	OBL	
Salix fuscescens mucica gale Alars tenvitoria	76	N N W of total cov	OBL FAC	
Salix Fuscescens Murica gale Alors denuificitia Total Cover: 50% of total cover:	76 38 20	N	OBL FAC	
Salix Fuscescens Murica gale Alars tenuifedia Total Cover: 50% of total cover: EGETATION (use scientific names of plants	76 76 38 20	0% of total cov	OBL FAC er: 15.2	Hydrophytic Vegetation Indicators:
Salix FUSCESCENS MUCICO GALE Alors denvitation Total Cover: 50% of total cover: EGETATION (use scientific names of plants	76 38 20	N	OBL FAC	Hydrophytic Vegetation Indicators:
Salix FUSCESCEAS MURICO GALE Alars Achuifickia Total Cover: 50% of total cover: EGETATION (use scientific names of plants erb Stratum (24 Diameter	76 3.8 20 Absolute % Cover	% of total cov	OBL FAC er: 15.2 Indicator	Dominance Test is > 50%
Salix FUSCESCEAS MULTICO GALE Alors Annuifichia Total Cover: 50% of total cover: EGETATION (use scientific names of plants erb Stratum (24 Diameter	76 76 38 20 Absolute)% of total cov Dominant Species?	OBL FAC er: 15.2 Indicator	$_{_{_{_{_{_{_{_{_{_{_{_{_{_{_{_{}}}}}}}}$
Salix FUSCESCENS MUCICA GALE Alars tenvitatia Total Cover: 50% of total cover: EGETATION (use scientific names of plants erb Stratum (ZC Diameter Menyanthes trifatiate	76 3.8 20 Absolute % Cover)% of total cov Dominant Species?	OBL FAC er: 15.2 Indicator Status	Dominance Test is > 50%
Salix FUSCESCENS MULTICO GALE Alors Admiritation Total Cover: 50% of total cover: EGETATION (use scientific names of plants erb Stratum (ZC Diameter Menyanthes trifoliate Comarum Palvate	76 38 20 Absolute % Cover	Dominant Species? (Y/N)	OBL FAC er: 15.2 Indicator Status	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
EGETATION (use scientific names of plants erb Stratum (26 Diameter Menyanthes trifoliate Comarum Paluste Tripontalis europaea	76 38 20 Absolute % Cover	Dominant Species? (Y/N) X	OBL FAC er: 15.2 Indicator Status OBL OBL	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
EGETATION (use scientific names of plants Menyan Thes trifficiate Menyan Thes trifficiate Comarum Paluste Triantalis excopara Eguisetim Fluviatile	76 38 20 Absolute % Cover 10 /. 3/ 1/1 3 /.	N N N	OBL FAC er: 15.2 Indicator Status OBL OBL FACJ. OBL	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
EGETATION (use scientific names of plants Maryan Thes trifficiate Manyan Thes trifficiate Comarum Palustre Triantalis europaea Equisetum Fluviatile Comarum Pluviatile	76 76 38 20 Absolute % Cover 10 /. 3/ 1,1 3 / 3	Dominant Species? (Y/N) X	OBL FAC er: 15.2 Indicator Status OBL OBL OBL OBL	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
Salix fuscescens Muxica gale Alars tennifichia Total Cover: 50% of total cover: EGETATION (use scientific names of plants lerb Stratum (24 Diameter Menyanthes trifoliate Conarum Paluste Triantalis excopaca Eguisetim Fluxiatile Care Microglochia Calamagroshis laponica	76 38 20 Absolute % Cover 10 /. 3/ 1/1 3 /.	N N N	OBL FAC er: 15.2 Indicator Status OBL OBL OBL OBL OBL FACJ.	→ Dominance Test is > 50% → Prevalence Index is ≤ 3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes) → Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. ✓ % Bare Ground
Salix fuscescens Muxica gale Alars denuitatia Total Cover: 50% of total cover: 50% of total cover: EGETATION (use scientific names of plants lerb Stratum (26" Diameter Menyanthes trificity Menyanthes trificity Comarum Palustre Comarum Palustre Comarum Palustre Comarum Flusiatile Care Microglochia Calamagrash's laponica	76 76 38 20 Absolute % Cover 10 /. 3/ 1,1 3 / 3	Dominant Species? (Y/N) V N N N V N	OBL FAC er: 15.2 Indicator Status OBL OBL OBL OBL OBL FAC. OBL	
Solix fuscescens Muxica gale Alars tenuifichia Total Cover: 50% of total cover: 50% of total cover: EGETATION (use scientific names of plants lerb Stratum (26" Diameter Menyanthes trifoliata Comarum Palustre Comarum P	76 76 38 20 Absolute % Cover 10 3 10 3 3 25 7 7 7	N N N N N N N N N N N N N N N N N N	OBL FAC er: 15.2 Indicator Status OBL OBL OBL FAC. OBL FAC. OBL NA	
Salix fuscescens Munica gale Alars tenuifichia Total Cover: 50% of total cover: 50% of total cover: EGETATION (use scientific names of plants lerb Stratum (26 Diameter Menyanthes trifoliatie Menyanthes trifoliatie Comarum Paluste Comarum Paluste Co	76 76 38 20 Absolute % Cover 10 /. 3/ 1,1 3 / 3	Dominant Species? (Y/N) V N N N V N	OBL FAC er: 15.2 Indicator Status OBL OBL OBL OBL OBL FAC. OBL	→ Dominance Test is > 50% → Prevalence Index is ≤ 3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes) → Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. → 0 ★ 0 <
Salix fuscescens Muxica gale Alars denuitatia Total Cover: 50% of total cover: 50% of total cover: EGETATION (use scientific names of plants lerb Stratum (26" Diameter Menyanthes trifoliatis Menyanthes trifoliatis Comarum Palustic Comarum Palustic Com	76 76 38 20 Absolute % Cover 10 3/ 3/ 3/ 3/ 3/ 3/ 7/ 7/ 3/ 4//	N N N N N N N N N N N N N N N N N N	OBL FAC er: 15.2 Indicator Status OBL OBL OBL FAC. OBL FAC. OBL NA	→ Dominance Test is > 50% → Prevalence Index is ≤ 3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes) → Problematic Hydrophytic Vegetation ¹ (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
 Salix Fuscescens Murica gale Alars Atennificatia Total Cover: 50% of total cover: 50% of total cover: 50% of total cover: 76GETATION (use scientific names of plants terb Stratum (26" Diamefer Menyanthes trifaliatis Comarum palustic Comarum palustic Comarum palustic Conserve refunction Calamasroshis laponica Carex Sp 1 Carex sp 1 Carex creation Carex Sp 1 	76 76 38 20 Absolute % Cover 10 /. 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 11 3/ 12 14/	N N N N N N N N N N N N N N N N N N	OBL FAC er: 15.2 Indicator Status OBL OBL OBL OBL OBL NA OBL	

Surface Water Present (Y/N):

Water Table Present (Y/N):

Saturation Present (Y/N): (includes capillary fringe)

Depth (in):

Depth (in):

Depth (in):

that

9

4

N

Y

Y

Notes: small game trail through site

SOIL		8	Date Feature ID		tent i tit.		Soil Pit Required (Y/N)
SOIL PROFIL	E DESCRIPTION: (I	Describe	to the depth needed to docu	ment the	indicator or	confirm the absence	e of indicators.)
Depth	Matrix		Redox Features			-	
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture	Notes
0-20+	organics						Res" of Siltlam inclusion
	0	-				119	@ 8" depth with a deplet
_		_		_			matrix
				_	-	_	
100		-		_			10
10	+	_		_			
17							
		etion, RI	A=Reduced Matrix, CS=Cove	red or Co	bated Sand G	and the second se	PL=Pore Lining, M=Matrix.
A CONTRACTOR OF A CONTRACTOR O	INDICATORS	100		The Design	- Company		FOR PROBLEMATIC HYDRIC SOILS
Histosol or His		_	Alaska Gleyed (A13) _		-:	Alaska Color C	hange (TA4) ⁴
Histic Epipedo			Alaska Redox (A14)	_		Alaska Alpine	Swales (TA5)
Black Histic (A	3)		Alaska Gleyed Pores (/	A15)	<u> </u>		with 2.5Y Hue <u>N</u>
Hydrogen Sulf	ide (A4) <u>N</u>					Alaska Gleyed Layer	without 5Y Hue or Redder Underlying
	rface (A12)					Other (Explain	in Notes) N
Hydric Soil Pr	resent (Y/N):					-	
Notes: Solution	atal Histosol						
HYDROLOGY	PRIMARY INDICAT	TORS (a	iny one indicator is sufficient)		SECONDAR	Y INDICATORS (2	or more required)
Surface Water	(A1) <u>N</u>	1	face Soil Cracks (B6)N	i	Vater-staine _eaves (B9)		Stunted or Stressed Plants (D1)
High Water Tal	ble (A2) <u> </u>	Inu (B7	ndation Visible on Aerial Imag	iery [Drainage Pat	terns (B10) N	Geomorphic Position (D2)
Saturation (A3)	<u> </u>	Spa Co	arsely Vegetated N ncave Surface (B8)	_ (Dxidized Rhiz	cospheres along	Shallow Aquitard (D3) NO
Water Marks (E	31)	Ma	rl Deposits (B15) <u>N</u>	F	Presence of F ron (C4)	Reduced	Microtopographic Relief (D4)
Sediment Depo	osits (B2) <u>N</u>		drogen Sulfide or (C1)	5	Salt Deposits	(C5) <u>N</u>	FAC-Neutral Test (D5) Yes
Drift Deposits (B3) <u>N</u>	Dry Wa	-Season ter Table (C2) <u>N</u>	١	Notes:		
Algal Mat or Cr	ust (B4) <u>N</u>	Oth	er (Explain in Notes): 🔶				
Iron Deposits (I	B5) N						

ater

4.74

pockets

Y

standing

Wetland Hydrology Present (Y/N): ____

77

EC:

is very wets muddy but no

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 Emergent-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) O Sapling (<5 dbh, <6m tall) O Tall shrub (2-6m) Short shrub (0.5-2m) Image: Colspan="2">Image: Colspan="2">Image: Colspan="2">Short shrub (2-6m) Short shrub (0.5-2m) Image: Colspan="2">Image: Colspan="2">Image: Colspan="2">Short shrub (2-6m) Short shrub (0.5-2m) Image: Colspan="2">Image: Colspan="2">Short shrub (0.5-2m) Image: Colspan="2">Image: Colspan="2">Image: Colspan="2">Short shrub (2-6m) Short shrub (0.5-2m) Image: Colspan="2">Image: Colspan="2">Image: Colspan="2">Short shrub (0.5-2m) Image: Colspan="2">Image: Colspan="2">Image: Colspan="2" Short shrub (<0.5-2m) Image:
Number of Wetland Types (M): 2 Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even X
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 X <25% Scattered/Peripheral Cover
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species)X 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 CoverX
Dead Woody Material (P): Low Abundance (0-25% of surface) X Moderately Abundant (25-50% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) X 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: HemicX Histosol: Sapric Mineral: Gravelly Mineral: Silty Mineral: Clayey
Millelal. Gravelly Millelal. Salidy Millelal. Sily Millelal. Silyy
HYDROLOGIC VARIABLES
r alast the states
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
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/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet _
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/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perenninlet/Perenninlet/Perennial Inlet/Perennial Inlet/Perenni
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/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perenni
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/No Outlet Perennis Port Perennial Inlet/No Outlet
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet No Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Porolog Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created Microrelief of Wetland Surface (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval 2-5 yrs
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Net Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennis Intervis 2.5 yrs
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet 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 Outle
HYDROLOGIC VARIABLES Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Detended (Gin.) Net Unattent Interval Substrate Fluxaquent Soils Sediment Created Peronounced (P): No Overbank Flooding Peronounced (Gin.) Peronounced (>18in.) Peronounced (>18in.) Peronounced (>18in.)

Wetland Juxtaposition Only Connected Above_		t Connected Only Connected Below Jnknown
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 25-5	50% Urbanized >50% Urbanized
Size: Small (<10 ac	cres) Medium (10-100 acres)X Large (>1	00 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.

Date: 6.17.15 Field Target: 15049 Feature ID: W85T1023

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

1. Site Description

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

map

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?
- Ø Cover calculations are complete and correct?
- All dominant species have been determined and recorded per strata?
 Indicator status is correct for each species?
- K) 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? Ø

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?

A 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)?

nderson Wetland Scientist (print)

6.17.15 nature / Date

X Jessie Brownlose

Field Crew Chief (print

Signature / Date

SITE DESCRIPTION			a grant som		South R	
Survey Type: Centerline X Acces	ss Road (explain)	Other (expla	in)	Field Targ	et: <u>/5035</u>	Map #: 793. Map Date: 6.12.15
Date: 6 (17/15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W85T1029
Investigators: JB, JA						Team No.: W 85
State: Alaska	Region: Alaska		Milepost:	743.4		
Latitude: 61° 21.27		Longitude	150° 52	1.39		Datum: WGS84
Logbook No.: /	Logbook Page No.:	28	Picture No.:	WESTIC	024 OI	- 04

SITE PARAMETERS	
Subregion: South central	Landform (hillslope, terrace, hummocks, etc.): low(and
Slope (%): 0 - 3	Local relief (concave, convex, none): Con cave
Pre-mapped Alaska LNG/NWI classification:	Evidence of Wildlife Use: game trail
Are climatic/hydrologic conditions on the site typical for this time of year? Yes_XNo(if no explain in Notes)	Are "Normal Circumstances" present: Yes X No (If no, explain in Notes.)
Are Vegetation, Soil, or Hydrology Significantly Disturbe	ed? No X (If yes, explain in Notes)
Are Vegetation, Soil, or Hydrology Naturally Problemati	c? No 🔀 (If yes, explain in Notes.)
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Hydric Soil Present? Yes NoX	Wetland Type: ()
Wetland Hydrology Present? Yes No	Alaska Vegetation Classification (Viereck): / C 2 , // C 2

Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor.

R 20 W8571024.0P W8571024 U:162, 1162 LZ 743.5 Wethand 102 Center In 2

VEGETATION (use scientific names of plants	5)			
Tree Stratum (Plot sizes: 75) jame for	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A)
1. Betula neoaloskana	35%	¥ ·	Facul	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: (A/B
2. Alicea Mariana	15%	Ý	FacN	V bolininant species that are OBE, I ACVV, OF AC (A/B
3.				
4.	-			Prevalence Index worksheet:
Total Cover: 50% of total cover)% of total cov	/er: <u>(</u> 0	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum (26' Diameter	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 15 $X_2 = 30$ FAC species 88 $X_3 = 2164$ FACU species 57 $X_4 = 238$
1. Menzesia ferruginea	7%	V	Farcy	UPL species 0 X 5 = 0
2. Alous tenuifolia	5%	Ý	Fac	Column Totals: 100 (A) 522 (B)
3. ribes triste	3%	N	Far	PI = B/A = 3,2
4. Vibernum edule	Ŧ'/.	Y	FACU	
5. Optoponax horridus	21.	N	Facu	
6. Rosa actentaris	3%	N	FORU	
7. Linnala, bortalis	3%	N	Facu	
8.				14
9.				
Total Cover: 50% of total cover:		0/ 51 1 1	1	
50% 01 total cover.	15 20	% of total cov	/er: <u>(</u>	
VEGETATION (use scientific names of plants)			
Herb Stratum (26 Diamignation	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1	2511	(Y/N)		Prevalence Index is ≤3.0
^{1.} Equisetum arvense ^{2.} Streptopus amplexitalius	35%	N	Facu	Morphological Adaptations ¹ (Provide supporting data in
3. Calamagnostis canadensis	351.	×	Fac	Notes)
4 Geocauton tirrattion	5%	N	Fart	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Gymnocarpium drypteris	201.	V	Facu	disturbed or problematic.
6. Rubus arcticus	5%	N	Fac	
7-Trientalis europasa	8%	N	FORM	% Bare Ground
8. A thurum cuclosorum	5%	N	FOR	<u> </u>
9. J J J Cornus canadennis	5%	N	Facil	Total Cover of Bryophytes
10.	- 44		I WUIA	% Cover of Water
Total Cover:	120			Hydrophytic Vegetation Present (Y/N): <u>N</u>
50% of total cover:		% of total cov	rer: 24	Notes: (If observed, list morphological adaptations below):
	<u></u> 20	, e el total 60v	···· <u>Cz_1.</u>	

	E DESCRIPTION: (become	Redox Features					1	outorory		
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	0		
		70		70	туре		Texture	- NOLE:	3		
0-3	10YR 7/2	100					5.1				_
3-4	104R 1/2	100	57R3/2	10	С	AD 1	Sal	01			1.1.1
4-20	101/2 12	-	5YR4/4	15 5	C	Matrics M	SIC	Foch	let of b	a nodule r	ics
-			3/11/14			- //		100	CENTRITIN	n noovies	
	1					. K.		÷			7
¹ Type: C=Co	ncentration, D=Depl	etion, RM	I=Reduced Matrix	, CS=Cove	red or Co	ated Sand Gra	ains. ² Location	n: PL=Pa	ore Lining, M	=Matrix.	
	LINDICATORS	10.00	Call States (Lawy)	R. BALLAN		AND THE	and the second se		and the second se	C HYDRIC SO	ILS ³
Histosol or Hi	stel (A1)	1010540244	Alaska Gley	ed (A13)	N		Alaska Color	Change (TA4) ⁴	(17
	on (A2)		Alaska Red			_	Alaska Alpine		10	1	1.
Black Histic (and the second se		Alaska Gley		1.000	/	Alaska Redox			j	
Hydrogen Sul	1			`			Alaska Gleye			Redder Underly	ng
		÷					Layer M	·	<u>,</u>		
Thick Dark Su	r of hydrophytic veg	atotion o		as of wollos	nd budrolo	au and an an	Other (Explain		,	present upleas	
1	iyer (if present): Typ	. /		Depth (in							
Hydric Soil F	Present (Y/N): 5 have Lots of 6 Look Relic	N			nt ma	ke an i	ndication . I	Likely	form Fi	om season	al
Hydric Soll F Notes: Soils Melt. They	Present (Y/N):	N	ntrations	bit dor			nd:cator.			om season	al
Hydric Soll F Notes: Soils Melt. They HYDROLOG	Present (Y/N): 5 have Lots of 6 Look Relic	N Conce	ntrations	bet dor s sufficient)) s		INDICATORS (2 or more		1.6.0*0	al
Hydric Soll F Notes: Soils Melt. They HYDROLOG	Present (Y/N): 5 have Lots of Loak Relic Y PRIMARY INDICA Pr (A1)	N Contree ATORS (a Su - Inu (B)	n tractions any one indicator is face Soil Cracks (indation Yisible on	bet dor s sufficient) B6) _ J) S	SECONDARY Vater-stained .eaves (B9)	INDICATORS (2 or more	e required) Stunted or St Plants (D1) _	1.6.0*0	al N
Hydric Soll F Notes: Soils Melt. They HYDROLOG Surface Water High Water T	Present (Y/N): 5 have Lots of Look Relic Y PRIMARY INDICA or (A1) able (A2)	N Confee ATORS (a Su - (Bi Sp	n fractions iny one indicator is face Soil Cracks (indation Yisible on	s sufficient) B6) _ J Aerial Ima) s U Igery [Inde [SECONDARY Water-stained .eaves (B9) Drainage Patte Dxidized Rhizo iving Roots (0	INDICATORS (2 or more F	e required) Stunted or St Plants (D1)_ Geomorphic	tressed	2
Hydric Soll F Notes: Soils Melt. They HYDROLOG Surface Wate High Water T Saturation (A	Present (Y/N): S have Lots of Loak Relic Y PRIMARY INDICA or (A1) able (A2) 3)	N Conject ATORS (a Su - (Bi Co	n fractions any one indicator is face Soil Cracks (indation Yisible on ()	but dor s sufficient) B6) Aerial Ima 3)) S Jugery [Inde] Selow F	SECONDARY Water-stained .eaves (B9) Drainage Patte Dxidized Rhizo .iving Roots (C Presence of R	INDICATORS (2 or more F J S	e required) Stunted or St Plants (D1)_ Geomorphic	tressed Position (D2) itard (D3)	2
Hydric Soll F Notes: Soi'ls Melf They HYDROLOG Surface Water High Water T Saturation (A Water Marks	Present (Y/N): S have Lots of Loak Relic Y PRIMARY INDICA or (A1) able (A2) 3)	N Contraction Contraction Su Su Inu (BT Co Ma Hy	n fractions any one indicator is face Soil Cracks (ndation Visible on ') arsely Vegetated ncave Surface (Ba	but dor s sufficient) B6) Aerial Ima 3)) S Jgery C Ade L Seiaw F - II S	SECONDARY Water-stained Leaves (B9) Drainage Patter Dividized Rhize Living Roots (C Presence of R ron (C4) Salt Deposits (INDICATORS (2 or more F J C S F F F F	e required) Stunted or St Plants (D1) Geomorphic Shallow Aqui Microtopogra Relief (D4) FAC-Neutral	tressed Position (D2) _ itard (D3) aphic Test (D5)	2
Hydric Soll F Notes: Soils Melf They HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment Dep	Present (Y/N): S have Lots of Look Relic PRIMARY INDICA or (A1) able (A2) (B1) posits (B2)	N Contraction ATORS (a Su Inu (B) Co Ma Ma Uny Od	any one indicator is face Soil Cracks (indation Visible on arsely Vegetated incave Surface (B8 rl Deposits (B15) drogen Sulfidę	bot dor s sufficient) B6) Aerial Ima s)) S Jgery C Ade L Seiaw F - II S	SECONDARY Water-stained Leaves (B9) Drainage Patter Dividized Rhize Living Roots (C Presence of R ron (C4) Salt Deposits (INDICATORS (2 or more F J C S F F F F	e required) Stunted or St Plants (D1) Geomorphic Shallow Aqui Microtopogra Relief (D4) FAC-Neutral	tressed Position (D2) _ itard (D3) aphic Test (D5)	2
Hydric Soll F Notes: Soils Melt. They HYDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposits	Present (Y/N): S have Lots of Look Relic PRIMARY INDICA or (A1) able (A2) (B1) posits (B2)	N Contraction Su Inu (BT Co Ma Ma Dry Wa	any one indicator is face Soil Cracks (indation Visible on arsely Vegetated incave Surface (B8 rl Deposits (B15) drogen Sulfide or (C1)	s sufficient) B6) Aerial Ima 3)) S Jgery C Ade L Seiaw F - II S	SECONDARY Water-stained Leaves (B9) Drainage Patter Dividized Rhize Living Roots (C Presence of R ron (C4) Salt Deposits (INDICATORS (2 or more F J C S F F F F	e required) Stunted or St Plants (D1) Geomorphic Shallow Aqui Microtopogra Relief (D4) FAC-Neutral	tressed Position (D2) _ itard (D3) aphic Test (D5)	2
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Hydric Soll F Notes: Soll F Melt. They HYDROLOG ^T Surface Water High Water T Saturation (A Water Marks Sediment Dep Drift Deposits Algal Mat or (Iron Deposits	Present (Y/N): f have Lotz of Look Relic PRIMARY INDICA r (A1) r (A1) r (A1) r (A1) r (A1) r (A1) r (A1) r (B1) r (B1) r (B3) r (B4)	N Conce ATORS (a Su Inu (B7 Sp Co Ma Dr Wa Un Wa	any one indicator is face Soil Cracks (indation Visible on arsely Vegetated incave Surface (B8 rl Deposits (B15) drogen Sulfide or (C1) 	s sufficient) B6) Aerial Ima 3)) S y y y y y y y y y y y y y	SECONDARY Water-stained Leaves (B9) Drainage Patter Dividized Rhizo Living Roots (C Presence of R ron (C4) Salt Deposits (Notes: ~50% of Pre	INDICATORS (erns (B10) popheres along C3) educed <u>see note</u> C5)N file reacts to	2 or more F J (S F F F F F F	e required) Stunted or St Plants (D1) _ Geomorphic Shallow Aqui Microtopogra Relief (D4) _ FAC-Neutral $\sqrt{af} e \times +r$	tressed Position (D2) _ itard (D3) aphic Test (D5)	2
Hydric Soll F Notes: Soll F Meth. They HYDROLOG ¹ Surface Water High Water T Saturation (A: Water Marks Sediment Dep Drift Deposits Algal Mat or (Iron Deposits Surface Wate	Present (Y/N): Ave Lots of of of Look Relic PRIMARY INDICA $PRIMARY INDICA PRIMARY INDICA PRI$	N Conce ATORS (a Su Inu (B7 Sp Co Ma Dr Wa Un Wa	any one indicator is face Soil Cracks (ndation Yisible on arsely Vegetated ncave Surface (B8 rl Deposits (B15) drogen Sulfide or (C1) /-Season iter Table (C2) ner (Explain in Not	s sufficient) B6) Aerial Ima 3)) S y y y y y y y y y y y y y	SECONDARY Water-stained Leaves (B9) Drainage Patter Dividized Rhizo Living Roots (C Presence of R ron (C4) Salt Deposits (Notes: ~50% of Pre	INDICATORS (2 or more F J (S F F F F F F	e required) Stunted or St Plants (D1) _ Geomorphic Shallow Aqui Microtopogra Relief (D4) _ FAC-Neutral $\sqrt{af} e \times +r$	tressed Position (D2) _ itard (D3) aphic Test (D5)	2

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 Emergent-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) Tall herb (≥1m) Short herb (<1m) Moss-Lichen Floating Submerged
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%) Every High Density (80-100%) Ever
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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 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
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/No Outlet Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/Perennial In
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Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Intermittent Inlet/No Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Flovaquent Soils Sediment Created Sediment Observed on Wetland Substrate Flovaquent Soils Sediment
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial 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
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No Intermittent Inlet/No OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Intermittent Inlet/Intermittent Inlet/No Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
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Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletNo Inlet/Intermittent Inlet/Intermitent Inlet/Intermittent In
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletPerennial Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutPark FloodingPerenninterval 1-2 yrsReturn Interval 2-5 yrs
Intet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Intermittent Internal Section (P): No Evidence Observed

Crew Chief QA/QC check: essie Bronell 6.1715 GPS Technician QA/QC check Jon Con

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>W8571024</u> Field Target: <u>IS035</u> Date: <u>617-15</u>

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?
- **IX** 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

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

8. Photos

Solution (2 vegetation, 1 soil pit, 1 soil plug)?

6.17.15

N/

Brend 6.17.15

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

Anderson Wetland Scientist (print) Signature

Х

X Jessie Brownlee

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION							
Survey Type: Centerline Acc	ess Road (explain)	Other (expla	ain)	Field Targ	et: <u>1505</u> 8	Map #: <u>204 M</u> a	ap Date: 64:15
Date: (0118.15	Project Name & No.:	Alaska LNG	60418403		WSSTIDZ	5	
Investigators: JB JA	P			1		Team No.:	5
State: Alaska		Milepost: 7/1, 2					
Latitude: (1 42.7878	42.7878 Longi			ude: -150 24.1274			4
Logbook No.:	Logbook Page No.:	30	Picture No.:	WESTI	025	1-4	-
SITE PARAMETERS	a sub-sector sector bits on		10 S. W. 1.5	al lane and	1236 1920	the local state	WEIT THE LOT
Subregion: South Central		Landform (hillslope, terrace, hummocks, etc.): Lowland					
Slope (%): 0-3			concave, con	10	CONVEX	110	
Pre-mapped Alaska LNG/NWI classific	cation: ():/C7		Evidence of	Wildlife Use:	Moose 3	icat	$(P_{ij})^{-1}$
Are climatic/hydrologic conditions on t		e of year?	Are "N Yes_	lormal Circun	nstances" pre (If no, ex	esent: plain in Notes.)	A. 8. 30.
Are Vegetation, Soil, or H	ydrology Significan	ntly Disturbed?	• No/	<u>X_(</u> lf yes, exp	lain in Notes	5)	
Are Vegetation, Soil, or H	ydrology Naturally	Problematic?	No <u>X</u>	(If yes, ex	plain in Notes	s.)	144
SUMMARY OF FINDINGS	特性的影响和自己		ART IS IS	Ball Ing Tala	「「東京」		
Hydrophytic Vegetation Present? Yes	No_X	Is	the Sampled	Area within	a Wetland?	Yes	No X
Hydric Soil Present? Yes	w	etland Type:	U		ja e	2	
Wetland Hydrology Present? Yes	AI	Alaska Vegetation Classification (Viereck): 1C2, // B2					
Notes and Site Sketch: Please include	Directional & North Arro	w, Centerline,	Length of feat	ure, Distance	s from Cente	erline, Photo Locat	ions, and Survey
Mature tall mixed for around and confirme	to The state	No stean	of hydre	slogy,	Indulating	topology	. I walke
Marre tall Mixed to	es, Dry Sous.	e inte	and dry	as w	ell, O		
Mapped correctly.	The lower	5/0/5					
., 0							

VEGETATION (use scientific names of plants)		Maria Salaria Maria Maria	
Tree Stratum (Plot sizes: 100 diamaters	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A)
1. Betula Neoaleskana	30%	Y	FAC	Total Number of Dominant Species Across All Strata: 7 (B) % Dominant Species that are OBL, FACW, or FAC: 42 (A/B)
2. Picea interimon	20%	4	Fac W	W Dominiant Species that are OBL, FACW, or FAC.
3.				
4.				Prevalence Index worksheet:
Total Cover:				Total % Cover of: Multiply by;
50% of total cover:		% of total cov	·	OBL species:X 1 =
Sapling/Shrub Stratum (26 Diame for	 Absolute % Cover 	Dominant Species? (Y/N)	Indicator Status	FACW species: 20 X 2 = 40 FAC species $(0^{0} X 3 = 180)$ FACU species 10^{1} X 4 = 416
1. Rosa acicularis	21.		Facu	UPL speciesX 5 =
2. Picea glauca	5%	Y	Facu	Column Totals: 134 (A) 636 (B)
3. Alnus tenuifolia	10%	Y:	Fac	PI = B/A =
4. Spirraea stevenii	21	W	Facu	
5. Ribes triste	6%	Y	Fac.	
6. Vibernum edule	5%	N,	For U.	and the second
7. Vaccinium aliginosura	2%	N	Fac	
8. Sorbus sitcheosis	21.	N	Fact	
9. Linnaea, borealis	T	W	Facil	
Total Cover: 50% of total cover:				
50% of total cover:	1.7. 20	% of total cov	er: <u>@~8</u>	- N
VEGETATION (use scientific names of plants				
Herb Stratum (26 Diat Mer	Absqlute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species? (Y/N)	Status	Dominance Test is > 50%
1. Equise form arvense	4	N	Fac	Prevalence Index is ≤3.0
2. Equisetum sulvaticum	6	Ň	Far	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Corpus canadensis	45%	Y	Facu	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Rubus arcticus	2%	N	Faci	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Gymnacarpium druppters	61.	N	Facu	disturbed or problematic.
6. Streptopus amplexificitus	21.	N,	FORM	
7. Chamerion ongustifalium	T	N	Facu	% Bare Ground
8. Spinulum anatinum	35%	Y	Facu	% Cover of Wetland Bryophytes
9.		· ·		Total Cover of Bryophytes
10,				Cover of Water
Total Cover:_	100			Hydrophytic Vegetation Present (Y/N):
50% of total cover:	Ka	% of total cov	er: <u>}0</u>	Notes: (If observed, list morphological adaptations below):

			to the depth needed to Redox Features					
Depth (inchos)	Matrix	%		% Type	¹ Loc ²	Texture	Notes	
(inches)	Color (moist) Dry	70	Color (moist)	76 Type		TOXICITO		
0-3	Intolla	1				SiL	Ash	
3-5	101R4/2	100		133		SiL	1001	
5-101	54R4/4 104R4/4	100		in inter		SiL		
10-20	1041 44	100				0.2		
1.4					Casted Sand (n: PL=Pore Lining, M=Matrix.	
and the second day is the second		ion, RI	M=Reduced Matrix, CS	=Covered or	Coaled Sand C		S FOR PROBLEMATIC HYDRIC SO	
The Parallel Scherbard and	LINDICATORS	6 23 34		1401		A REAL PROPERTY AND A REAL PROPERTY.	Change (TA4) ⁴	
Histosol or Histel (A1)				Alaska Gleyed (A13)				
	lon (A2)			the second second	-1	Alaska Alpine Swales (TA5) Alaska Redox with 2.5Y Hue/		
Black Histic (A3) Hydrogen Sulfide (A4)			Alaska Gleyed P	Pores (A15)	~	and the second s	ed without 5Y Hue or Redder Underlyi	
	urface (A12) N					Other (Explai	in in Notes) —	
	-	/	×					
	Present (Y/N): <u>N</u> rs taken -Dry. Un		undaries between	horizon	5. Typical	Dry 1C26	Grest Soils,	
Notes: Cola	rs taken Dry. Va	iy bo			-	100	Gres + Soils, (2 or more required)	
Notes: Color	rs taken Dry. Va	iy be	undaries between	fficient)	-	RY INDICATORS		
Notes: <i>Lolar</i> HYDROLOG Surface Wate	rs taken Dry. Un	rors (Su (B	any one indicator is sul urface Soil Cracks (B6) undation Visible on Aer	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa	RY INDICATORS	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)	
Notes: <i>Lolar</i> HYDROLOG Surface Wate High Water 1	rs taken Dry. Un sy primary indicat er (A1)	IV be	any one indicator is suf urface Soil Cracks (B6) undation Visible on Aer	fficient) 	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots	atterns (B10) <u>N</u>	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)	
Notes: <i>Color</i> HYDROLOG Surface Water T High Water T Saturation (A	Table (A2) N	IY bo FORS (SI In (B S) C(M	any one indicator is sur unface Soil Cracks (B6) undation Visible on Aer (7) Vegetated oncave Surface (B8) arl Deposits (B15)	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	ATTERNS (B10) Atterns (B10) izospheres along s (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: <i>Lolar</i> HYDROLOG Surface Wate High Water 1 Saturation (A Water Marks	Table (A2) N	ITORS (Su In (B) Cu M - H	any one indicator is sul urface Soil Cracks (B6) undation Visible on Aer (7) barsely Vegetated poncave Surface (B8) arl Deposits (B15)	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	atterns (B10) <u>N</u>	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic	
Notes: <i>Color</i> HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De	Table (A2) N (B1) N	IV bo	any one indicator is sur urface Soil Cracks (B6) undation Visible on Aer (7) Vegetated oncave Surface (B8) arl Deposits (B15) ydrogen Sulfide,	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4)	ATTERNS (B10) Atterns (B10) izospheres along s (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: <i>Color</i> HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposit	PRIMARY INDICAT er (A1) \swarrow Table (A2) \checkmark (B1) \checkmark eposits (B2) \checkmark	IV bo IORS (Su In (B SI Cu M M - D W	any one indicator is sur urface Soil Cracks (B6) undation Visible on Aer (7) barsely Vegetated oncave Surface (B8) arl Deposits (B15)	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	ATTERNS (B10) Atterns (B10) izospheres along s (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: <i>Color</i> HYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposit	Table (A2) N (B1) N (B3) N (Crust (B4) N	IV bo IORS (Su In (B SI Cu M M - D W	any one indicator is sur urface Soil Cracks (B6) undation Yisible on Aer 7) barsely Vegetated bncave Surface (B8) arl Deposits (B15) ydrogen Sulfide dor (C1) ry-Season ater Table (C2)	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit	ATTERNS (B10) Atterns (B10) izospheres along s (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)	
Notes: <i>Color</i> HYDROLOG Surface Wate High Water 1 Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposits	Table (A2) N (B1) N (B3) N (Crust (B4) N	IV bo IORS (SI In (B SI CI M H O D W O	any one indicator is sur urface Soil Cracks (B6) undation Yisible on Aer 7) barsely Vegetated bncave Surface (B8) arl Deposits (B15) ydrogen Sulfide dor (C1) ry-Season ater Table (C2)	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	AY INDICATORS	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) _ Shallow Aquitard (D3)() Microtopographic Relief (D4) FAC-Neutral Test (D5)	
Notes: Color HYDROLOG Surface Wate High Water T Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposits Surface Wat	Table (A2) $(B1) _ N \$ $(B1) _ N \$ $(B3) _ N \$ $(B3) _ N \$ $(B3) _ N \$ $(B5) _ N \$	IV bo IORS (SI In (B SI CI M H O D W O	any one indicator is sur urface Soil Cracks (B6) undation Visible on Aer (7) parsely Vegetated oncave Surface (B8) arl Deposits (B15) ydrogen Sulfide dor (C1) ry-Season fater Table (C2) ther (Explain in Notes):	fficient)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of Iron (C4) Salt Deposit Notes:	ATTERNS (B10) Atterns (B10) izospheres along s (C3) Reduced	(2 or more required) 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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Persistent Aquatic Bed Emergent-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%) 80%) Very High Density (80-100%) Event State State <t< td=""></t<>
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) Image: the second s
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
Iniet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/NoY OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial 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.)
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%)
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)_ Crew Chief QA/QC check: Medium (10-100 acres)_____ Large (>100 acres)____ GPS Technician QA/QC check:

6.18.15

Page 4 of 4

18/15

6

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: <u>W8511625</u>
 Field Target: <u>15058</u>
 Date: <u>6/19/19</u>

 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?

Map

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?
- A 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)?

for Anderson

Wetland Scientist (print)

Signature / Date

Х ownlee

Jusice Brownlee 6-18-15

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	Service Contraction of the			N partie to the		a letter water the
Survey Type: Centerline X Acces	ss Road (explain)	Other (expla	ain)	Field Targe	t: <u>1501</u> 5	Map #: <u>7546</u> Map Date: <u>6.72</u>
Date: 6.18.15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W85T1026
Investigators: JB JA						Team No.: W85
State: Alaska	Region: Alaska		Milepost:			
Latitude: 61° 14.8078	t	Longitude	-151. 6.9	51		Datum: WGS84
Logbook No.: (11° 14, 9078-	Logbook Page No.:	30	Picture No.:		-026	1-4
SITE PARAMETERS	The second second			Part States of Ast		
Subregion: South Central			Landform (hill	slope, terrace	, hummocks	s, etc.): (ouland
Slope (%): 0-3			Local relief (co	oncave, conve	ex, none):	Flat
Pre-mapped Alaska LNG/NWI classification	tion:		Evidence of W	Vildlife Use:	MIDSE	brows
Are climatic/hydrologic conditions on the Yes No (if no expla	site typical for this time ain in Notes)	of year?	Are "No Yes	ormal Circums		sent: plain in Notes.)
Are Vegetation, Soil, or Hyd	IrologySignificant	tly Disturbed?	No_X	_(If yes, expla	in in Notes)	
Are Vegetation, Soil, or Hyd	Irology · _ Naturally F	Problematic?	No_X_	_ (If yes, expla	in in Notes	.)
SUMMARY OF FINDINGS	Rest TIL Supplier	R ALE IL		143-144 (Sec. 1)	TONE	
Hydrophytic Vegetation Present? Yes	<u>× No</u>	Is f	the Sampled A	rea within a V	Vetland?	Yes NoX
Hydric Soil Present? Yes	No_ /	We	tland Type: (J		······································
Wetland Hydrology Present? Yes	× No	Ala	ska Vegetation	Classification	(Viereck):	182, 11B2
Notes and Site Sketch: Please include D corridor. Sife marks wet dry boun Elevation drives mapping. S other areas within p B B B B B C C	dary, Magual h	A small	Soils show	u sign d	Evater	table at 19-22"
Dry 1 CZ, 11BZ + Jout See transect	Confirmed upland 30' up slope	W8571026 Marginel Site U.S. 2, 11 82	162, 11 82	1	Dry ICZ, IBZ-	Proy/ssig ~

VEGETATION (use scientific names of plants	i San Hallon		- Section State	Alley And Fride College And And Alley And Alley And
Tree Stratum (Plot sizes: <u>ND</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B)
1. Betula, pepalaskana	45%	Y	Facil	Notal Number of Dominant Species Across All Strata: $\underline{-}$ (B) % Dominant Species that are OBL, FACW, or FAC: $\underline{-}$ (A/B)
2. Picea alauca	B.C.V.	\forall	Facul	
3.				
4.				Prevalence Index worksheet:
Total Cover:				Total % Cover of: Multiply by:
50% of total cover:	32.5 20	1		OBL species: \underline{O} X1 = \underline{O}
Sapling/Shrub Stratum (2()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $3 X2 = 6$ FAC species $165 X3 = 495$ FACU species $104 X4 = 416$
1. Alnus tenuitolia	25%	Y	Far	UPL speciesX 5 =
2. Picea glauxca	2%		Facy	Column Totals: 272 (A) 917 (B)
3. Optopanax harridus	4%		Facili	PI=B/A=
4. Vaccinium Wigunasum	7%		Fac	
5. Rosa acicularis	31/.		Facu	
6. Menzesia ferruginea	4%		Fack	
7. spimea stevenil 8.	5%	*	Facui	
9.				
Total Cover:	50		_	
50% of total cover:	25 20	% of total cov	/er: <u>1D</u>	
VEGETATION (use scientific names of plants)			
Herb Stratum (<u> </u>	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Athurum cuclosonim	35/1.	Y	Far	Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in
2. Calamonstis randensis	25%	Y	Fac	Notes)
3. Equise tum sylvaticum	45%	Y	Fac	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Equise tum arrense	20%	Y	Fac	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. streptopus ample xitolius	21.		Fac U.	disturbed or problematic.
6. Gymnocarpium dyopteris	15%	1.1	Far II	
7. Rubu artticus	8%		Fac	% Bare Ground
⁸ . Cornus canadensis	3%		Fac U!	% Cover of Wetland Bryophytes Sphargmun
9 Trientalis europoola	1%		Fach	Total Cover of Bryophytes Sover of Water
10. Viola Langs dorfil	3%	1.0	Facw	Hydrophytic Vegetation Present (Y/N):
Total Cover: 50% of total cover:)% of total cov		Notes: (If observed, list morphological adaptations below):

0

SOIL	S. G. Wards Million P.	A ST NEW	Date I	eature I		1026	and the second second	Soil Pit Requ	irod (V/N)
SOIL PROF	ILE DESCRIPTION: (indicator or	confirm the abse		
Depth	Matrix		Redox Features						/ also
(inches) -	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	K.Co.
0-4									1990
4-8	R.3YR 3/2	100		-			SiL		
8-19	104R 3/2	100					Sil		
19-24	104R 4/3	70	SYR4/6	28	C	Mø			14.
			7.5YR 5/4	2	C	RC			
_					121				
1.0									
¹ Type: C=C	oncentration, D=Deple	tion, RM	Reduced Matrix,	CS=Cov	ered or Co	ated Sand G	Brains. ² Locatio	on: PL=Pore Lining, M=Ma	atrix.
HYDRIC SO	IL INDICATORS	ZATE COLE	A THE REAL PROPERTY	15-124	NO PLU		INDICATOR	S FOR PROBLEMATIC H	YDRIC SOILS ³
Histosol or H	listel (A1)		Alaska Gleye	d (A13)	N	-	Alaska Color	Change (TA4) ⁴ N	
Histic Epiped	don (A2)		Alaska Redo	(A14)	N		Alaska Alpin	e Swales (TA5) N	
Black Histic	(A3)N		Alaska Gleye	d Pores	(A15) N		Alaska Redo	x with 2.5Y Hue	Diar
Hydrogen Su	ulfide (A4) <u>N</u>	No.					Alaska Gleye Layer	d without 5Y Hue or Redd	ler Underlying
	Surface (A12)						Other (Expla		
disturbed or	or of hydrophytic vege problematic. of color change in No		e primary indicato	r of wetla	nd hydrolo	ogy, and an a	appropriate lands	cape position must be pre-	sent unless
Restrictive La	ayer (if present): Type	e:		Depth (in	nches):	N			1.0
Hydric Soll	Present (Y/N):	N							
Notes: Sil	shows signo of	a w	tec table at	19.	774	1	1.2.11	and the state of the state of the state	
0011		1	1-0010 001		-				

HYDROLOGY PRIMARY INDICATO	ORS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or m	nore required)
Surface Water (A1)N	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3) <u>N</u>	Shallow Aquitard (D3)
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5) N	FAC-Neutral Test (D5)
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes: Site has marginal hydrology	. Areas of sphagnum
Algal Mat or Crust (B4)	Other (Explain in Notes):	9 muddy depressions. Test	. Areas of sphagnum hole 10 'away had positive
Iron Deposits (B5)		une 6,	with a strategy
Man de la casa present as se	The strength of the strength of the strength of the	A REAL PROPERTY OF THE REAL PR	()
Surface Water Present (Y/N):	Depth (in):		
Water Table Present (Y/N):	Depth (in): Z (Wetland Hydrology Present (Y/N):	Y
Saturation Present (Y/N): (includes capillary fringe)	Depth (in): 19	EC: - 55	H53
Notes: Water table sits Card	und 19-22" and depletes	the matrix and explains the	masses of concentration,

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 Forested-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Persistent Aquatic Bed Forested-Deciduous-Needle-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): 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%) Every High Density (80-100%) Ever
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover26-75% 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 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) Abundant (>50% of surface) Moderately Abundant (25-50% 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/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletNo Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/No Outlet Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Drier: Seasonally Flooded, Temporarily Flooded, Saturated Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Flovaquent Soils Sediment Evidence of Sedimentation (P): No Evidence Observed Sediment Observed on Wetland Substrate
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Intermittent Outlet Perennial Inlet/Perennial Inlet/
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletNo Inlet/Perennial OutletNo Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perenninlet/Perennial OutletPerennial Inlet/Perenni
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No Intermittent Inlet/No OutletIntermittent Inlet/Intermittent QuiletIntermittent Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Fluvaquent Soils Sediment Created 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 yrs
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Crew Chief QA/QC check: Jessie Browneer 6:18.15

1

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: W85T1026
 Field Target: 15015
 Date: 6/18/15

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?
- DE Indicator status is correct for each species?
- Dominance Test and Prevalence Index have been completed?

3. Soil

- 2 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)?

Anderson Wetland Scientist (print)

X mile andreson Coll8/15 Signature

X Jessie Brownlee

X gesser Brownlee 6.18.19

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	a Branch Carrie		all the second			Constant and the second second
Survey Type: Centerline X Acce	ss Road (explain)	Other (expla	ain)	Fleid Targ	et: 15016	Map #: 754.6 Map Date: 6 .12.15
Date: G . 18.15	Project Name & No.:				Feature Id:	W85T1027
Investigators: UB, JK						Team No.: WIS
State: Alaska	Region: Alaska		Milepost:	754.6		
Latitude: 61.250116		Longitude	-151.10858	39		Datum: WGS <mark>84</mark>
Logbook No.:	Logbook Page No.:	31	Picture No.:	W85TIO	27 1-1	t internet
SITE PARAMETERS			VI. The second	No. 11 APRIL MILLA	1 20 2 22 0 1	
Subregion: South Central			Landform (hill	slope, terrac	e, hummocks	s, etc.): Lowland
Slope (%): 0 - 3			Local relief (co	oncave, conv	ex, none):	undulating
Pre-mapped Alaska LNG/NWI classifica	tion:		Evidence of W	Vildlife Use:	Nove	0
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	ormal Circum	stances" pres	sent: lain in Notes.)
Are Vegetation, Soil, or Hyd	Irology Significantl	y Disturbed?	No_X	_(If yes, expl		
Are Vegetation, Soil, or Hyd	Irology Naturally P	roblematic?	No_X	(If yes, expl	ain in Notes.)
SUMMARY OF FINDINGS			11.117.00.3		Hillow Q	
Hydrophytic Vegetation Present? Yes	No_X	Is t	he Sampled A	rea within a	Wetland?	YesNo_X
Hydric Soil Present? Yes_	No	We	tland Type:	Valveen	24	
Wetland Hydrology Present? Yes_	X No	— Ala	ska Vegetation	Classificatio	n (Viereck):	1 C Z, 11 BZ
Notes and Site Sketch: Please include D corridor. Plot is right on boundary Does Not Make Dominan A wetland but after revi just Jown slope of this	irectional & North Arrow, of Net/Dy P ce or PI . Or ewing lagain I site.	Centerline, L ostifize iginally I will cha	ength of featur Alpha Alp weis goild nge this	e, Distances ha-18 thu ig to US status	from Centerl ≥ only ≤ se BPJ fo uple)	ine, Photo Locations, and Survey soil indicator 2 veg to push call toward and and draw boundary
A-East B. J.	33/	28	K	-	-P	linvest
12 754,6 1554/EMIC R458 Strour	Stylett	U: 102/11	100	buddy	4	

VEGETATION (use scientific names of plants				
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: 4 (A) Total Number of Dominant Species Across All Strata: 8
1. Betula nenalaskana	35%	Y	Facul	% Dominant Species that are OBL, FACW, or FAC: <u>50</u> (A/B)
2. Picea Glauca	15:	Y	FACU	
3.		1		
4.		10		Prevalence Index worksheet:
Total Cover:	50			Total % Cover of: Multiply by:
50% of total cover:	<u>25</u> 20	% of total cov	er: <u>10</u>	OBL species:X1 =
Sapling/Shrub Stratum (26)	Absolute % Cover	Dominant Species? - (Y/N)	Indicator Status	FACW species: 40 X 2 = 80 FAC species 106 X 3 = 318 FACU species 152 X 4 = 608
1. Optoponax horridus	15%	Y	Facu	UPL speciesX 5 =
2. Vibernum etule	10%	N	Fac. U	Column Totals: 29.8 (A) 100(6 (B)
3. Alnus tenuifolia	40%	Y	Fac	PI=B/A = 3.37
4. Ribes triste	6%	N	Fac	gymnocarpium dryptens Fac U(25). Sanguisor ba menziesii 27 T Homaca Boreatts (2).
5.				Sanguisor ba menziesii more? T
6.				HOWATA BOREATTS OP)
7.				Trientalis evopaea 3%. Facul
8.	1.5. T) (10	الف جرور الل	4	
9.				
Total Cover 50% of total cover)% of total cov	er: <u>14.2</u>	
VEGETATION (use scientific names of plants)			
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0
1. Dryogteris Expansa	45%.	Y.,	Far.II	Morphological Adaptations ¹ (Provide supporting data in
2. Calamograstis canadense	15%	N	Fac	Notes)
3. Equise tum anvense	40%	y.	Far	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Mertensia popiculata	T	N	Facu	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Gerabium erianthum	T	A	Facu	disturbed or problematic.
6. Viola langsdorfii	20%	Y	FORM	
7. Equisetum sylvaticum	51.	N	Fac:	% Bare Ground
8. Galium boreale	A. J.	N	Facu	% Cover of Wetland Bryophytes
9. Thalic trum occidentale	3%	N	Facu	Total Cover of Bryophytes
10. Impatiens poli-tangere	25%	4	FacW	Hydrophytic Vegetation Present (Y/N):
Total Cover 50% of total cover)% of total cov	rer: <u>35,4</u>	Notes: (If observed, list morphological adaptations below):

OA

10			6.18.13	W	85T1027		
SOIL	Plant and the second		Date	Feature ID		The second second	Soil Pit Required (Y/N)
SOIL PROFIL	E DESCRIPTION: (I	Desoribe	e to the depth need	ded to documen	t the indicator or c	onfirm the ab <mark>sence</mark>	of indicators.)
Depth	Matrix		Redox Features			the states	
inches)	Color (moist)	%	Color (moist)	% Тур	e ¹ Loc ²	Texture	Notes
7-3							
1-55	104R 2/1	100			· · ·	SIL	Sand lease in A horizon
5-5.0							
- 24	10YR 3/3	70	75YR 3/3	15 C	MARC	SiL	
1. 1. 17	6. m		7.54R 3/4	15 C	M4RC	1	
			-				
						21	Di Desellate M Matte
and the second s	ncentration, D=Deple	etion, RM	M=Reduced Matrix	(, CS=Covered (or Coated Sand G		PL=Pore Lining, M=Matrix.
entrate and the second	INDICATORS	A CLUB C	Alusta	1/1/0		and the second s	OR PROBLEMATIC HYDRIC SOILS
	stel (A1)	0	Alaska Gley			Alaska Color Cl	
istic Epipedo			Alaska Red		<u></u> /	Alaska Alpine S	the second s
lack Histic (A			Alaska Gley	ved Pores (A15)	<u>N</u>	Alaska Redox v	vith 2.5Y Hue without 5Y Hue or Redder Underlying
ydrogen Sulf	fide (A4) <u>N</u>	_				Layer N	microut of the of Redder Onderlying
the second second	Inface (A12) N					Other (Explain i	and the second sec
One indicator		etation, c	one primary indicat	tor of wetland hy	drology, and an a	ppropriate landsca	pe position must be present unless
	roplematic	.42					100
isturbed or pr	of color change in No	otes.			+ 17.7		
isturbed or pr Give details o			2	_ Depth (inches):		
listurbed or pr Give details o Restrictive Lay	of color change in No yer (if present): Type		0	_ Depth (inches):		
isturbed or pr Give details o testrictive Lay	of color change in No yer (if present): Type resent (Y/N):	ie: <u>N</u> a	а, і , і			on to the both	form, Not calling so;
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isturbed or pr Bive details of Restrictive Lay lydric Soil Ph lotes: position gdric Jue	of color change in No yer (if present): Type resent (Y/N):	e: <u>No</u>	gmineral soit indicator a	sorfice and p and lack	sifile reaction of hydrophi SECONDARY	INDICATORS (2)	or more required)
isturbed or pr <u>Bive details o</u> estrictive Lay ydric Soil Pr otes: postin gdric Jue YDROLOGY	of color change in No yer (if present): Type resent (Y/N):	e: <u>No</u> 4 490 - 5 xi (TORS (2	gmineral soit indicator a	sorfice and p und Lack s sufficient)	sitive reaction	INDICATORS (2)	
isturbed or pr Give details of Restrictive Lay lydric Soil Pr lotes: post-fu gdric Jue IYDROLOGY	of color change in No yer (if present): Type resent (Y/N):	tors (a	any one indicator i	sorfice and p und Lack s sufficient) (B6) <u>N</u>	SECONDARY Water-stained Leaves (B9)_	INDICATORS (2)	Stunted or Stressed
isturbed or pr <u>Sive details of</u> estrictive Lay lydric Soil Pr otes: postin gdric Jue IYDROLOGY urface Water ligh Water Ta	resent (Y/N): resent (Y/N):	e: <u>No</u> - Sui (TORS (a Su - (B7 Sp	any one indicator i rface Soil Cracks indation Visible on 7) arsely Vegetated	sorfice and p and Lack s sufficient) (B6) <u>N</u> Aerial Imagery	SECONDARY Water-stained Leaves (B9) Drainage Patt	INDICATORS (2 N erns (B10) osphereş along	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)/
isturbed or pr Give details of Restrictive Lay lydric Soil Pr lotes: post-fu gdric Jue IYDROLOGY surface Water ligh Water Ta	resent (Y/N): resent (Y/N):	e: <u>No</u> - Sui (TORS (a Su - (B7 Sp	any one indicator i	sorfice and p and Lack s sufficient) (B6) <u>N</u> Aerial Imagery	SECONDARY Water-stained Leaves (B9)_ Drainage Patt Oxidized Rhiz Living Roots (erns (B10) N ospheres along C3)	or more required) Stunted or Stressed Plants (D1)
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isturbed or pr <u>Sive details of</u> estrictive Lay ydric Soil Pr otes: postan gdric Jue YDROLOGY urface Water igh Water Ta aturation (A3 /ater Marks (f ediment Dep rift Deposits	of color change in Nc yer (if present): Type resent (Y/N): N resent (A1) N resent (A1) N able (A2) N B1) N osits (B2) N (B3) N rust (B4) N	TORS (a Su Su Ma Ma Ma Dry Wa	any one indicator i rface Soil Cracks indation Visible on arsely Vegetated ncave Surface (Ba ind Deposits (B15)) drogen Sulfide or (C1) y-Season ater Table (C2)	sorfice and p and lack s sufficient) (B6) \mathcal{N} Aerial Imagery B) \mathcal{Y} \mathcal{N}	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4)	erns (B10) <u>N</u> ospheres along C3) <u>V</u> teduced	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
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listurbed or pr Give details of Restrictive Lay Aydric Soil Pr Jotes: Post Aydric Soil Pr Jotes: Post Aydric Soil Pr Jotes: Post Audition (A) Surface Water Ligh Water Ta Baturation (A) Vater Marks (I) Rediment Dep Drift Deposits (Jon Deposits (of color change in Nc yer (if present): Type resent (Y/N): N resent (A1) N resent (A1) N able (A2) N B1) N osits (B2) N (B3) N rust (B4) N	TORS (a Su Su Ma Ma Ma Dry Wa	any one indicator i rface Soil Cracks indation Visible on arsely Vegetated ncave Surface (Ba ind Deposits (B15)) drogen Sulfide or (C1) y-Season ater Table (C2)	sorfice and p and lack s sufficient) (B6) \mathcal{N} Aerial Imagery B) \mathcal{Y} \mathcal{N}	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits Notes:	INDICATORS (2)	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic Relief (D4) FAC-Neutral Test (D5)/
listurbed or pr Give details of Restrictive Lay Aydric Soil Pr Jotes: Post Aydric Soil Pr Jotes: Post Aydric Soil Pr Jotes: Post August Constant Surface Water Ta Saturation (A3 Water Marks (I Sediment Dep Drift Deposits (Jon Deposits (Surface Water	of color change in Nc yer (if present): Type resent (Y/N): resent (Y/N): $\sim \propto \propto @ @ "From \sim \sim \propto @ @ "From \sim \sim \propto @ @ "From \sim \sim \sim @ @ "From \sim \sim @ @ "From \sim \sim @ @ "From \sim \sim @ @ @ @ @ "From \sim \sim @ @ @ @ @ "From \sim \sim @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @$	TORS (a Su Su Ma Ma Ma Dry Wa	any one indicator i rface Soil Cracks indation Visible on arsely Vegetated ncave Surface (B15) drogen Sulfide or (C1)/ y-Season ater Table (C2) her (Explain in Not	sorfice and p and lack s sufficient) (B6) \mathcal{N} Aerial Imagery B) \mathcal{Y} \mathcal{N}	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits Notes:	erns (B10) <u>N</u> ospheres along C3) <u>Y</u>	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)/ Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)/
isturbed or pr Sive details of Sestrictive Lay lydric Soil Pr lotes: Postful of C Jue IYDROLOGY urface Water Ta aturation (A3 /ater Marks (I ediment Dep rift Deposits (lgal Mat or C on Deposits (urface Water	of color change in Nc yer (if present): Type resent (Y/N): resent (Y/N): N $PRIMARY INDICA$ $PRIMARY INDICA PRIMARY INDICA $	TORS (a Su Su Ma Ma Ma Dry Wa	any one indicator i rface Soil Cracks indation Visible on arsely Vegetated ncave Surface (B15) drogen Sulfide for (C1) /-Season ater Table (C2) her (Explain in Not	sorfice and p and lack s sufficient) (B6) \mathcal{N} Aerial Imagery B) \mathcal{Y} \mathcal{N}	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits Notes:	INDICATORS (2)	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)/ Shallow Aquitard (D3)/_ Microtopographic Relief (D4) FAC-Neutral Test (D5)/

Disregard FA date, Changing original call from wetland to upland. Site was right on wet/Bry boundary. Map Boundary will be Adjusted to reflect that wetland starts Just down

AQUATIC SITE ASSESSMENT DATA FORM

A REAL PROPERTY AND A REAL	and the second
VEGETATION VARIABLES P= Plot, M	//= Matrix
Forested-Evergreen-Needle-leaved	acking Forested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh; >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m)
Number of Wetland Types (M): 2-	Evenness of Wetland Type Distribution (M): EvenHighly nevenModerately 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	
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
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	
HGM Class (P): SlopeK_ 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	and the second
Inlet/Outlet Class (P): No Inlet/Outlet X Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Inlet/Intermittent	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, 3	conally Flooded, Temporarily Flooded, Saturated
Evidence of Sedimentation (P): No Eviden Created	ce Observed <u>X</u> Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment
Microrelief of Wetland Surface (P): Absent	
Frequency of Overbank Flooding (*): No O Return Interval >5 yrs	verbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs
Degree of Outlet Restriction (P): No Outflow	
Water pH (P): No surface water C	ircumneutral (5.5-7.4) X Alkaline (>7.4) Acid (<5.5) pH Reading 36
Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable	(P): High Permeability Stratified Deposits Low Permeability Stratified Deposits X
Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See	Gradient (<2%) High Gradient (≥2%) eps or Springs X Seeps Observed Intermittent Spring Perennial Spring
Evidence of occept and opinings (i). No cou	
LANDSCAPE VARIABLES (M)	
Wetland Juxtaposition: Wetland Isolate	ed Wetlands within 400m, Not Connected Only Connected Below d 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	<u> 次</u> 5-25% Urbanized 25-50% Urbanized >50% Urbanized
Size: Small (<10 acres) Medi	um (10-100 acres) Large (>100 acres)

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>68571027</u> Field Target: <u>15016</u> Date: <u>6.18.15</u>

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?
- I 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

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

Iominifiar An devision Wetland Scientist (print)

An 4/18/15

Signature / Date

essive Bnownlee 6.18.15 usil Brownlee Х

Field (rew Chief (print)

Signature / Date

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			10	et was	
SITE DESCRIPTION	and the second second		and the form	The Black with the fill	
Survey Type: Centerline 🖌 Acce	ss Road (explain)	Other (exp	olain) 🗶	Field Target: 15 277	Map #: <u>198 Map Date: 10.4.15</u>
Date: 6 19 15					4: W85T1028
Investigators: J13, JA					Team No.: W85
State: Alaska	Region: Alaska		Milepost:	699	
Latitude: 61° 51,3925		Longitud	le: 150°16.	1062	Datum: WGS84
Logbook No.:	Logbook Page No.:	32	Picture No.:	P 001-004	N, 5
SITE PARAMETERS	was an the million of	1.45.24	Swins were sown		
			Landform (hil	Islope, terrace, hummoo	ks, etc.): Lowland
Slope (%): ()-3			-	oncave, convex, none):	
Pre-mapped Alaska LNG/NWI classifica	ation:		-	Vildlife Use: X graz	
Are climatic/hydrologic conditions on the		of year?		ormal Circumstances" p	
Are Vegetation, Soil, or Hyd		ly Disturbed	1? No_X		
Are Vegetation, Soil, or Hyde	drology Naturally F	Problematic	? No_	(If yes, explain in Note	es.)
SUMMARY OF FINDINGS		nale- SP		MARCH REAL PROPERTY OF	
Hydrophytic Vegetation Present? Yes_	No_X	1	s the Sampled /	Area within a Wetland?	Yes No
Hydric Soll Present? Yes_	NoX		Wetland Type:)	λ	
Wetland Hydrology Present? Yes_	No	_ /	Alaska Vegetatio	n Classification (Viereck	: 1 B 3, 11 C 2
Notes and Site Sketch: Please include I corridor. Site is a Dry Aspen woo heavily browsed. Dry Sand See map for boundaries	dland with thick y soulds 9 No	E Aspen signo o	9, Length of featu Saplings (g hydrology	re, Distances from Cent and Willow both o	erline, Photo Locations, and Survey of which have been

VEGETATION (use scientific names of plants) Absolute Dominant Indicator **Dominance Test worksheet:** Tree Stratum (Plot sizes: 100" % Cover Species? Status No. of Dominant Species that are OBL, FACW, or FAC: _A_ (A) (Y/N) Total Number of Dominant Species Across All Strata: _____ (B) 1. Populus tremuloides. 15% Y Facu % Dominant Species that are OBL, FACW, or FAC: 2.8.1/ (A/B) 2. Picea alance Y 101 Facu 3. **Prevalence Index worksheet:** 4. Total Cover: 25 Multiply by: Total % Cover of: 5 **OBL** species: 0 X1= () 50% of total cover: 12.5 20% of total cover: $X_{2} = 50$ 26 Indicator FACW species: 25 Dominant Sapling/Shrub Stratum (Absolute 5 % Cover Species? Status X3= 15 FAC species (Y/N)FACU species 131 X4= 524 UPL species_____O 1. Populus tremulaides 30% Y Facil X5= O 2. Spirace stevenin 25% Y Faell Column Totals: 161 (A) 589 (B) 3. Salix pulchra + 251 PI = B/A = 3.6Far IN Calling plot a woodland to capture overall signature But since plot is between two signatures we have a slightly higher tree caser and higher spruce percent than the over all 4. Rosa acicularis Far U 21. Ý. 5. Vaccinium uliquinosuno Far 1 35% Facto 6. 7. Alnus tenuifolio 2% For Signature 4% 8. Picea alanca 9 Total Cover: 118 50% of total cover:_59 20% of total cover: 2,3.6 **VEGETATION** (use scientific names of plants) Herb Stratum (______ Absolute Dominant Indicator Hydrophytic Vegetation Indicators: % Cover Species? Status Dominance Test is > 50% (Y/N) Prevalence index is ≤3.0 1. Champerion angustifolium 41 Fac.U Morphological Adaptations¹ (Provide supporting data in 2. Calamaanstis canadensis 31 Fac Notes) 3. Rulous arcticus 40% Y Facu Problematic Hydrophytic Vegetation¹ (Explain) 4 Frientalis unoprea ¹ Indicators of hydric soil and wetland hydrology must be present unless 21 Facil disturbed or problematic. 5. Stellaria sp ____ 21 -6. Scalae Sp 21 Ø % Bare Ground 7. Cornus canadensis 3% Facu Ć % Cover of Wetland Bryophytes 8. T Tris setosa FAC Total Cover of Bryophytes 9. as % Cover of Water 10 Hydrophytic Vegetation Present (Y/N): Total Cover: 50 Notes: (If observed, list morphological adaptations below): 50% of total cover: 2.8 20% of total cover: 11.2

12:30 Chris

SOIL	Real States	negr al	DateI	Feature I	D		ST. CONTRACT, ST.	Soil Pit Required (Y/N)
SOIL PROF	ILE DESCRIPTION:	(Describe	to the depth need	ed to doc	ument the	Indicator or	confirm the abse	ence of indicators.)
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-3		-						
3-8	10YR 3/2	160					Loom	1 tory burgh in and I -
	10YR 2/2	40					and the	Wary boundaries & upriable o
8-10	101R 5/4	70					Sal	Additional Pink color 7.54R 6/4
- 21	2.51 2/3	25						The start of the second start of the
16-24	2.54 5/2	190	7.5YR 4/4	10	C	M	Sal	faint concentrations at 20" but
1	2:67 41.				3	- differit		to color given Sandy texture ~7.5
¹ Type: C=Co	oncentration, D=Dep	etion, RM	=Reduced Matrix,	CS=Cove	ered or Co	ated Sand C	Grains. ² Locatio	on: PL=Pore Lining, M=Matrix.
HYDRIC SOI	L INDICATORS		「日本」		- PERSON	Mana And	INDICATOR	S FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or H	istel (A1)		Alaska Gleye	d (A13)	Ve		Alaska Color	r Change (TA4) ⁴
Histic Epiped	lon (A2)		Alaska Redo	(A14)	N		Alaska Alpin	e Swales (TA5) N
Black Histic (A3)		Alaska Gleye	d Pores ((A15) N		Alaska Redo	x with 2.5Y Hue
Hýdrogen Su	Ifide (A4)				Also 1		Alaska Gleye Layer	ed without 5Y Hue or Redder Underlying
Thick Dark St		_						in in Notes)
disturbed or p	or of hydrophytic vego problematic. of color change in No		e primary indicato	of wetla	nd hydrolo	gy, and an a	appropriate lands	cape position must be present unless
Restrictive La	iyer (if present): Typ	e:	N	Depth (in	iches):	-		
Hydric Soil F	Present (Y/N):	J						
				-				
Notes:								

1.50

HYDROLOGY PRIMARY INDICATO	DRS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or	more required)
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)
Water Marks (B1)/	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)	FAC-Neutral Test (D5)
Drift Deposits (B3)N	Dry-Season Water Table (C2)	Notes:	
Algal Mat or Crust (B4)	Other (Explain in Notes):		
Iron Deposits (B5)/	12		
Surface Water Present (Y/N):	Depth (in):		
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N): _	N
Saturation Present (Y/N): includes capillary fringe)	Depth (in):	EC:	
Notes:			

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 Emergent-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) Tall herb (≥m) 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%) High Density (20-40%) <
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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 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) Image: the second s
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/No Outlet Perennial Inlet/Perennial Inlet
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
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
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
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)
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
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)
Evidence of Sedimentation (P): No Evidence Observed
Evidence of Sedimentation (P): No Evidence ObservedSediment Observed on Wetland SubstrateFluvaquent Soils Sediment Created
Evidence of Sedimentation (P): No Evidence Observed

Watershed Land Use: 0-5% Rural

5-25% Urbanized_____ 25-50% Urbanized_____ Medium (10-100 acres)_____ Large (>100 acres)_____

Size: Small (<10 acres) Crew Chief QA/QC check:

GPS Technician QA/QC check:

Page 4 of 4

>50% Urbanized

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID:
 URSTIDE
 Field Target:
 IS277
 Date:
 6.19.15

 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?

map

- 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

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

15m Wetland Scientist (print)

6/19/15 Signature / Date

X Jesie Bnownlee

Х 6.19.15

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION									
Survey Type: Centerline Access Road (explain)	Other (exp	lain) <u>X DFF Ro</u> M Fleid Target:	15276 Map #: 198 Map Date: 6.4.15						
Date: (p. 19, 15) Project Name & No.: Alaska LNG 60418403 Feature Id: W85T1029									
Investigators: JB, JA Team No.: W85									
State: Alaska Region: Alaska Milepost: (, 99									
Latitude: 41.º 51, 3246	Longitude	== 150° 15.8468	Datum: WGS84						
Logbook No.: Logbook Page No.:	32	Picture No .: W8STID2	91-45,N						
SITE PARAMETERS	Web Server	States in the American States	the formation of the second						
Subregion: forth Central									
Slope (%): 0-3		Local relief (concave, convex							
Pre-mapped Alaska LNG/NWI classification: U: 102		Evidence of Wildlife Use: Mo							
Are climatic/hydrologic conditions on the site typical for this time YesXNo (if no explain in Notes)	ne of year?	Are "Normal Circumsta YesX_ No	inces" present: (If no, explain in Notes.)						
Are Vegetation, Soil, or Hydrology Significa	antly Disturbed	? No <u>X</u> (If yes, explain	n in Notes)						
Are Vegetation, Soil, or Hydrology Naturally	y Problematic?	No_K (If yes, explai	n in Notes.)						
SUMMARY OF FINDINGS	the the Subar								
Hydrophytic Vegetation Present? Yes No	!s	the Sampled Area within a W	Vetland? Yes No						
Hydric Soil Present? Yes NoX	W	etland Type: ل	1 miles						
Wetland Hydrology Present? Yes No	A	laska Vegetation Classification	(Viereck): ICZ IICZ						
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. IDry Mixed Forest of Black spruce, Aspen, and paper birch. Understay of thick feather moss saplings and willow. Sandy Bhs soils. Transect had a lot of elevation changes on transect from W85T1028 and 029. All dry inbetween LZ 699 W85T1028 and W85T1029.									
	,								

VEGETATION (use scientific names of plants)			
Tree Stratum (Plot sizes: 100 Dianosler	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B)
1. Populus tremulaides	7		FACU	% Dominant Species that are OBL, FACW, or FAC: 57 (A/B)
2. Betula Negalarkang	7		FAC	
3. Picea Martana	40%	Y	FACU)	
4.				Prevalence Index worksheet:
Total Cover:	54			Total % Cover of: Multiply by:
50% of total cover:	27 20	% of total cov	ver: 10.8	OBL species:X1 =
Sapling/Shrub Stratum (26 Dian) tu	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 80 $X = 160$ FAC species 96 $X = 288$ FACU species 63 $X = 252$
1. Rhododendrum genenlandicum	45%	Y	FAC	UPL speciesX 5 =
2. vaccinium uliginosum	5%		FAC	Column Totals: <u>239</u> (A) <u>700</u> (B)
3. Linnaea borealis	2.5%	Y	FACU	PI = B/A = <u>2.92</u>
4. vaccinium Vitis-idaea	2.5%	¥	FAC	Populus tremuloides 3%
5. Salix pebbiana	7%		FAC	Toputas
6. Rosa Acicularis	31.		FACU	
7. Betila Nesalastana	71		FAC	
8. Picea Mariana	40%		FACW	
9. Salix Bebbiana	T		FAC	the second se
דיוטא לדב אטוסולב STotal Cover: 50% of total cover:		19/ of total cov		
50% of total cover.	. 10/0 20		el	
VEGETATION (use scientific names of plants)			
Herb Stratum (_26'012 meter	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0
1. Cornus ranadenses	20%	Y	FALU	Morphological Adaptations ¹ (Provide supporting data in
2. Coescaulan lividium	7%	7	FACU	Notes)
3. Chamerian answstifolium	17.		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Grass sip	+		5-00-	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Equise tum pratense	T		FACU	disturbed or problematic.
6. ⁷ 7.				Ø % Bare Ground
8.				% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
				% Cover of Water
10.				Hydrophytic Vegetation Present (Y/N):
Total Cover:	1.1			Notes: (If observed, list morphological adaptations below):
50% of total cover:	1円 20	% of total cov	er: <u>5.6</u>	

SOIL	and the second			eature l	1.00		2 of Page	Soil Pit Required (Y/N)
SOIL PROF	ILE DESCRIPTION:	Describe	to the depth neede	d to doc	ument the	indicator or	confirm the abse	nce of indicators.)
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-4								
4-5.5	INTR4/,	00				1	ASh.	Ashy
	10YR 6/1	40						0
5.5-24	7.5YR 3/3	20					Sal	Packets of buried organics at 12"
	7.5YR 4/4	75						Colors alternate in band, boundaries
	10YR S/q	5				1 		way,
	/						2	
¹ Type: C=C	Concentration, D=Dep	etion, RN	I=Reduced Matrix,	CS=Cov	ered or Co	ated Sand G		on: PL=Pore Lining, M=Matrix.
HYDRIC SC	DIL INDICATORS		Ser. 466 813	VIST #			INDICATOR	IS FOR PROBLEMATIC HYDRIC SOILS ³
Histosol or I	Histel (A1) N		Alaska Gleye	d (A13)	N		Alaska Colo	r Change (TA4)⁴N
Histic Epipe	don (A2)		Alaska Redox	Alaska Redox (A14)			Alaska Alpir	ne Swales (TA5)
Black Histic (A3)N			Alaska Gleye	Alaska Gleyed Pores (A15) N				ox with 2.5Y Hue N
Hydrogen S							Alaska Gleved without 5Y Hue or Redder Underlying Layer N	
Thick Dark	Surface (A12) N					V	Other (Explain in Notes)	
³ One indicat disturbed or	tor of hydrophytic veg problematic. s of color change in N	otes.					appropriate land	scape position must be present unless
Give details	Layer (if present): Typ	oe:		Depth (inches):	-		
Restrictive I								

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)			
Surface Water (A1)N	Surface Soil Cracks (B6)N	Water-stained Leaves (B9) <u>N</u>	Stunted or Stressed Plants (D1)		
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)		
Saturation (A3)	Sparsely Vegetated Concave Surface (B8) N	Oxidized Rhizospheres along Living Roots (C3) N	Shallow Aquitard (D3) N		
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)		
Sediment Deposits (B2) _ N	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5) N	FAC-Neutral Test (D5) N		
Drift Deposits (B3)	Dry-Season Water Table (C2) <u>N</u>	Notes:			
Algal Mat or Crust (B4)	Other (Explain in Notes):				
Iron Deposits (B5)					
Carl and the second second			RETRACT AT MITTER AND THE STATE		
Surface Water Present (Y/N): N	Depth (in): ~		×		
Water Table Present (Y/N):	Water Table Present (Y/N): Depth (In):		Wetland Hydrology Present (Y/N):N		
Saturation Present (Y/N): (includes capillary fringe)					
Notes:					

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 Emergent-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent- Persistent Aquatic Bed Scrub Shrub-Evergreen-Needle-leaved Emergent-
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%) Environmentation Environmentation </td
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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 OpenSmall 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) Image: the second s
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 Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/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 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 Return Interval 2-5 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
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
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits
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 Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥%)
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 (\geq %) 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 Below
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 (≥%)
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%)
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 (≥%)

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85T(Dag Field Target: 15276 Date: 6/19/15 For all items not checked, please provide detailed explanation in the notes section of data form.

1. Site Description

X 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
 At least 80% of onsite vegetation has been keyed to species.
 At least 80% of onsite vegetation has been keyed to species.
 At least 80% of onsite vegetation has been keyed to species.
 At least 80% of onsite vegetation has been keyed to species.
 At least 80% of onsite vegetation has been keyed to species.
 At least 80% of onsite vegetation has been keyed to species.
 At least 80% of onsite vegetation has been keyed to species.
 At least 80% of onsite vegetation has been keyed to species. identification?
- Z 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

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

6. Field Logbook

Motes have been recorded at each site, including general description, sketch, and accuracy of pre-mapped wetland boundary as appropriate? A 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 Jonni Anderson

Wetland Scientist (print)

X Colignature / Date

X Jessie Brownlee

X Jessie Bround 6.19.15

Field Crew Chief (print)

Signature// Date

SITE DESCRIPTION								
Survey Type: Centerline <u>K</u> Access Road (explain) Other (explain) Field Target: 15 279 Map #: 197 Map Date: 6.4.1								
Date: 6.19.15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	WEST1030		
Investigators: JB JA Team No.: W85								
State: Alaska	Region: Alaska		Milepost: (696.6				
Latitude: 61° 5 3.0749		Longitude	:150 "13	.273	2	Datum: WGS84		
Logbook No.:	Logbook Page No.:	32	Picture No.:	W8STIC	030 1-	Y E.W		

SITE PARAMETERS					
subregion: South central	Landform (hillslope, terrace, hummocks, etc.): (owland				
Slope (%): 0 - 3	Local relief (concave, convex, none): Undulating				
Pre-mapped Alaska LNG/NWI classification: UIAZ	Evidence of Wildlife Use: NO				
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_X No (If no, explain in Notes.)				
Are Vegetation, Soil, or Hydrology Significantly Disturbe	ed? No <u>X</u> (If yes, explain in Notes)				
Are Vegetation, Soil, or Hydrology Naturally Problematic	c? No <u>X</u> (If yes, explain in Notes.)				
SUMMARY OF FINDINGS	的。但是他们的是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是是				
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area within a Wetland? Yes No				
Hydric Soil Present? Yes NoX	Wetland Type: U				
Wetland Hydrology Present? Yes NoX	Alaska Vegetation Classification (Viereck): A Z				

Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor.

Dry Open Black spruce Frest. Undulating topography and higher and driver tham LZ 696.7. Took additional point W85T1030-OP to confirm UP status.

VEGETATION (use scientific names of plant	s)	The second		
<u>Tree Stratum</u> (Plot sizes: 100^{1})	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)
1. Picea Maciana	50%	Y	FACW	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
2.				% Dominant Species that are OBL, FACW, or FAC: <u>(₀O</u> (A/B)
3.				
4.				Prevalence Index worksheet:
Total Cover: 50				Total % Cover of: Multiply by:
50% of total cover	: <u>25</u> 20	% of total cov	rer: <u>10</u>	OBL species:X 1 =
Sapling/Shrub Stratum (26')	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 90 X 2 = 180 FAC species 28 X 3 = 84 FACU species 20 X 4 = -80
1. Picea Mariang	30%	Y	FACW	UPL speciesX 5 =
2. vaccinium vitis-idaeq	15%	Y	FAC.	Column Totals: 138 (A) 344 (B)
3. Empitrum Nigrum	7%	Ň	FAC	PI = B/A = <u>2.5</u>
4. Vaccinium uliginosum	3%	N	FAC	the second s
5. Salix Bebbiana	3%	N,	Fac	
6. Rhododendrum to mentosum	10%	N	FACW	and the second se
7				
8.			_	
9.				
Total Cover				18) A
50% of total cover	: 34 20	% of total cov	er: <u>13-0</u>	
VEGETATION (use scientific names of plant	3)	ATT ALL AND		
Herb Stratum(()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤ 3.0
1. Geocaulon lividium	107	4	FACU	$-\frac{1}{\sqrt{2}}$ Morphological Adaptations ¹ (Provide supporting data in
2. Cornus canadensis	10%	Y	FACU	Notes)
3.		-		Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must be present unless
5.				disturbed or problematic.
6.				
7.				% Bare Ground
8.				% Cover of Wetland Bryophytes
9.				_ <u>75</u> Total Cover of Bryophytes
10.				% Cover of Water
Total Cover	20			Hydrophytic Vegetation Present (Y/N):
50% of total cover		% of total cov	er: <u> </u>	Notes: (If observed, list morphological adaptations below):
	Access			

			6.19.15		W8ST1	030		Y	
SOIL	102 June 102 11.17			eature I			tink a late sur	Soil Pit Required (Y/N)	
SOIL PROF	ILE DESCRIPTION: (Describe	to the depth neede	ed to doc	ument the	indicator or o	confirm the absence	e of indicators.)	
Depth	Matrix		Redox Features				2		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
0-6							1	Dry organics	
6-7	104R 2/1	Gai					NF SaL	Charcole	
7-14	7.5YR 3/4	60					FSaL	Seasonal Frost from 10-14"	
	7.54R 3/2	30						10 MRS/4 is a 3rd color in Bhrs AT 10%	
14-19	104R 6/4	100					FSal	Burted organies	
19-24	7.5184/10	100					SaL	0	
11 64								and the second second	
¹ Type: C=C	oncentration, D=Deple	tion, RN	Reduced Matrix,	CS=Cov	ered or Co	ated Sand G	rains. ² Location	: PL=Pore Lining, M=Matrix.	
HYDRIC SC	IL INDICATORS	100 H.	I FE IN YEST	A DELLAST		a at the	INDICATORS	FOR PROBLEMATIC HYDRIC SOILS	
Histosol or Histel (A1) Alaska Gleyed (A13)				N	Alaska Color Change (TA4) ⁴				
	don (A2)		Alaska Redo	x (A14)	N_		Alaska Alpine Swales (TA5)		
Black Histic (A3) Alaska Gleyed Pores (A15)				(A15) N					
Hydrogen Sulfide (A4)				2	Alaska Gleyed without 5Y Hue or Redder Underlying				
Thick Dark Surface (A12)						Other (Explain			
disturbed or ⁴ Give details	problematic. s of color change in No ayer (if present): Type	tes.	102.0	Depth (i		10 10	1	ape position must be present unless sonal Frost	
	Present (Y/N):	N							
+	Coundaries are we BY PRIMARY INDICA							s A. 2 or more required)	
Constant of State of State of State	A A A A A A A A A A A A A A A A A A A	1				Nater-staine	d (Stunted or Stressed	
Surface Wat	ter (A1)		face Soil Cracks (E		L	_eaves (B9)	<u>N</u>	Plants (D1)	
High Water	Table (A2)N	(B)		Aerial Im	agery [Drainage Patterns (B10)		Geomorphic Position (D2)	
Saturation (A	A3) N	Sp Co	arsely Vegetated ncave Surface (B8)	N	L	Oxidized Rhizospheres along Living Roots (C3)		Shallow Aquitard (D3)	
Water Mark	s (B1)	Ma	rl Deposits (B15) _	N		Presence of ron (C4)	Reduced	Microtopographic Relief (D4)	
Sediment D	eposits (B2)		drogen Sulfide or (C1)		5	Salt Deposits	(C5) N	FAC-Neutral Test (D5)	
Drift Deposits (B3) N Dry-Season Water Table (C2) N					1	Notes:		and the second s	

-

6

Wetland Hydrology Present (Y/N): _

EC:_

Other (Explain in Notes):

Depth (in):

Depth (in):

Depth (in):

1

Algal Mat or Crust (B4) _____

Surface Water Present (Y/N):

Water Table Present (Y/N):

Saturation Present (Y/N): (includes capillary fringe)

Notes:

Iron Deposits (B5)

N

N

N

Ν

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11

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 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) 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%) 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
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Silty Mineral: Clayey
Soil Factors (P): Soil Lacking
Soil Factors (P): Soil LackingHistosol:FibricHistosol:HemicHistosol: Sapric
Soil Factors (P): Soil Lacking
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Sitty Mineral: Clayey HYDROLOGIC VARIABLES Intet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Inlet/Intermittent Inlet/Intermittent Outlet No Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Wettand Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perennial Inlet/No Outlet Perennial Inlet/No Outlet Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Soil Factors (P): Soil Lacking
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Sandy Mineral: Sitty Mineral: Clayey HYDROLOGIC VARIABLES Intet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Inlet/Intermittent Inlet/Intermittent Outlet No Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Wettand Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perennial Inlet/No Outlet Perennial Inlet/No Outlet Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded

Wetland Juxtaposition: Only Connected Above_		Wetlands within 4 ream & Downstream	Only Connected Below	
Wetland Land Use:	High Intensity (i.e., ag.)	Moderate Inter	nsity (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 ac	res) Medium (10)-100 acres) I	_arge (>100 acres)	
Crew Chief QA/QC check	c.	GPS Technic	ian QA/QC check: <i>Qefe</i>	322 6/19/15

6.19.15

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: <u>wg511030</u>
 Field Target: <u>15279</u>
 Date: <u>6/19/15</u>

 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?
- Solution names are entered legibly for all strata present?
- Cover calculations are complete and correct?
- All dominant species have been determined and recorded per strata?
- Ck 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?
- 5 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

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

8. Photos

- X 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 lenni fer Anderson

n Br 6/19/15

Wetland Scientist (print)

Signature / Date

X Jessie Brownlere

Field Crew Chief (print)

sie Browne 6.19.15 Signature Date

Survey Type: Centerline_X Access Road (explain) Other (asplain) Flold Target: /5.053 Map #202 Map Date: /092 / 15 Date: (j. 20 · 15) Project Name & No:: Alaska LNG 60418403 Feature Id: WS571031 Investigators: Jate: (j. 20 · 15) Team No:: US5 State: Alaska Region: Alaska Milepost: 71 7.3 Datum: WG854 Logbook No:: Logbook Page No:: 34 Pleture No:: WS571031 1-4 N.5 State: Alaska Region: Alaska Milepost: 71 7.3 Datum: WG854 Logbook No:: Logbook Page No:: 34 Pleture No:: WS571031 1-4 N.5 State: Molepost:: Logbook Page No:: 34 Pleture No:: WS571031 1-4 N.5 State: Map #202 Map Date: <	SITE DESCRIPTION		al she had	A CANEL AS	Real Southers	and the second second second second		
Investigators: Tam Team No.: WSS State: Alaska Milepost: 717.3 Latitude: (1° 38.6057 Longitude: -150° 29.3017 Datum: WGS84 Logbook No: Logbook Page No.: 34 Picture No.: WSST1031 1-4 N S Site PARAMETERS Subregion: Smfh C entral Landform (hillislope, terrace, hummocks, etc.): ferrace Signe (%):	Survey Type: Centerline X Acce	ss Road (explain)	Other (expla	ain)	Fleid Target: / 5053	Map #: 208 Map Date: 611.15		
State: Alaska Region: Alaska Milepost: 7/7.3 Latitude: (a) 38.6057 Longitude: -[50° 29.3017 Datum: WGS84 Logbook No.: Logbook Page No.: 34 Picture No.: Datum: WGS84 Subregion: South Central Landform (hillislope, terrace, hummocks, etc.): fervace Slope (%): D-3 Local relief (concave, convex, none): ud/lading Pre-mapped Alaska LNG/NWI classification: POLA 1 A 2 Evidence of Wildlife Use: Kowsec Are climatic/hydrologic conditions on the site typical for this time of year? Yes_No_(if no, explain in Notes.) Yes_No_(if yes, explain in Notes.) Are Vagetation	Date: 19.20.15 Project Name & No.: Alaska			60418403	Feature Id	: WEST1031		
Latitude: 61° 38.6057 Longitude: -150° 29.3017 Datum: WGS84 Logbook No.: Logbook Page No.: 34 Picture No.: WSS71031 1-4 N SITE PARAMETERS Subregion: South Central Landform (hillslope, terrace, hummocks, etc.): ferrace Slope (%): O-3 Local relief (concave, convex, none): Undilating Pre-mapped Alaska LNG/NWI classification: OHA 1 A Evidence of Wildlife Use: gausset (moss) Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes_A. No_ (if no, explain in Notes.) Are Vegetation , Soil_, or Hydrology Significantly Disturbed? No (if yes, explain in Notes.) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes	Investigators: JB JA					Team No.: W85		
Logbook No.: Logbook Page No.: 34 Picture No.: $wgst1031/-4$ N G SITE PARAMETERS Subregion: South C entral Landform (hillslope, terrace, hummocks, etc.): ferrace Slope (%): Control Local relief (concave, convex, none): Md/loding Pre-mapped Alaska LNG/NWI classification: FOH B A Z Evidence of Wildlife Use: Rowse Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes No (if no, explain in Notes.) Are Vegetation , Soil or Hydrology Significantly Disturbed? No (if yes, explain in Notes.) SUMMARY OF FINDINGS No X Is the Sampled Area within a Wetland? Yes No X Hydrophytic Vegetation Present? Yes No X Is the Sampled Area within a Wetland? Yes No X Hydrophytic Vegetation Present? Yes No X Alaska Vegetation Classification (Viereck): I C 2 X Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor. See Ade boot and may Al-Hoongh He<	State: Alaska Region: Alaska			Milepost: 717.3				
SITE PARAMETERS Subregion: South Central Slope (%): Contract Slope (%): Contract Pre-mapped Alaska LNG/NWI classification: Contract Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes No (ff no explain in Notes) Are Vegetation , soil or Hydrology Solid or Hydrology Naturally Problematic? No Are Vegetation , soil or Hydrology Naturally Problematic? No K (If yes, explain in Notes.) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? Yes No K Hydrology Present? Yes No X Vetland Hydrology Present? Yes No X Notes and Site Sketch: Please include Directional & North Ar	Latitude: 61° 38.6057		Longitude	: -150° 2	29.3017	Datum: WGS84		
Subregion: South Central Landform (hillislope, terrace, hummocks, etc.): ferrace Slope (%): Slope (%): Slope (%): Local relief (concave, convex, none): MdJ lading Pre-mapped Alaska LNG/NWI classification: FOTA 1 A 2 Evidence of Wildlife Use: Browse (moss) Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes	Logbook No.: Logbook Page No.: 34			Plcture No.: w8571031 1-4 N.S				
Slope (%): O	SITE PARAMETERS	國際的法律	PE Maghilo	A SIL PARTIE				
Slope (%): 0-3 Local relief (concave, convex, none): Undy lading Pre-mapped Alaska LNG/NWI classification: FOTB 1 A 2 Evidence of Wildlife Use: Grouts (moss) Are climatic/hydrologic conditions on the site typical for this time of year? Yes	Subregion: South Central		Landform (hillslope, terrace, hummocks, etc.): ferrace					
Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes				Local relief (c	oncave, convex, none):	undulading		
Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present: Yes	Pre-mapped Alaska LNG/NWI classifica	42	Evidence of V	Vildlife Use: Browse	(moose)			
Are Vegetation, Soil, or HydrologyNaturally Problematic? No_X(If yes, explain in Notes.) SUMMARY OF FINDINGS Hydrophytic Vegetation Present? YesNo_X Is the Sampled Area within a Wetland? YesNo_X Hydric Soil Present? YesNo_X Wetland Type: . Wetland Hydrology Present? YesNo_X Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey-corridor. See nde book_andmap Al-Mongh_the_reg_data in an plot_indicates are apprendited and the apprendited area and the apprendited and the apprendited area and the	Are climatic/hydrologic conditions on the site typical for this time of year? Are "Normal Circumstances" present:							
SUMMARY OF FINDINGS Hydrophytic Vegetation Present? YesNoX Is the Sampled Area within a Wetland? YesNoX Hydric Soil Present? YesNoX Wetland Type: Wetland Hydrology Present? YesNoX Alaska Vegetation Classification (Viereck): IC2. Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey-corridor. See note book and map : Al-though the veg data in an plot indicates for a plot in	Are Vegetation, Soil, or HydrologySignificantly Disturbed? No_X_(If yes, explain in Notes)							
Hydrophytic Vegetation Present? Yes No_X Is the Sampled Area within a Wetland? YesNo_X Hydric Soil Present? YesNo_X Wetland Type: U Wetland Hydrology Present? YesNo_X Alaska Vegetation Classification (Viereck): IC2 Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey-corridor. See note book and map See note book and map Al-Mongh the reg data in ar plot indicates of the reg data in an of the reg data in a plot indicates	Are Vegetation, Soil, or Hyd	drology Naturally F	Problematic?	No_X	_ (If yes, explain in Notes	5.)		
Hydric Soil Present? YesNoX Wetland Type: V Wetland Hydrology Present? YesNoX Alaska Vegetation Classification (Viereck): I C 2 Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey-corridor. See note book and map Al-though the veg data in an plot indicates over all	SUMMARY OF FINDINGS			法的规律学校规	1. 利用 <u>自己</u> 14. 1. 2014			
Wetland Hydrology Present? Yes No X Alaska Vegetation Classification (Viereck): 1 C 2 Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey- corridor. See note book and map: Al-though the veg data in an plot indicates where the operall	Hydrophytic Vegetation Present? Yes_	No	Is	Is the Sampled Area within a Wetland? Yes NoX				
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey- corridor. See note book and map: Al-though the veg data in an plot indicates see note book and map: Al-though the veg data in an plot indicates	Hydric Soil Present? Yes_	No	w	Wetland Type: U				
Notes and Site Sketch: Please include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey- corridor. See note book and map: Although the reg data in ar plot indicates that the decidiors tree level is low, but the operall that the decidiors tree level is now, but the operall polygon is more dense in decidiors trees than presented in or plot. This the polygon is mapped as a (CZ. In or plot.	Wetland Hydrology Present? Yes No_ X			Alaska Vegetation Classification (Viereck): $\int C a^{-1}$				
	Notes and site sketch: Please include L corridor. See note book and m that the deer poly gon is more in our plot.	ap: Altho diors tr. e dense This the	v, centerline, ngh ce leu in de poly	the realistic to the test of t	y data in ou low, boot trees the mapped	r plot indicates the overall an presented as a (CZ.		

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: $\frac{24}{2}$ (A)
1. Picea Moriana	25	Y-	FACW	Total Number of Dominant Species Across All Strata: $\frac{7}{}$ (B) % Dominant Species that are OBL, FACW, or FAC: $\frac{14}{}$ (A/B)
2. Betula Neoalaskang	10		FAC	
3. Picea glauca	25	Y	FACU	
4.				Prevalence Index worksheet:
Total Cover 50% of total cover)% of total cov	ver:	Total % Cover of: Multiply by: OBL species: \bigcirc
Sapling/Shrub Stratum (26)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 45 $X 2 = 90$ FAC species 73 $X 3 = 249$ FACU species 27 $X 4 = 508$
1. Rosa Acicularis	10	Y	FACU	UPL species X 5 = O
2. vaccinium vitis-idaea	10	¥	FAC	Column Totals: <u>245</u> (A) <u> </u>
3. Betula Neoalaskang	15	Y	FAC	PI=B/A=
4. spiraeg Stevenii	5		FACU	Dryppiens Expansa T Fac U spinulum annotinum 10 Fac 4
5. Picea Marlana	20	7	FACW	spinulum annotinully 10 Fazy
6. Vaccinium oliginosum	4		FAC	calamagrostis canadonsis T Fae
7. Picea Glouca	10	1	FACU	
8. Salix sn	1			
9. Rhododendrum groenlandicum	A7		FAC	- P. (1999)
Total Cover 50% of total cover		% of total cov	ver: 15.2	"快快
VEGETATION (use scientific names of plants	s)			1. 《《中国》、《中国》的第三人称单数中国、中国、中国、
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0
1. Geocaulan lividium	30	7	FACU	$\sqrt{-1}$ Morphological Adaptations ¹ (Provide supporting data in
2. Pyrola				Notes)
3. COINUS Canadensis	25	Y	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Trientalis europaeq	10		FACU	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Streptopus Amplexifolius	\$ 2		FACU	disturbed or problematic.
6. Equisation sulvaticum	3		FAC	
7. Neottia cordata	T		FACU	% Bare Ground
8. Pyrok grandifolia	15		FAC	% Cover of Wetland Bryophytes Total Cover of Bryophytes Feather M05.5
9. Calamagrostis laponica	T		FAC	
10. Rubus Padatis	15		FAC	Hydrophytic Vegetation Present (Y/N):/
Spinulum Connotinum Hotal Cover	: 110	ile	FACU	Notes: (If observed, list morphological adaptations below):
50% of total cover Catamagrostis caradensis T		0% of total cov	ver: <u>22</u> FA-C	

Depth	Matrix		Redox Features	the depth needed to document the indicator or co edox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
0-2								Dry organics	
2-5	104R 5/1	100					HESaL	Charcoal present	
5-24	7.5YR 2.5/3	10				1	Bab -		
	7.54R 3/4	10					T		
	WYR 4/4	50							
	10YR 5/3	30							
								A	
¹ Type: C=C	oncentration, D=Depleti	on, RM	I=Reduced Matrix, 0	CS=Cov	ered or Co	ated Sand G	rains. ² Locatio	on: PL=Pore Lining, M=Matrix.	
HYDRIC SO	IL INDICATORS	(Cha	The shares of a	Das	St	1922 1923	INDICATOR	S FOR PROBLEMATIC HYDRIC SOILS	
Histosol or Histel (A1)			Alaska Gleyed	Alaska Gleyed (A13)			Alaska Color Change (TA4) ⁴		
Histic Eplpedon (A2)		Alaska Redox	Alaska Redox (A14)N			Alaska Alpin	Alaska Alpine Swales (TA5)		
Black Histic (A3)N		Alaska Gleyed	Alaska Gleyed Pores (A15) N			Alaska Redox with 2.5Y Hue			
Hydrogen Sulfide (A4)						Alaska Gleye	Alaska Gleved without 5Y Hue or Redder Underlying		
Thick Dark Surface (A12)						Other (Expla	Other (Explain in Notes)		
disturbed or ⁴Give details	problematic. of color change in Note	es. N	/				appropriate lands	cape position must be present unless	
Restrictive L	ayer (if present): Type:	N		Depth (i	nches):				
Hydric Soll	Present (Y/N):								

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)		
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)	
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7) N	Drainage Patterns (B10) N	Geomorphic Position (D2)	
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)N	Oxidized Rhizospheresalong Living Roots (C3)	Shallow Aquitard (D3)	
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4) /	
Sediment Deposits (B2)	Hydrogen Sulfider Odor (C1)	Salt Deposits (C5)	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)/				
Surface Water Present (Y/N): Depth (in): Water Table Present (Y/N): Depth (in):		Wetland Hydrology Present (Y/N):		
Notes:				

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AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, N	/= Matrix				
Forested-Evergreen-Needle-leaved	ackingForested-Deciduous-Needle-leavedForested-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Needle-leavedScrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leavedEmergent-Non-persistentEmergent-				
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (ᆀ	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) m) Short herb (<1m) Moss-Lichen Floating Submerged				
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%) Event Density (20-40%) Event Density (40-60%) Even Density (40-60%)					
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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 1					
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface) Moderately Abundant (25-50% 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 Mineral: Gravelly Mineral: Sandy_	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey				
HYDROLOGIC VARIABLES	and a second				
Inlet/Outlet Class (P): No Inlet/Outlet	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet P				
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S	sonally Flooded, Temporarily Flooded, Saturated Semiperm. Flooded				
Evidence of Sedimentation (P): No Eviden					
Microrelief of Wetland Surface (P): Absent					
Frequency of Overbank Flooding (P): No O Return Interval >5 yrs	verbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs				
Degree of Outlet Restriction (P): No Outflow	v Restricted Outflow Unrestricted Outflow				
	ircumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading				
Surficial Geologic Deposit Under Wetland Glacial Till/Not Permeable	(P): High Permeability Stratified Deposits Low Permeability Stratified Deposits				
In any contrasts that is a contrast with the second s					
Basin Topographic Gradient (M): Low Evidence of Seeps and Springs (P): No See	Gradient (<2%) High Gradient (≥2%) eps or Springs Seeps Observed Intermittent Spring Perennial Spring				
Evidence of Seeps and Springs (P): No See LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate	eps or SpringsSeeps Observed Intermittent SpringPerennial Spring				
Evidence of Seeps and Springs (P): No See LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate	eps or SpringsSeeps ObservedIntermittent SpringPerènnial Spring ed Wetlands within 400m, Not Connected Only Connected Below d Upstream & Downstream Unknown				

Size: Small (<10 acres)_

GPS Technician QA/QC check:

Large (>100 acres)

Medium (10-100 acres)_

Crew Chief QA/QC check: Jesser Brownelle 6.20.15

Page 4 of 4

15

20

Wetland Determination Form QA/QC Checklist

Lotto 845 1889

This form to be completed before leaving the field site.

 Feature ID: <u>W85T103/</u>
 Field Target: <u>/5053</u>
 Date: <u>6.20/5</u>

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

1. Site Description

 \boxtimes Site description, site parameters and summary of findings are complete? \boxtimes 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?
- Display the present? Manual present?
- Cover calculations are complete and correct?
- All dominant species have been determined and recorded per strata?
- Indicator status is correct for each species?
- Optimization of the second second

3. Soil

- b 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?

7. Maps

Wetland boundaries have been corrected if necessary?

Ď 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)?

lovs

Wetland Scientist (print)

Signature / Date

rownlee essie

Field Crew Chief (print)

Signature/ Date

maar

Date: 6.20.15 Investigators: <i>Jessie Brownke</i> State: Alaska Latitude: 61°35.9623 Logbook No.: 1 SITE PARAMETERS Subregion: South Central	ss Road (explain) Project Name & No.: <i>Jennifer Anderson</i> Region: Alaska Logbook Page No.:	Alaska LNG	G 60418403	Fleid Target:		Map #: <u>210 Map Date: 6. 4.15</u> WSST 1032 Team No.: WSS
Date: 6.20.15 Investigators: <i>Jessie Brownke</i> State: Alaska Latitude: 61°35.9623 Logbook No.: 1 SITE PARAMETERS Subregion: South Central	Project Name & No.: Jennifer Anderson Region: Alaska	Alaska LNG	G 60418403	Feat		WEST1032
Investigators: <i>Jessie Brownke</i> State: Alaska Latitude: 61°35.9623 Logbook No.: 1 SITE PARAMETERS Subregion: South Central	Jennifer Anderson Region: Alaska	Longitud	Milepost: -		ture Id:	
State: Alaska Latitude: 61°35.9623 Logbook No.: 1 SITE PARAMETERS Subregion: South Central	Region: Alaska	Longitud		20 S		Team No.: WSS
Latitude: 61° 35.9623 Logbook No.: 1 SITE PARAMETERS Subregion: South Central				220 5		
SITE PARAMETERS Subregion: South Central	Logbook Page No.:			au,		
SITE PARAMETERS Subregion: South Central	Logbook Page No.:	25	e: 150 30	0.6489		Datum: WGS84
Subregion: South Central	the target of the target of the target of	35	Picture No.:	W8571032	(~~	IN,E
	25 M - M & M - M - M - M - M - M - M - M -				的物质	
	-		Landform (hill	slope, terrace, hui	nmocks	s, etc.): Hill side / ferrace
Slope (%): 3-5	-		Local relief (c	oncave, convex, n	one): ၂	indulating
Pre-mapped Alaska LNG/NWI classifica	ation: () (C2, 117	32		Vildlife Use: Bear		0
Are climatic/hydrologic conditions on the Yes_XNo(if no expl	e site typical for this time			ormal Circumstanc	es" pre	
Are Vegetation, Soil, or Hy		ly Disturbed	1? No_X	_(If yes, explain ir	Notes)	D
Are Vegetation, Soil, or Hy	drology Naturally F	Problematic?	No_ <u>/</u>	(If yes, explain i	n Notes	.)
SUMMARY OF FINDINGS	DUSE IL RUTANIE	Shi Barris	112/18/10/22		1.23	
Hydrophytic Vegetation Present? Yes_	No_ X	ls	s the Sampled A	area within a Wet	land?	Yes NoX
Hydric Soil Present? Yes_	NoX_	v	Vetland Type:	U	-	St.
Wetland Hydrology Present? Yes_	No X	— A	Naska Vegetation	Classification (Vi	ereck):	1B2, 11B2
Notes and Site Sketch: Please include to corridor. Site is a dry Mature 1 of Alder, Perns, and de its adry site. Wet sp	Betula Necalaskan uils club, one:	na forces	st with tr t spot was	es over 10 seen along	o' t. route	here but otherwise
	8	D &	~			
			Y	Rives		

	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. Betula Negalaskong	40%	Y	FAC.	Total Number of Dominant Species Across All Strata:% Dominant Species that are OBL, FACW, or FAC:
2. Picea glauca	10%	4	FACU	
3. Alaus Anticasa (JA)				
4				Prevalence Index worksheet:
Total Cov	ver: 50			Total % Cover of: Multiply by:
50% of total cov	/er: <u>25</u> 20)% of total cov	/er:_ <u> 0</u>	OBL species:X1 =
Sapling/Shrub Stratum (261)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 0 X 2 = 0 FAC species 105 X 3 = 315 FACU species 102 X 4 = 408
1. oplopanax hornous	25%	Y	FACU	UPL species $X5 = 0$
2. Ribes triste	T%.	N	FAC	Column Totals: <u>207</u> (A) <u>723</u> (B)
3. Rosa Acicularis	zi.	N	FACU	PI = B/A = <u>3.49</u>
4. Viburnum edule	10/	N	Faru	
5. Alnus fruticosa	40%	Y	FAC	
3. Alinus ka				and Marine and American
7.				
3.				
9.				
). Total Cov	rer: <u>84</u>			
).	- /)% of total cov	ver: 16.8	
9. Total Cov 50% of total cov	ver: <u>42</u> 20)% of total cov	/er:_ <u>16.8_</u>	
). Total Cov 50% of total cov /EGETATION (use scientific names of pla	rer: <u>42</u> 20 nts) Absolute	Dominant	rer: 16.8	Hydrophytic Vegetation Indicators:
). Total Cov 50% of total cov /EGETATION (use scientific names of pla	rer: <u>42</u> 20	Dominant Species?		Hydrophytic Vegetation Indicators:
ک. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (_ ـ ـ ـ ـ ـ)	rer: <u>4</u> 2 20 nts) Absolute % Cover	Dominant	Indicator Status	Dominance Test is > 50% Prevalence Index is ≤3.0
D. Total Cov 50% of total cov /EGETATION (use scientific names of plan Herb Stratum () 1. Dryopten's expanse	rer: <u>4</u> 2 20 nts) Absolute % Cover <u>407.</u>	Dominant Species?	Indicator Status	$\frac{\cancel{N}}{\cancel{N}}$ Dominance Test is > 50% $\frac{\cancel{N}}{\cancel{N}}$ Prevalence Index is ≤ 3.0 $\frac{\cancel{N}}{\cancel{N}}$ Morphological Adaptations ¹ (Provide supporting data)
D. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (<u>26</u>) 1. Dryopten's expanse 2. Equisetum Arrens	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u>	Dominant Species?	Indicator Status FAC	$\frac{\cancel{N}}{\cancel{N}}$ Dominance Test is > 50% $\frac{\cancel{N}}{\cancel{N}}$ Prevalence Index is ≤ 3.0 $\frac{\cancel{N}}{\cancel{N}}$ Morphological Adaptations ¹ (Provide supporting data)
D. Total Cov 50% of total cov VEGETATION (use scientific names of plan Herb Stratum (<u>26</u>) 1. Dryopten's expanse 2. Equisetum Acrens 3. Streptopus amplexitali	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> 157 55	Dominant Species?	Indicator Status FACU FACU FACU	$\frac{\cancel{N}}{\cancel{N}} \text{Dominance Test is > 50\%}$ $\frac{\cancel{N}}{\cancel{N}} \text{Prevalence Index is \leq3.0}$ $\frac{\cancel{N}}{\cancel{N}} \text{Morphological Adaptations}^1 (\text{Provide supporting data})$ $\frac{\cancel{N}}{\cancel{N}} \text{Problematic Hydrophytic Vegetation}^1 (\text{Explain})$
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (26') 1. Dryopten's expanse 2. Equisetum Arvens 3. Streptopus amplexifali 4. Calamagrostis canadensis	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> 157 37	Dominant Species?	Indicator Status FACU FAC FACU FACU	$\frac{\cancel{N}}{\cancel{N}}$ Dominance Test is > 50% $\frac{\cancel{N}}{\cancel{N}}$ Prevalence Index is ≤ 3.0 $\frac{\cancel{N}}{\cancel{N}}$ Morphological Adaptations ¹ (Provide supporting data)
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (26 ¹) 1. Dryopten's expanse 2. Equisetum Arvens 3. Streptopus amdexifali 4. Calamagrostis canadensis 5. Spinulum Annatinum	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> 157 257 37 27	Dominant Species?	Indicator Status FACU FAC FACU FACU FACU	$\frac{\cancel{N}}{\cancel{N}} \text{Dominance Test is > 50\%}$ $\frac{\cancel{N}}{\cancel{N}} \text{Prevalence Index is \le3.0}$ $\frac{\cancel{N}}{\cancel{N}} \text{Morphological Adaptations}^1 (\text{Provide supporting data})$ $\frac{\cancel{N}}{\cancel{N}} \text{Problematic Hydrophytic Vegetation}^1 (\text{Explain})$ $\frac{\cancel{N}}{\cancel{N}} \text{Problematic Soil and wetland hydrology must be present}$
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (26') 1. Dryopten's expanse 2. Equisetum arvens 3. Streptopus amplexifalio 4. Calamagrostis canadensis 5. Spinulum Annatinum 6. Gymnocarpium dryopten	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> <u>157</u> <u>37</u> <u>27</u> <u>5</u> <u>27</u>	Dominant Species?	Indicator Status FACU FAC FACU FACU	M Dominance Test is > 50% V Prevalence Index is ≤3.0 Notes) Morphological Adaptations ¹ (Provide supporting data Notes) M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic.
Description Descr	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> <u>157</u> <u>5</u> 27 <u>5</u> <u>5</u> <u>5</u>	Dominant Species?	Indicator Status FACU FAC FACU FACU FACU FACU	M Dominance Test is > 50% M Prevalence Index is ≤3.0 M Morphological Adaptations ¹ (Provide supporting data Notes) M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic. M % Bare Ground
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (_2(_') 1. Dryopten's expanse 2. Equisetum Arvens 3. Streptopus amdexitali 4. Calamagrostis canadensis 5. Spinulum Annatinum 6. Gymnocarpium dryopten 7. viola sp 8. Trientalis europace	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> <u>157</u> <u>37</u> <u>27</u> <u>5</u> <u>27</u>	Dominant Species?	Indicator Status FACU FAC FACU FACU FACU FACU FACU	M Dominance Test is > 50% M Prevalence Index is ≤3.0 M Morphological Adaptations ¹ (Provide supporting data Notes) M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic. M % Bare Ground M % Cover of Wetland Bryophytes
9. Total Cov 50% of total cov VEGETATION (use scientific names of pla Herb Stratum (26 ¹) 1. Dryopten's expanse 2. Equisetum Arvens 3. Streptopus amplexificht 4. Calamagrostis canadensis 5. Spinulum Annatinum 6. Gymnocarpium dryopteri 7. viola sp	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> <u>157</u> <u>5</u> 27 <u>5</u> <u>5</u> <u>5</u>	Dominant Species?	Indicator Status FACU FAC FACU FACU FACU FACU	M Dominance Test is > 50% M Prevalence Index is ≤3.0 M Morphological Adaptations ¹ (Provide supporting data Notes) M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic. M % Bare Ground M % Cover of Wetland Bryophytes M Total Cover of Bryophytes
50% of total cov VEGETATION (use scientific names of plan Herb Stratum (_2(_1)) 1. Dryopten's expanse 2. Equisetum arvens 3. Streptopus amdexitali 4. Calamagrostis canadensis 5. Spinulum Annatinum 6. Gymnocarpium dryopten 7. viola sp 8. Trientalis europaee	rer: <u>42</u> 20 nts) Absolute % Cover <u>407</u> <u>157</u> <u>5</u> 27 <u>5</u> <u>5</u> <u>5</u>	Dominant Species?	Indicator Status FACU FAC FACU FACU FACU FACU FACU	M Dominance Test is > 50% M Prevalence Index is ≤3.0 M Morphological Adaptations ¹ (Provide supporting data Notes) M Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present disturbed or problematic. M % Bare Ground M % Cover of Wetland Bryophytes

WETLAND DETERMINATION DATA FORM 6.00.5 W85T1032 SOIL Date _____ Feature ID ______

SOIL		Dat	te Fea	ture II	D	and the second second	EN Saprêmi	Soil Pit Required (Y/N)
SOIL PROFILE	E DESCRIPTION: (De	scribe to	the depth needed t	o doci	ument the	indicator or o	confirm the absence	e of indicators.)
Depth	Matrix	R	edox Features					
(inches)	Color (moist)	% C	olor (moist)	%	Type ¹	Loc ²	Texture	Notes
0-5								Dry organics
5-24	10YR 2/2	7	. SYR 2.5/2	2	C	RC	SiL	Concentrations are relic
		-						A harizon has I small pocket
		1.1						of 10YR 3/3.
								- Dec
			100	MANT				
¹ Type: C=Con	centration, D=Depletion	on, RM=R	Reduced Matrix, CS	=Cove	ered or Co	ated Sand G	Brains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SOIL		Carl Bar		5.84	Con pines	124 1 1 1 1	the second se	FOR PROBLEMATIC HYDRIC SOILS3
Histosol or Hist			Alaska Gleyed (A13)	N	and the second second	and the second second second second	hange (TA4) ⁴
			Alaska Redox (/					Swales (TA5)
Histic Epipedor								with 2.5Y Hue_N
Black Histic (A		-	Alaska Gleyed F	ores	(A15) <u>1</u> -			without 5Y Hue or Redder Underlying
	n Sulfide (A4)					_	Layer N	
Thick Dark Sur			125				Other (Explain	
disturbed or pro	oblematic.		primary indicator o	t wetla	ind hydrold	ogy, and an a	appropriate landsca	pe position must be present unless
	color change in Note er (if present): Type:		De	epth (i	nches):	_		
	(10		- p (
Hydric Soll Pr	esent (Y/N):	_					de la companya de la comp	Luce.
Notes: Sail	s a thick Horizon	AA	material w/h	inin	1 main	Jan H Sain	had Strally	pletip string color change or
textural e	s a thick Horizon hange in the	A horiz	on. 10	RI IEI			1	0
	0							
HYDROLOGY	PRIMARY INDICATO	DRS (any	one indicator is su	fficient	t) (SECONDAR	Y INDICATORS (2	or more required)
Surface Water	(A1)	Surfac	e Soil Cracks (B6)	N		Nater-staine _eaves (B9)		Stunted or Stressed Plants (D1)
High Water Tal	ble (A2) _ N	Inunda (B7)	ation Visible on Aer	ial Ima	agery I	Drainage Patterns (B10)		Geomorphic Position (D2)
Saturation (A3)	N	Sparse	ely Vegetated ive Surface (B8)	N		Oxidized Rhizospheres along Living Roots (C3)		Shallow Aquitard (D3)
				. /		Presence of		Microtopographi
Water Marks (E	31) <u>//</u>		eposits (B15)	N		ron (C4)	N	Relief (D4) N
Sediment Depo	osits (B2)		gen Sulfide C1)			Salt Deposits	s (C5)	FAC-Neutral Test (D5)
Drift Deposits (вз)/	Dry-Se Water	eason Table (C2)			Notes:	a	
Algal Mat or Cr	rust (B4)	Other	(Explain in Notes):					4
Iron Deposits (I	B5)					x		and the second s
N. ARACANE M	IN A THE REAL PROPERTY OF	in states		出现的		-357) Ext (2.33)	Constant of the second second	
Surface Water	Present (Y/N):	De	əpth (in): 🔶					
Water Table Pr	resent (Y/N):	De	epth (in):		We	atland Hydro	ology Present (Y/N	I):
Saturation Pres	sent (Y/N): ary fringe)	De	epth (in): -		EC			1
Notes:				-				
								-).

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-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent- Persistent Aquatic Bed Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Emergent-
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 Peripheral Cover >75% Scattered or Peripheral Cover N/A 26-75% Scattered or Peripheral Cover N/A 26-75% Scattered or 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 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 rlngs) 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: 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
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)
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 (≥%) 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

Watershed Land Use: 0-5% Rural 5-25% Urbanized_ 25-50% Urbanized >50% Urbanized Medium (10-100 acres) Large (>100 acres)

Size: Small (<10 acres)_

GPS Technician QA/QC check:

Crew Chief QA/QC check: Jessie Bramles

Page 4 of 4

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: W857/032
 Field Target: (5243)
 Date: 6.20.15

 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?
- Draw Appropriate hydric soil indicators are marked?

4. Hydrology

- Appropriate hydrology indicators are marked?
- Z 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?
- Z Each logbook page is initialed and dated?

7. Maps

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

8. Photos

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

6/20/15 NADITA Signature / Date Wetland Scientist (print)

e.e

Field Crew Chief (print)

X Jusie Brownille 6.20.15 Signature / Date

SITE DESCRIPTION		A CONTRACT		Repair of the second			
Survey Type: Centerline Ad	cess Road (explain)	Other (expla	ain) OFF ROW	Field Target: 15274	Map #: 15274Map Date: 3-2-15		
Date: 7.3.15	Project Name & No.:	Alaska LNG	A LNG 60418403 Feature Id: W8STI0.33				
Investigators: Jessie Brown	ee, Jennifer Ande	rson			Team No.: W85		
State: Alaska	Region: Alaska		Milepost:	40	En Production (Marchaeller)		
Latitude:		Longitude			Datum: WGS84		
Logbook No.:	Logbook Page No.:	}	Picture No.:	1thru 4			
SITE PARAMETERS	10 ²³ 30011						
Subregion: South Central			Landform (hills	slope, terrace, hummock	is, etc.): the slope of Mit Sussting		
Slope (%): 0-3			Local relief (co	ncave, convex, none):	Flat		
Pre-mapped Alaska LNG/NWI classif	lication: UICZ	-	Evidence of W	ildlife Use: None			
Are climatic/hydrologic conditions on Yes No (If no e	the site typical for this time xplain in Notes)	of year?	Are "No Yes_X	rmal Circumstances" pro	esent: ¢plain in Notes.)		
Are Vegetation, Soll, or H	Hydrology Significanti	y Disturbed?	No_X	(If yes, explain in Notes			
Are Vegetation, Soll, or H	Hydrology Naturally P	roblematic?	No_X_	(If yes, explain in Note	s.)		
SUMMARY OF FINDINGS	and the second second						
Hydrophytic Vegetation Present? Yes	s No	is t	he Sampled Ar	ea within a Wetland?	Yes NoX		
Hydric Soil Present? Yes	8 No <u>X</u>	We	tland Type:	J			
Wetland Hydrology Present? Yes	8 No <u>X</u>	Ala	ska Vegetation	Classification (Viereck):	132		
Also a RYSB is d No point was tak	Freis w/ trees ~ Soils are intre to that repeat to do to the south east training the we ien use Lidon Due to GPS	65+ fe sting with poth. towar tland for pl	to the lacement	Understory of ng bando of de 9.9 bot Not e NW of the L t i	Cal Can & Equisation pleted silty clay barn nough to pull 2 but		
* GPS Broke at t submeter accu My handhold garmin	this sight. It prate point GPS point is	- was +	Flagged	For survey	ors to go get		

Page 1 of 4

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: <u>5</u> (Total Number of Dominant Species Across All Strata: <u>6</u> (
1. Betula Nesalastang	401.	Y	FAC	% Dominant Species that are OBL, FACW, or FAC: 831. (A
1. Betula Necalastana 2. Picea Glavea	5%		FACU ,	
3.				
4.				Prevalence Index worksheet:
Total Cove	r: 45		1.1	Total % Cover of: Multiply by:
50% of total cove	r: 22.5 20	% of total cov	/er: <u>9</u>	OBL species:X 1 =0
Sapling/Shrub Stratum (261)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: \bigcirc X 2 = \bigcirc FAC species $\boxed{3}$ X 3 = $\boxed{393}$
1. Linnaea Borealis	1%	(,	FACU	FACU species 48 X 4 = 192 UPL species 0 X 5 = 5
2. Ribes Triste	2%	1	FAC	Column Totals: 179 (A) 5.85 (B)
3. Spiraea Stevenii	al.	- X-	FACU.	PI = B/A = 3 - 2(2)
4. Rosa Acicularis	3%	V	FACU .	
5. Wiburnum edule	51.	V	FAC	
6. Betvla Necalaskena	31	. /	FAC	A Contract of the second states
7.	- 			
8.				
9.				and the second se
Total Cove 50% of total cove)% of total cov	/er: <u>3</u>	
VEGETATION (use scientific names of plan	ts)			
Herb Stratum(261))	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators:
1. Equisation Arvense	30%	Y	FAC.	Morphological Adaptations ¹ (Provide supporting data In
2. Equisetum Sylvaticum	20%	Y	FAC	Notes)
3. Calamagrostis Canadensis	30%	Y	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Rubus pedatus	21.	1	FAC -	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Comus canadensi's	15%.	P	FACU	disturbed or problematic.
6. Trientalis europaca	-57.		FACU	
7. Gymnocarpium drypoteris	15%		FACU	% Bare Ground
8. Streptopus Amplexitolius	T		FACI	% Cover of Wetland Bryophytes
9. Geranium ericonthum	21	- 16	FACU	Total Cover of Bryophytes
10 0	T			% Cover of Water
Contium porcale	r 119		THU.	
Total Cove 50% of total cove)% of total cov	FACD	Hydrophytic Vegetation Present (Y/N):

SOIL PHOFIL		(2000110			mont the	indicator or c	onfirm the absence	of indicators.)	_
Depth	Matrix	-	Redox Featur			10			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
0-3			-	_	-			Dry organics	
3-5	10YR 2/1	100					Silt Loam		1-14
-10	10YR 3/2		ZSYR 3/4 10 VR 4/1	10 6	5	M	very fine sandy		-
0-24	7588 4/4		545/8		C	m	i fine sandy loo		
	104R 5/1	45				1	Silty Clay Log M		27
¹ Type: C=Cor	centration, D=Depl	etion. Bl		rix CS=Cover	ed or Co	ated Sand G	ains ² l ocation:	PL=Pore Lining, M=Matrix.	-
V ATTAC AND DESCRIPTION OF A DESCRIPTION	INDICATORS	ouon, m		11,00-00101				OR PROBLEMATIC HYDRIC SC	
Histosol or His	a province and a second se		Alaska Gl	eyed (A13)	N				OILO
	Epipedon (A2)			edox (A14)	-	Alaska Color Change (TA4) ⁴ N Alaska Alpine Swales (TA5) N			
1.	c (A3)			eyed Pores (A			Alaska Redox w		-
	n Sulfide (A4) <u>N</u>							without 5Y Hue or Redder Underly	vina
			h	N. Wala	100		Layer N		
Thick Dark Su						-	Other (Explain i	n Notes) P pe position must be present unles	
Hydric Soil Pr	f color change in No rer (if present): Typ resent (Y/N):	1	depleted sil	_ Depth (inc		G fine sa	ndy Loam th	at has axidized Calterna	ting to
Hydric Soil Pr	rer (if present): Typ	1	depleted sil atract, site indicator.			(fine sa trated so	ndy Loam th 11 for some	at has oxidized (alterna part of spring but r	iting to contai
Hydric Soil Pr Notes: Bw2 fectural di dry long e	rer (if present): Typ	J mds of make		ty clay (oa likely ha , Neg X	on 4 và o sato (or th		ndy Loem th il for some MINDICATORS (20	and the second	ting to
Hydric Soil Pr Notes: Bw2 Factural di Iry long en HYDROLOGY	rer (if present): Typ resent (Y/N): s alternating ba Arrences expl iough to Nat PRIMARY INDICA	nds of ain co Make		ty clay (oa likely ha veg w ris sufficient)	an 4 vi o satu (or th s		INDICATORS (2 d	and the second	ling to
Hydric Soil Pr Notes: Bw2 fectural di dry long e	rer (if present): Typ resent (Y/N): s alternating ba Arrances expl rough to Not PRIMARY INDICA (A1)	J mds d bain co make TORS (a Sur	ny one indicator face Soil Cracks ndation Visible c	ty clay (oa likely ha , Neg p r is sufficient) s (B6) N	am 4 vi o sete (or th s V L onv	ECONDARY /ater-stained eaves (B9) _	INDICATORS (2 d	or more required) Stunted or Stressed	10 ¹ -01
Hydric Soil Pr Notes: Bw 2 Textural di Try Tong - HYDROLOGY Surface Water High Water Tal	rer (if present): Typ resent (Y/N): s alternating ba Arrances expl rength to Nat PRIMARY INDICA (A1) ple (A2)	TORS (a Inui (B7 Spa	ny one indicator face Soil Cracks ndation Visible c	ty clay (oa likely ha v Neg pr r is sufficient) s (B6) N on Aerial Imag	ery D	ECONDARY Vater-stained eaves (B9) rainage Patte	INDICATORS (2 o erns (B10) ospheres along	or more required) Stunted or Stressed Plants (D1)	N
Hydric Soil Pr Notes: Bw2 Fecto and di Cy long en HYDROLOGY Surface Water High Water Tal Saturation (A3)	rer (if present): Typ resent (Y/N):	Mds d make TORS (a Sur Inu (B7 Spa Cor	ny one indicator face Soil Cracks ndation Visible c	$f_{\gamma} clay (oa)$ $l_i k_{ely} ha$ $p \cdot Neg pr r is sufficient) s (B6) N on Aerial Image 1 38) N$	ery D	ECONDARY Vater-stained eaves (B9) rrainage Patte xidized Rhize	INDICATORS (2 o N erns (B10) ospheres along C3)	or more required) Stunted or Stressed Plants (D1)	N
Hydric Soil Pr Notes: Bw2 Textural di Ty long = HYDROLOGY Surface Water High Water Tal Saturation (A3) Vater Marks (E	esent (Y/N):	TORS (a make TORS (a Inu (B7 Spa Cor Man Hyc	ny one indicator face Soil Cracks ndation Visible c arsely Vegetated ncave Surface (E	$f_{\gamma} clay (oa)$ $l_i k_{ely} ha$ $p \cdot Neg pr r is sufficient) s (B6) N on Aerial Image 1 38) N$	ery D	ECONDARY Vater-stained eaves (B9) rainage Patte widized Rhize ving Roots (0 resence of R	INDICATORS (2 o	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic	N
Hydric Soil Pr Notes: Bw2 Fx.tv rel di Y / Iong HYDROLOGY Surface Water High Water Tal Saturation (A3) Vater Marks (E Sediment Depo	rer (if present): Typ resent (Y/N):	TORS (a make TORS (a Inu (B7 Spa Cor Man Hyc Odc	ny one indicator face Soil Cracks ndation Visible c arsely Vegetated cave Surface (E 1 Deposits (B15)	$f_{\gamma} clay (oa)$ $l_i k_A y ha$ $p \cdot Neg p$ r is sufficient) s (B6) N on Aerial Image $\frac{1}{38}$ N N	ery D	ECONDARY Vater-stained eaves (B9) trainage Patter vidized Rhize iving Roots (0 resence of R on (C4)	INDICATORS (2 o	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)N	N
Hydric Soil Pr Notes: Bw2 Hydrowl di Hydrog e HYDROLOGY Surface Water	PRIMARY INDICA (A1) A2 PRIMARY INDICA (A1) (A1) Dele (A2) A B3) B3)	TORS (a make TORS (a Inuu (B7 Spa Cor Man Hyc Odc Dry Wa	ny one indicator face Soil Cracks ndation Visible c arsely Vegetated cave Surface (E 1 Deposits (B15) lrogen Sulfide or (C1)	$f_{\gamma} clay (oa)$ $l_i k_A \gamma k_A$ $p \cdot Neg p$ r is sufficient) s (B6) N on Aerial Image $f_{38} N$	ery D	ECONDARY /ater-stained eaves (B9) prainage Patter xidized Rhize iving Roots ((resence of R on (C4) alt Deposits (INDICATORS (2 o	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)N	N
Hydric Soil Pr Notes: Bw 2 Fectured di Yor / Ing - HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depc Drift Deposits (I	rer (if present): Typ	TORS (a make TORS (a Inuu (B7 Spa Cor Man Hyc Odc Dry Wa	ny one indicator face Soil Cracks ndation Visible c arsely Vegetated cave Surface (E 1 Deposits (B15) frogen Sulfide or (C1) Season ter Table (C2)	$f_{\gamma} clay (oa)$ $l_i k_A \gamma k_A$ $p \cdot Neg p$ r is sufficient) s (B6) N on Aerial Image $f_{38} N$	ery D	ECONDARY /ater-stained eaves (B9) prainage Patter xidized Rhize iving Roots ((resence of R on (C4) alt Deposits (INDICATORS (2 o	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)N	N
Hydric Soil Pr Notes: Bw 2 Fectured di Y / Ing - HYDROLOGY Burface Water High Water Tal Saturation (A3) Vater Marks (E Sediment Depo Drift Deposits (I Sigal Mat or Criticon Deposits (E	rer (if present): Typ	TORS (a make TORS (a Sur Inur (B7 Spa Cor Mar Odd Dry War Oth	ny one indicator face Soil Cracks ndation Visible c arsely Vegetated cave Surface (E 1 Deposits (B15) frogen Sulfide or (C1) Season ter Table (C2)	$f_{\gamma} clay (oa)$ $l_i k_A \gamma k_A$ $p \cdot Neg p$ r is sufficient) s (B6) N on Aerial Image $f_{38} N$	ery D	ECONDARY /ater-stained eaves (B9) prainage Patter xidized Rhize iving Roots ((resence of R on (C4) alt Deposits (INDICATORS (2 o	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)N	N
Hydric Soil Pr Notes: Bw 2 Fextured di Y /ong HYDROLOGY Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Ngal Mat or Cri ron Deposits (E	rer (if present): Typ resent (Y/N):	TORS (a make TORS (a Sur Inui (B7 Spa Cor Mai Hyc Odd Dry Wai	ny one indicator face Soil Cracks indation Visible c arsely Vegetated incave Surface (E 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2) er (Explain in No	$f_{\gamma} clay (oa)$ $l_i k_A \gamma k_A$ $p \cdot Neg p$ r is sufficient) s (B6) N on Aerial Image $f_{38} N$	ery D	ECONDARY Vater-stained eaves (B9) rrainage Patte ixidized Rhize ixidized Rhize	INDICATORS (2 o	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) _ Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	N

5

AQUATIC SITE ASSESSMENT DATA FORM

Forested-Evergreen-Needle-leavedS Scrub Shrub-Evergreen-Broad-leaved PersistentAquatic Bed Percent Cover (P): Tree (>5 dbh, >6m tall) Dwarf shrub (<0.5m) Tall herb (≥1m) Number of Wetland Types (M): E Vegetation Density/Dominance (P): Sparse (0 80%) Very High Density (80-100%)	100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered o
Dwarf shrub (<0.5m) Tall herb (≥1m) Number of Wetland Types (M): E Vegetation Density/Dominance (P): Sparse (0 80%) Very High Density (80-100%) Interspersion of Cover & Open Water (P): 1) Short herb (<1m) Moss-Lichen Floating Submerged Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even D-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered o
Vegetation Density/Dominance (P): Sparse (0 80%) Very High Density (80-100%) Interspersion of Cover & Open Water (P): 1	D-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered o
80%) Very High Density (80-100%) Interspersion of Cover & Open Water (P): 1	 100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered o
Interspersion of Cover & Open Water (P): 1 Peripheral Cover >75% Scattered of	100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered o
	or Peripheral Cover N/A
Plant Species Diversity (P): Low (< 5 plant species	becies) 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): N Open Small Scattered Patches	No Veg Solitary, Scattered Stems 1 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
	Patro de Trista de La contra de
Soil Factors (P): Soil Lacking H Mineral: Gravelly Mineral: Sandy	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent O Inlet/Intermittent Outlet Perennial Inle	_ No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennia et/Perennial Outlet
Wetland Water Regime (P): Drier: Season Wet: Perm. Flooded, Intermittently Exposed, Sea	nally Flooded, Temporarily Flooded, Saturated
Evidence of Sedimentation (P): No Evidence Created	e 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 Ove Return Interval >5 yrs	erbank 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 Circ	cumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading

 Basin Topographic Gradient (M):
 Low Gradient (<2%)</th>
 High Gradient (≥2%)

 Evidence of Seeps and Springs (P):
 No Seeps or Springs
 Seeps Observed
 Intermittent Spring
 Perennial Spring

LANDSCAPE VARIABLES (M) Only Connected Below Wetland Juxtaposition: Wetland Isolated_ Wetlands within 400m, Not Connected_ Only Connected Above_ Connected Upstream & Downstream Unknown Low Intensity (i.e. open space) Wetland Land Use: Moderate Intensity (i.e., forestry) High Intensity (i.e., ag.)_ Watershed Land Use: 5-25% Urbanized 25-50% Urbanized >50% Urbanized 0-5% Rural Size: Small (<10 acres) Medium (10-100 acres) Large (>100 acres)

Crew Chief QA/QC check: Jessie Brownila

GPS Technician QA/QC check:

Page 4 of 4

3

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID:
 W85T1033
 Field Target:
 15274
 Date:
 7.3.15

 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?
- Wegetation 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?
- Z 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?

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

- 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)?

adersor Wetland Scientist (print)

Signature Date

Field Crew Chief (print)

lessie Bromla 7.3.15 Х Signature / Date

* 6PS Broke at Point. No submeter Accorate point taken but trail flagged.

ITE DESCRIPTION urvey Type: Centerline Acc ate: $7.5.15$ westigators: J_{essie} Brownle tate: Alaska atiltude: $\omega i^{o} 9 0 2 9 7 1$ ogbook No.: 2 ITE PARAMETERS	Project Name & No.:	Alaska LN			Map #: <u>15278</u> Map Date: <u>7=4/15</u> : W85TI034 Team No.: W85
ate: 7.5.15 Ivestigators: Jessie Brownle tate: Alaska atitude: 61°902971 ogbook No.: 2	Project Name & No.: ee, Jennifer And	Alaska LN	IG 60418403		W85TI034
ivestigators: Jessie Brownle tate: Alaska atitude: 61°902971 ogbook No.: 2	ee, Jennifer And	Sersan		Feature Ic	/
tate: Alaska atitude: 61°902971 ogbook No.: 2		<u> </u>	Mllepost:		Team No.: W85
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ogbook No.: 🖉		Langling			
		Longitud	le: 150°21:	3396	Datum: WGS84
	Logbook Page No.:	2	Picture No.:	1 thro 4	
IL PULPUNE IENO	ANT CAR AND AND ANY ANY	Alerni ad tal	w. stall at att		
ubregion: South Central			Landform (hills	slöpe, terrace, hummock	is, etc.): Flat (lowland
ope (%):				oncave, convex, none):	
e-mapped Alaska LNG/NWI classific	cation: U: IIB	2,110.		Vildlife Use: Moose JI	
e climatic/hydrologic conditions on the conditin	he site typical for this time plain in Notes)	of year?	Are "No Yes_>	rmal Circumstances" pre	plain in Notes.)
e Vegetation, Soil, or H	ydrology Significant	ly Disturbed	1? No <u>X</u>	_(If yes, explain in Notes)
e Vegetation, Soil, or H	ydrology Naturally F	Problematic	? No X	_ (If yes, explain in Notes	5.)
JMMARY OF FINDINGS					
vdrophytic Vegetation Present? Yes	No		s the Sampled A	rea within a Wetland?	Yes NoX
rdric Soil Present? Yes_	NoX	v	Vetland Type:	J	a management of the second
etland Hydrology Present? Yes_	NoX	A	laska Vegetation	Classification (Viereck):	IIIA2
ntes and Site Sketch: Please include rridor. Barned Pic Marhford Dry sandy soil with	st, with Cal Ce No signs of t		reweed re	e, Distances from Cente	le sprice regen.

FREE : SEE IS MORE

Tree Stratum (Plot sizes: 100)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:
10 1 (2 1)	11.2	(Y/N)		Total Number of Dominant Species Across All Strata:
Burned Dead Picea Mariana	402			% Dominant Species that are OBL, FACW, or FAC: 100
3.				
1				Prevalence index worksheet:
Total Cover			01	Total % Cover of: Multiply by: OBL species: X1 =
50% of total cover			1	OBL species: Q X 1 = Q FACW species: 1 X 2 = 2
Sapling/Shrub Stratum (2()	Absolute % Cover	Dominant Species?	Indicator Status	FAC species <u>50</u> X 3 = <u>150</u>
		(Y/N)		FACU speciesX 4 =4 4
·vaccinium vitis-idaea	1. /.	Ý	FAC	UPL speciesX 5 =
2. Salix Bebbiana	11	V.	FAC	Column Totals: 62 (A) 196 (B)
3. Betula negalarikana	17.	1	Far	PI = B/A =()
4. Pirea manana	17.	Ý	FacW	
5.		1	1.0-0.1.0	
6.		-		
7,		-	-	= 2
8.				THE A
9.			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
9.			and Distances	
9. Total Cover	: 4		100	
as further a)% of total cov	/er:_0.8	
Total Cover 50% of total cover	r <u> </u>	0% of total cov	/er:_ <u>0.8</u>	
Total Cover 50% of total cover VEGETATION (use scientific names of plants	r <u> </u>)% of total cov	ver: 0.8	Hydrophytic Vegetation Indicators:
Total Cover 50% of total cover VEGETATION (use scientific names of plants	n <u>a</u> 20 s)			Hydrophytic Vegetation Indicators:
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum (2(o ')	s) Absolute % Cover	Dominant	Indicator Status	
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifatium	r: 2(s) Absolute	Dominant Species?	Indicator Status	Dominance Test is > 50% N_Prevalence Index is ≤3.0
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>26'</u>) 1. Chamerion angustifatium 2. Equisation sylvaticum	 Absolute % Cover 5.7. 15.7. 	Dominant Species?	Indicator Status FACU FAC	Dominance Test is > 50% N Prevalence Index is ≤3.0 Notes) Dominance Test is > 50% Prevalence Index is ≤3.0
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifatium	 Absolute % Cover 5.7. 	Dominant Species?	Indicator Status	Dominance Test is > 50% N Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting dat
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifatium 2. Equivation sylvaticum	 Absolute % Cover 5.7. 15.7. 	Dominant Species?	Indicator Status FACU FAC	Dominance Test is > 50% N Prevalence Index is ≤3.0 Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present u
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifatium 2. Equisation sylvaticum 3. Calanagrostis canadensis 4. Comus Suecicq	 Absolute % Cover 5.7. 15.7. 30.7. 	Dominant Species?	Indicator Status FACJ FAC FAC	Dominance Test is > 50% N Prevalence Index is ≤3.0 Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifatium 2. Equiverbum sylvaticum 3. Calanagrostis canadensis 4. Cornus suecicq 5. Cornus canadensis	 2 2 Absolute % Cover 5.7. 15.7. 30.7. 2.7. 	Dominant Species?	Indicator Status FACU FAC FAC FAC FAC	Dominance Test is > 50% N Prevalence Index is ≤3.0 Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present u
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum (<u>2001</u>) 1. Chamerion angustifatium 2. Equisation sylvaticum 3. Calamagrostis canadensis 4. Cornus suecicq 5. Cornus canadensis	 2 2 Absolute % Cover 5.7. 15.7. 30.7. 2.7. 3.7. 	Dominant Species?	Indicator Status FACU FAC FAC FAC FACU	Dominance Test is > 50% Nervalence Index is ≤3.0 Notes) Notes) Notes) Notes Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present u disturbed or problematic.
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifulium 2. Equise tum sylvaticum 3. Calamagrostis canadensis 4. Cornus succicq 5. Cornus canadensis 6. Carnus canadensis 6. Carnus canadensis 7. Lupinus arcticus	 2 Absolute % Cover 5.7. 15./. 30.7. 2.7. 3.7. 3.7. 	Dominant Species?	Indicator Status FACU FAC FAC FAC FAC	→ Dominance Test is > 50% → Prevalence Index is ≤3.0 → Morphological Adaptations ¹ (Provide supporting data Notes) → Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present u disturbed or problematic.
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifs fium 2. Equisetum sylvaticum 3. Calamagrostis canadensis 4. Cornus suecicq 5. Cornus canadensis 6. Cahex Sp. 7. Lupinus arcticus 8.	 2 Absolute % Cover 5.7. 15./. 30.7. 2.7. 3.7. 3.7. 	Dominant Species?	Indicator Status FACU FAC FAC FAC FACU	Dominance Test is > 50% Nervalence Index is ≤3.0 Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present u disturbed or problematic.
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifatium 2. Equisation sylvaticum 3. Calamagrostis canadensis 4. Cornus suecicq 5. Cornus canadensis 6. Cakex Sp. 7. Lupinus arcticus 8. 9.	 2 Absolute % Cover 5.7. 15./. 30.7. 2.7. 3.7. 3.7. 	Dominant Species?	Indicator Status FACU FAC FAC FAC FACU	→ Dominance Test is > 50% → Prevalence Index is ≤3.0 → Morphological Adaptations ¹ (Provide supporting data Notes) → Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present u disturbed or problematic. → % Bare Ground → % Cover of Wetland Bryophytes → % Cover of Bryophytes → % Cover of Water
Total Cover 50% of total cover VEGETATION (use scientific names of plants Herb Stratum () 1. Chamerion angustifalium 2. Equisation sylvaticum 3. Calamagrostis canadensis 4. Conves succicq 5. Cornus canadensis 6. Calaex - Sp.	 Absolute % Cover 5.7. 15./. 30.7. 3.7. 3.7. 3.7. 	Dominant Species?	Indicator Status FACU FAC FAC FAC FACU	Dominance Test is > 50% Nervalence Index is ≤3.0 Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present u disturbed or problematic.

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	% Ty	pe ¹	Loc ²	Texture	Notes
0-2								Dry organics
2-4	Black 1	19					Loam	Charcoal Pockets of Asho EI
4-12	10YR 4/4 .	98					Loomy sand	410YR 4/1 very spotty
2-5	7.5 YR 3.5/3	5					1	
2-15	7.5YR %/3	80	7.54R 4/6	20 C		MARC	Fine Sandy loan	Ashcomponent
15-24	10YR 4/3	100		_			Loomy sand	
Type: C=C	oncentration, D=Deple	etion, RN	I=Reduced Matrix,	CS=Covered	or Coa	ated Sand Gr	ains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SO	IL INDICATORS	15116	and the state	1. RIVER	12.0		INDICATORS F	OR PROBLEMATIC HYDRIC SOILS ³
Histosol or Histel (A1)N		Alaska Gleye	ed (A13)	N	1	Alaska Color Cl	nange (TA4) ⁴	
Histic Epiped	don (A2) _ N		Alaska Redo	x (A14)	ſ		Alaska Alpine S	Swales (TA5)
Black Histic	(A3) N	100	the second se	ed Pores (A15) N		Alaska Redox w	vith 2.5Y Hue
Hydrogen Sulfide (A4)				To show		1	Alaska Gleved	without 5Y Hue or Redder Underlying
Thick Dark S	Surface (A12) N			100	14		Other (Explain i	n Notes)
19.00	12							
	Present (Y/N): Sandy Soil brundaries 7 hor	a, Ch izons d	arcoal & burn discontinuous	material t way, T	thra	ighord P	it in ununifo	rm distribution due to th
Notes: Dr. hrow. All	and the second	1		/			it in ununifor INDICATORS (2)	or more required)
Notes: Dr. hrow. All	Sandy Soil bundaries & hor	TORS (a		sufficient)	S		INDICATORS (2	
Notes: Dr. h row, All HYDROLOG Surface Wat	Sandy Soil bundaries & hor	TORS (a	ny one indicator is face Soil Cracks (E ndation Visible on A	sufficient) 36)	S V L D	ECONDARY Vater-stained eaves (B9) _ Drainage Patt	/ INDICATORS (2 	or more required) Stunted or Stressed
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Notes: D., Arow, All HYDROLOG Surface Wat High Water T Saturation (A Water Marks	Sandy Soil brundaries ? hor er (A1) N Table (A2) N A3) N (B1) N eposits (B2) N	TORS (a Sun Inu (B7 Spa Con Ma Ma - Hya Od	ny one indicator is face Soil Cracks (f ndation Visible on a arsely Vegetated ncave Surface (B8) rl Deposits (B15) _ drogen Sulfide	sufficient) 36) Aerial Imagery 	S - L C C L P Ir S	ECONDARY Vater-stained eaves (B9) _ Drainage Patt Dxidized Rhiz iving Roots (Presence of R ron (C4)	rindicators (2 erns (B10) ospheres along C3) Reduced	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
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Notes: D., And All AYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or ron Deposits Surface Wate	Sandy Soil brondaries 7 hor er (A1) <u>N</u> rable (A2) <u>N</u> (B1) <u>N</u> eposits (B2) <u>N</u> s (B3) <u>N</u> Crust (B4) <u>N</u>	TORS (a Sun (B7 Con Ma Hyo Od Dry Wa Oth	In y one indicator is face Soil Cracks (f ndation Visible on A arsely Vegetated ncave Surface (B8) rl Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2) her (Explain in Note	sufficient) 36) Aerial Imagery	S C C P Ir S N	ECONDARY Vater-stained eaves (B9) Drainage Patt Dxidized Rhiz iving Roots (Presence of R ron (C4) Balt Deposits lotes:	rindicators (2 erns (B10) ospheres along C3) Reduced	or more required) 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-Broad-leaved Scrub Shrub-Deciduous-Needle-leaved Emergent-Non-persistent Persistent Aquatic Bed Emergent-Needle-leaved Emergent-Needle-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): 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%) Low Density (20-40%) Medium Density (40-60%) High Density (60-
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 26-75% Scattered or 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 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: Silty Mineral: Clayey 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
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
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)
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
Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5)

Wetland Juxtaposition: Only Connected Above_		Wetlands withi stream & Downstream_	n 400m, Not Connected Unknown	Only Connected Below	
Wetland Land Use:	High Intensity (i.e., ag.)_	Moderate In	tensity (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 ac	res) _ Medium (10-100 acres)	Large (>100 acres)		

Size: Small (<10 acres)_____ Crew Chief QA/QC check:

GPS Technician QA/QC check:

7.3.15

Page 4 of 4

10

U

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID: W85TL004
 Field Target: IS278
 Date: 1/5//15

 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

D 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)?

Х Anderson 15/15 nnifor Wetland Scientist (print) Signature / Date

Х roundal

Field Crew Chief (print)

z

Signature / Date

SITE DESCRIPTION		1 Sec. 1			
Survey Type: Centerline X Acce	ess Road (explain)	_ Other (expl	ain) GFF ROU	Field Target: 15040	Map #: 1504D Map Date: 7.2.15
Date: 7.5.15	Project Name & No.:	: Alaska LNC	G 60418403	Feature Id:	W85T1035
Investigators: Jessie Bounde	e. Jennifer Ar	decson			Team No.: WES
State: Alaska	Region: Alaska		Milepost: 5	740.4	and a second
Latitude: 61° 22' 38.13		Longitude	»150°47		Datum: WGS84
Logbook No.:	Logbook Page No.:	2		1 throad	
SITE PARAMETERS				"Deside di Maris"h	
Subrégion: South Central			Landform (hills	slope, terrace, hummocks	s, etc.):
Slope (%): 0-3				oncave, convex, none):	Flat
Pre-mapped Alaska LNG/NWI classifica	ation: UIAI (IAZ		/ildlife Use: Moose	
Are climatic/hydrologic conditions on th			Are "No Yes_大	rmal Circumstances" pre	sent: blain in Notes.)
Are Vegetation, Soil, or Hy	drology Significan	tly Disturbed?	? <u>No_X</u>	_(If yes, explain in Notes)	
Are Vegetation, Soil, or Hy	drology Naturally	Problematic?	No_A	_ (If yes, explain in Notes	.)
SUMMARY OF FINDINGS					William Street William
Hydrophytic Vegetation Present? Yes_	<u> </u>	Is	the Sampled A	rea within a Wetland?	Yes No
Hydric Soil Present? Yes_	X No	w	etland Type:	PSS4B	
Wetland Hydrology Present? Yes_		— AI	aska Vegetation	Classification (Viereck):	11AZ
Notes and Site Sketch: Please include I corridor. Shuted black Spruce open 224" of Damp but Not but they were damp t Site is likely saturated	Jirectional & North Arrow frust with En saturated orgo to. We make I in most yea	w, Conterline, 30 Syl a anics. F hydrolog 10 with	ad dense opped 2 gy on 4 Normal	e, Distances from Center sphagnum ~ sther holes loc secondaries. precipitation	Marking for saturation
					· · · · · · · ·

and the second se	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: 3_(A
1.				Total Number of Dominant Species Across All Strata: <u>3</u> (B
2.				- % Dominant Species that are OBL, FACW, or FAC: <u>IDD</u> (A/E
3.				
4.				Prevalence Index worksheet:
Total Cov	'er:			Total % Cover of: Multiply by:
50% of total cov	ver: 20	% of total cov	er:	OBL species:X 1 =
Sapling/Shrub Stratum (2451)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: 8 3 X 2 = 166 FAC species 7 1 X 3 = 213 FACU species X 4 =
1. Picea Mariana	55%		FACU	FACU speciesX 4 = UPL speciesX 5 =
2. Rhododendrum tomentasum	2.07	SI	FACW	Column Totals: 15 5 (A) 38D (B)
3. Vaccinium vitis-idaea	4%	7	FAC -	PI = B/A = 2.45
4. Empitrum nigrum	10%		FAC	
5. Chamaedaphne calyculata	31	÷ 6	FACH	
6. Vaccinium Oxycoccus	17.	- Al -	OBL	
7. Betula nana	2%	-	FAC	
				-
			Tan	
8. <u>E. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19</u>			Tar	
8. Estar levele	er:_95		Ter	
8. E)% of total cov		
8. 9. Total Cov	ver: 47,5 20	% of total cov		
8. 9. Total Cov 50% of total cov	rer: <u>47,5</u> 20 nts) Absolute	Dominant	er: <u>\</u>	Hydrophytic Vegetation Indicators:
8. 9. Total Cov 50% of total cov VEGETATION (use scientific names of plan	rer: <u>빅그,5</u> 20 nts)	Dominant Species?	er:_ <u>1/9</u>	Dominance Test is > 50%
8. 9. Total Cov. 50% of total cov VEGETATION (use scientific names of plan Herb Stratum ()	rer: <u>47.5</u> 20 nts) Absolute % Cover	Dominant	er: <u>\'</u> Indicator Status	2 Dominance Test is > 50% 2 Prevalence Index is ≤ 3.0
8. 9. Total Cov 50% of total cov VEGETATION (use scientific names of plan Herb Stratum (22.) 1. Equisetum sylvaticum	rer: <u>47,5</u> 20 nts) Absolute	Dominant Species? (Y/N)	er: <u>\</u>	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in
8. 9. Total Cov. 50% of total cov. VEGETATION (use scientific names of plan Herb Stratum () 1. Equisetum sylvaticum 2. Geocaillon fixidium	rer: <u>47.5</u> 20 nts) Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	2 Dominance Test is > 50% 2 Prevalence Index is ≤ 3.0
 8. 9. Total Cov. 50% of total cov VEGETATION (use scientific names of plan Herb Stratum () 1. Equisation () 1. Equisation () 1. Equisation () 1. Equisation () 	rer: <u>47,5</u> 20 nts) Absolute % Cover 557.	Dominant Species? (Y/N)	Indicator Status FAC FACJ FACU	→ Dominance Test is > 50% → Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes)
8. 9. Total Cov. 50% of total cov. VEGETATION (use scientific names of plan Herb Stratum () 1. Equisetum sylvaticum 2. Geocaillon fixidium	rer: <u>47,5</u> 20 nts) Absolute % Cover 557.	Dominant Species? (Y/N)	Indicator Status	→ Dominance Test is > 50% → Prevalence Index is ≤ 3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes) → Problematic Hydrophytic Vegetation ¹ (Explain)
 8. 9. Total Cov. 50% of total cov. VEGETATION (use scientific names of plan Herb Stratum (21.) 1. Equisetum sylvaticum 2. Geocaillon fividium 3. Rubus chamaemons 4. Drosera colundificatia 	rer: <u>47,5</u> 20 nts) Absolute % Cover 557.	Dominant Species? (Y/N)	Indicator Status FAC FACJ FACU	→ Dominance Test is > 50% → Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
 8. 9. Total Cov. 50% of total cov VEGETATION (use scientific names of plan Herb Stratum (<u>2</u>(<u>)</u>) 1. Equisetum sylvaticum 2. Geocaillon fividium 3. Rubus chamacmons 4. Drosera coturdificatia 5. 	rer: <u>47,5</u> 20 nts) Absolute % Cover 557.	Dominant Species? (Y/N)	Indicator Status FAC FACJ FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground
 8. 9. Total Cov. 50% of total cov. VEGETATION (use scientific names of plan. Herb Stratum () 1. Equisetum sylvaticum 2. Geocaillon fividium 3. Rubus chamaemons 4. Drosera coturdifolia 5. 6. 	rer: <u>47,5</u> 20 nts) Absolute % Cover 557.	Dominant Species? (Y/N)	Indicator Status FAC FACJ FACU	Dominance Test is > 50% Prevalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. % Bare Ground
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 8. 9. Total Cov. 50% of total cov. VEGETATION (use scientific names of plan Herb Stratum (<u>2</u>(<u>)</u>) 1. Equisetum sylvaticum 2. Geocaillon fividium 3. Rubus chamacmonus 4. Drosera cotundificatia 5. 6. 7. 	rer: <u>47.5</u> 20 nts) Absolute % Cover 557. T 57. T	Dominant Species? (Y/N)	Indicator Status FAC FACJ FACU	Dominance Test is > 50% Yervalence Index is ≤ 3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. Ø % Bare Ground 90 % Cover of Wetland Bryophytes 75 Total Cover of Bryophytes

in all

		(D) (I)		1 I I I	nont the				
SOIL PROFIL	E DESCRIPTION: (Describe	e to the depth need	ied to docun	nent the	indicator or	confirm the absen	ce of indicators.)	
Depth	Matrix		Redox Features						R.L.
(inches)	Color (moist)	%	Color (moist)	%	Турө¹	Loc ²	Texture	Notes	
0-24								organics	A
						12	-	0	
			÷	-					
			1 N N						
									- 24
κ.,									-
¹ Type: C=Cor	ncentration, D=Depl	etion, RI	/=Reduced Matrix	, CS=Covere	ed or Coa	ated Sand G	Grains. ² Location	n: PL=Pore Lining, M=Mati	rix.
HYDRIC SOIL	INDICATORS				ang Sir	2 1 1 2	INDICATORS	FOR PROBLEMATIC HY	DRIC SOIL
Histosol or His	stel (A1)		Alaska Gley	ed (A13)	N		Alaska Color	Change (TA4)4	() ()
Histic Epipedo	on (A2) _ N		Alaska Redo	ox (A14)	N		Alaska Alpine	Swales (TA5) N	
Black Histic (A		1.11	Alaska Gley	ed Pores (A	15) N			with 2.5Y Hue	1.000
Hydrogen Sulf					-,			d without 5Y Hue or Redde	r Underlyin
							Layer_N		ð
Thick Dark Su	· · · · · · · · · · · · · · · · · · ·	1		,			Other (Explain		
"One indicator disturbed or pi	of hydrophytic vege	etation, c	ne primary indicate	or of wetland	d hydrolo	gy, and an a	appropriate landso	ape position must be prese	ent unless
	of color change in No	otes.							
	ver (if present): Typ			Depth (inc	hes):	-	· · · · ·		
Hydric Soil P	resent (Y/N): V		Sec. 10.						
	resent (Y/N): ¥		5		Δ.			4	1
Notes: Sail is	the state of the state	of set	unted, Positio	EXX	through	rout org	gamics to de	epth. No sign of	mineral
Notes: Sail is	the state of the state	st Sat	unted, Positio	eXX	through	nout org	ganics to de	epth. No sign of	mineral
	the state of the state	st Sat	unted, Positic	eXX	through	now org	ganics to de	epth. No sign of	mineral
Notes: Sail is Past 24."	, moist bot we			Ч е					mineral
Notes: Sail is Past 24."	the state of the state			Ч е				2 or more required)	mineral
Notes: Sail is Past 24." HYDROLOGY	PRIMARY INDICA	TORS (a	any one indicator is	s sufficient)	S	ECONDAR	Y INDICATORS (2 or more required)	
Notes: Sail is Past 24." HYDROLOGY	, moist bot we	TORS (a	ny one indicator is face Soil Cracks (sufficient) B6) _N	V	ECONDAR Vater-staine eaves (B9)		2 or more required)	
Notes: Sail is Past 24." HYDROLOGY	PRIMARY INDICA	TORS (a	any one indicator is rface Soil Cracks (ndation Visible on	sufficient) B6) _N	V	ECONDAR Vater-staine eaves (B9)	Y INDICATORS (2 or more required)	ed
Notes: 5ai (is past 24." HYDROLOGY Surface Water High Water Ta	(A1) N	TORS (a Su Inu (B7 Sp	ny one indicator is face Soil Cracks (ndation Visible on ')N	s sufficient) B6) <u>N</u> Aerial Imag	ery D	ECONDAR Vater-staine eaves (B9) Prainage Pat	Y INDICATORS (d tterns (B10) zospheręs along	2 or more required) Stunted or Stresse Plants (D1) Geomorphic Positi	on (D2)
Notes: Sail is Paof 24." HYDROLOGY Surface Water	(A1) N	TORS (a Su Inu (B7 Sp	ny one indicator is face Soil Cracks (ndation Visible on	s sufficient) B6) <u>N</u> Aerial Imag	ery D	ECONDAR Vater-staine eaves (B9) Prainage Pat	Y INDICATORS (d tterns (B10) zospheręs along	2 or more required) Stunted or Stresse Plants (D1)	on (D2)
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Notes: 5ai (is past 24." HYDROLOGY Surface Water High Water Ta	(A1) Noist bot No (A1) Noise (A2) N	TORS (a Su Inu (B7 Co Ma	ny one indicator is face Soil Cracks (ndation Visible on ') arsely Vegetated ncave Surface (B8 rl Deposits (B15) _	B6) <u>N</u> Aerial Imag	ery C	ECONDAR Vater-staine eaves (B9) Prainage Pat Drainage Pat Drainage Rots	Y INDICATORS (d	2 or more required) Stunted or Stresse Plants (D1) Geomorphic Positi Shallow Aquitard (on (D2)
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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-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent Persistent Aquatic Bed Forested-Deciduous-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) O Sapling (<5 dbh, <6m tall) 55 Tall shrub (2-6m) Short shrub (0.5-2m) 55 Dwarf shrub (<0.5m)
Number of Wetland Types (M): A Evenness of Wetland Type Distribution (M): Even Highly Uneven Moderately even X
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60-80%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/Peripheral Cover
Plant Species Diversity (P): Low (< 5 plant species) Medium (5-25 species)X 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 CoverX
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) X 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: HemicX 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/Intermittent Inlet/Intermittent Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No 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 X 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 X Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs
Degree of Outlet Restriction (P): No Outflow K 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%) K High Gradient (≥2%) Evidence of Seeps and Springs (P): No Seeps or Springs K 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 & DownstreamX Unknown
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below
Wetland Juxtaposition: Wetland Isolated Wetlands within 400m, Not Connected Only Connected Below Only Connected Above Connected Upstream & DownstreamX Unknown Only Connected Below

Crew Chief QA/QC check: Jessie Brownlac

GPS Technician QA/QC check:

C

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Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>W85T[035</u> Field Target: <u>S048</u> Date: <u> $\frac{1}{5}/15$ </u> 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?
- K 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?
- EC Dominance Test and Prevalence Index have been completed?

3. Soil

➢r 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

- Se Wetland boundaries have been corrected if necessary?
- By 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)?

841 XO Jennifer Anderson 7/0/15 1.25 Signature / Date Wetland Scientist (print)

Jesse Brownlee

Field Crew Chlef (print)

Signature / Date

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SITE DESCRIPTION				
Survey Type: Centerline X Acce	ess Road (explain) Othe	er (explain)	Field Target: 15044	Map #: 218 Map Date: 6.4.15
Date: 7.5.15	Project Name & No.: Alas	ka LNG 60418403	Feature Id:	W8571036
Investigators: Jessie Brownles	To ifer Anderson			Team No.: کې ۲۰
State: Alaska	Region: Alaska	Milepost:	736.3	a and a set
Latitude: 61, 4088	Lo	ngitude: 150°. 70		Datum: WGS84
Logbook No.: 2	Logbook Page No.: 3	Picture No.:		
~	and at the Webberg Without	Martinet Colline and Colline 1		
SITE PARAMETERS		Landform (bi	lalana tarraga hummark	oto):T
Subregion: South Central				s, etc.): Toe slope Mt Susiting
Slope (%): 3-5	21		concave, convex, none):	
Pre-mapped Alaska LNG/NWI classific			Wildlife Use: MOOSe \	
Are climatic/hydrologic conditions on the Yes No (if no exp	ne site typical for this time of ye plain in Notes)	ar? Are N Yes_2		
Are Vegetation, Soil, or Hy	drologySignificantly Dis	sturbed? No <u>X</u>	(If yes, explain in Notes	
Are Vegetation, Soil, or Hy	vdrologyNaturally Proble	ematic? No X	(If yes, explain In Notes	.)
SUMMARY OF FINDINGS			New Street	
Hydrophytic Vegetation Present? Yes	No <u></u> X	Is the Sampled	Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	No_ 🏹	Wetland Type:	U	
Weiland Hydrology Present? Yes_	No∕\	Alaska Vęgetatio	on Classification (Viereck):	IBZ, MAZ
Notes and Site Sketch: Please include corridor. Mature Bet Neo Wood Dense understory of	land to open tores. Cal Can, browsed	+ with trees to	Breing over 40	Jute

VEGETATION (use scientific names of plan	ls)			
Tree Stratum (Plot sizes: <u>/00</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 2 (A)
1. Betula Neoalaskana	30%	Y	FAC	Total Number of Dominant Species Across All Strata: 6 (B)
2.		/		% Dominant Species that are OBL, FACW, or FAC: <u>0.33</u> (A/B
3.				
4.				Prevalence Index worksheet:
Total Cove	r <u>30</u>			Total % Cover of: Multiply by:
50% of total cove	r: <u>15</u> 20	0% of total cov	ver:	OBL species:X 1 =
Sapling/Shrub Stratum (2(4')	Absolute	Dominant	Indicator	FACW species:X 2 =
All range	% Cover	Species? (Y/N)	Status	FAC species 4λ $x_3 = 12b$ FACU species 5% $x_4 = 33b$
1. viburnum edule	10/	Y	FACU	UPL species 0 X 5 = 0
2. Rose Acicularis	3/	- ²⁰	FACU	Column Totals: 100 (A) 362 (B)
3. Linnaea borealis	21		FACU	PI=B/A= 3.62
4. Ribes triste	31		FAC	Equisetum Arvens H 2) FAC
5. Oplopanax horridus	51	Y	FACU	Mochringia lateriflora H T FACI
6.				Fern sp
7.			1.1	Heracleum maximum 5/ NA
8.		1		at 21 FACU
9.				
Total Cover 50% of total cover	r: <u>11.5</u> 20	% of total cov	ver: <u>4 .lo</u>	
VEGETATION (use scientific names of plant	s)			
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0
1. Calamagnostis canadensis	77.	Y	FAC	
2. Coumnocarpium dryopteris	15%	Ý	FACU.	Morphological Adaptations ¹ (Provide supporting data in Notes)
3. Cornus considensis	10/.	Y ·	FACU:	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Equischem pratense			FACW	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Chamerion ansustifulium	3/.		FACU	disturbed or problematic.
6. Dryopteris acounta	51		FACU	
7. Streptopus amplexifolius	17.	1	FACU	% Bare Ground
18. Trientalis europaea	21		FACU	% Cover of Wetland Bryophytes
9. Rubus pedatus	T		FIK	Total Cover of Bryophytes
10. Oberanium erianthum	T		FACU.	Hydrophytic Vegetation Present (Y/N):
Total Cover	52 ?	100		Notes: (If observed, list morphological adaptations below):
50% of total cover	: <u>26</u> 20	% of total cov	rer: 10, 4	

SOIL PROFIL			Date	Feature	<u>(ఎశ్.S</u> e ID	A DECKSON AND	ELENER CONTRACTOR	Soil Pit Required (Y/N)		
	LE DESCRIPTION: (I	Describe	to the depth nee	eded to d	locument th	e indicator or	confirm the absence	e of indicators.)		
Depth	Matrix	i i	Redox Feature							
(inches)	Color (moist)	%	Color (moist)	9	% Type ¹	Loc ²	Texture	Notes		
0-3			×		3			Dry organics		
3-5	104R 4/2	100	-		_		Loam	0		
5-17-	75YR 3/4	30					Loam			
Alt T	7.5YR 3/2	70	5 * H V							
17-24	7.54R 3/4	100					Very gravely C	n		
1					_	-				
1					-		21 11			
the second second	oncentration, D=Deple	etion, RM	1=Reduced Matr	ix, CS=C	overed or (Coated Sand (PL=Pore Lining, M=Matrix.		
ALC: NO. OF STREET, ST. OF ST.	IL INDICATORS	6 7 9 9 1	and the same	STANK ST	Selection of the	Diverselling Tex	and a state of the	FOR PROBLEMATIC HYDRIC SOIL		
and the second se	istel (A1) <u>N</u>		Alaska Gle				Alaska Color C			
	lon (A2)		Alaska Re			7	Alaska Alpine	the second s		
Black Histic (Alaska Gl	eyed Pore	es (A15) _	<u>N</u>	Alaska Redox	with 2.5Y HueN without 5Y Hue or Redder Underlying		
Hydrogen Su	Ifide (A4) N	19					Layer N			
	urface (A12) N						Other (Explain in Notes)			
disturbed or p Give details	problematic. of color change in No	otes.	ne primary more		cuana nyai	ology, and an	oppropriate tallage	pe position must be present unless		
Restrictive La	ayer (if present): Typ	e:		Depth	n (inches):_	-				
Hydric Soll F	Present (Y/N):									
Hydric Soll F			, Dry Loa,				17-24."			
Hydric Soll F Notes: <i>s ligk</i>	Present (Y/N):	ertiec	×.	n w∕e	saut (gravels ()	17-24 ." RY INDICATORS (2	or more required)		
Hydric Soll F Notes: Sligk HYDROLOG	Present (Y/N): <u>N</u> HE/BAS prop Y PRIMARY INDICA	tors (×.	$m \omega/\epsilon$ is suffici	ent)	gravels ()	RY INDICATORS (2	or more required) Stunted or Stressed Plants (D1)		
Hydric Soll F Notes: Sligh HYDROLOG Surface Wate High Water T	Present (Y/N): $\underline{\ }$ $\underline{\ }$ \underline	TORS (my one indicator face Soil Cracks ndation Visible o	m ω/ϵ is sufficient is sufficient is sufficient is sufficient is (B6)	ent)	SECONDAR Water-staine Leaves (B9)	RY INDICATORS (2	Stunted or Stressed		
Hydric Soll F Notes: Sligh HYDROLOG Surface Wate High Water T	Present (Y/N): N $d \in /B$ is prop Y PRIMARY INDICA er (A1) N	TORS (1 Su - (B Sp	my one indicator face Soil Cracks ndation Visible o	$m \omega / \epsilon$ is sufficient is sufficient in a sufficient is sufficient in a suff	ent)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots	atterns (B10) cC3)	Stunted or Stressed Plants (D1) <u>N</u> Geomorphic Position (D2) <u></u> Shallow Aquitard (D3) <u>N</u>		
Hydric Soll F Notes: <u>5 / 19</u> HYDROLOG Surface Wate High Water T Saturation (A	Present (Y/N): \underline{N} $d \in /BAs prop$ Y PRIMARY INDICA er (A1) \underline{N} Table (A2) \underline{N} 3) \underline{N}	TORS (i Su Inu (B Sp Co	ny one indicator face Soil Cracks ndation Visible o ') N arsely Vegetated	$m \omega / \epsilon$ is sufficition (B6)	ent)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh	atterns (B10) izospheres along s (C3) Reduced	Stunted or Stressed Plants (D1) <u>N</u> Geomorphic Position (D2) <u></u>		
Hydric Soll F Notes: <i>5 (igk</i> HYDROLOG Surface Water High Water T Saturation (A Water Marks	Present (Y/N): \underline{N} $d \in /BAs prop$ Y PRIMARY INDICA er (A1) \underline{N} Table (A2) \underline{N} 3) \underline{N}	TORS (i Su Int. (B Sp Co Ma	my one indicator face Soil Cracks ndation Visible o ') N arsely Vegetated ncave Surface (I	$m \omega / \epsilon$ is sufficition (B6)	ent)	SECONDAR Water-staine Leaves (B9) Drainage Pa Oxidized Rh Living Roots Presence of	AY INDICATORS (2 ad <u>N</u> atterns (B10) <u>N</u> izospheres along (C3) <u>N</u> Reduced <u>N</u>	Stunted or Stressed Plants (D1) <u>N</u> Geomorphic Position (D2) <u></u> Shallow Aquitard (D3) <u>N</u> Microtopographic		

 Algal Mat or Crust (B4)
 V
 Other (Explain in Notes):
 V

 Iron Deposits (B5)
 V
 V
 Depth (in):
 V

 Surface Water Present (Y/N):
 V
 Depth (in):
 V
 V

 Water Table Present (Y/N):
 V
 Depth (in):
 V
 V

 Saturation Present (Y/N):
 V
 Depth (in):
 Ec:
 V

 Notes:
 V
 V
 V
 Ec:
 V

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 Emergent-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): 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%) Figh Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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 1
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface) Moderately Abundant (25-50% 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: 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/No Outlet Perennial Inlet/Perennial Inlet/Perennia
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial I
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial 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
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Flooded Evidence of Sedimentation (P): No Evidence ObservedSediment Observed on Wetland SubstrateFluvaquent Soils Sediment Created Microrelief of Wetland Surface (P): AbsentPoorly Developed (6in.)Well Developed (6-18in.)Pronounced (>18in.)
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial 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): Absént 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
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial 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.) 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
Outlet
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Inlet/Noutlet Perennial Inlet/Noutl
OutletIntermittent Inlet/Intermittent Outlet /Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No Outlet
OutletIntermittent Inlet/Intermittent Outlet /Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/No Outlet
Outlet Intermittent Intet/Intermittent Outlet Intermittent Intet/Perennial Outlet Perennial Intet/No Outlet Perennial Intet/No Outlet Intermittent Outlet Perennial Intet/Perennial Outlet Perennial Intet/Perennial Outlet Perennial Intet/No Outlet Perennial Intet/No Outlet Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated
Outlet Intermittent Inlet/Intermittent Outlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No Detence Internitient Inlet/Perennial Inlet/No O
OutletIntermittent Unlet/Intermittent Outlet/Intermittent Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial
Outlet

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Field Target: / 5044 Date: 7/5/15 Feature ID: W8571036 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

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

6. Field Logbook

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

7. Maps

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

8. Photos

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

7/5/15 XC er Andorsh Signature / Dat Wetland ScientIst (print)

76.5 owner

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION			With Arth	and stat	ing in f	Service Monte Approximation
Survey Type: Centerline_X_ Acce	ss Road (explain)	Other (expl	ain <mark>)</mark>	Field Targe	t: 15045	Map #: <u>8/7 Map Date: (6 4 · 1</u> 5
Date: 7.6.15	Project Name & No.:	Alaska LNC	G 60418403 Feature Id: W			W85T1037
Investigators: Jessie Brownle	e. Jennifer An	derson				Team No.: W85
State: Alaska	Region: Alaska		Milepost:			an an an an an a
Latitude: 6104432		Longitude	: -150° 6.	586		Datum: WGS84
Logbook No.:	Logbook Page No.:			1-4 U	V.E	
		Laura - Lauran - Mar	and the second second		Contraction of the local	
SITE PARAMETERS	ALTER PROVIDENCE SALES	and the second second	10122 2000 2000	No. No.	NY ANY AN	
Subregion: South Central						s, etc.): Toeslope MSusition
Slope (%): 3-5	1.00		Local relief (c	oncave, conve	ex, none):f	lat to slightly convex
Pre-mapped Alaska LNG/NWI classifica	ation: U:1C2		Evidence of V	Vildlife Use: _{เป}	olf trac	k, noose droppings Bearin
Are climatic/hydrologic conditions on the Yes No (if no expl		of year?	Are "No Yes_7	ormal Circums		sent: plain in Notes.)
Are Vegetation, Soil, or Hyd	drologySignificant	tly Disturbed?	No_X	_(If yes, expla	ain in Notes	No. A Strand Stran
Are Vegetation, Soil, or Hyd	drology Naturally F	Problematic?	No <u>×</u>	_ (If yes, expl	ain in Notes	.)
SUMMARY OF FINDINGS	SHARE WERE NO			1. Strand		
Hydrophytic Vegetation Present? Yes_	<u> </u>	Is	the Sampled A	Area within a	Wetland?	Yes No
Hydric Soil Present? Yes_	Y No	w	etland Type:	PEMIE		the state
Wetland Hydrology Present? Yes_	X No	AI	aska Vegetation			IIIA3

Notes and Site Sketch: Please Include Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor.

Slope wetland with thick Car Agu coverage + little alse. Iron stalling throughout area. Slope water feeding off Base of Bt Susitina. Steep slope than would be expected for site.

Page 1 of

VEGETATION (use scientific names of plant	s)			
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: (A
1.				Total Number of Dominant Species Across All Strata:
2.				% Dominant Species that are OBL, FACW, or FAC: <u>100</u> (Á/E
3.				
4.			,	Prevalence Index worksheet:
Total Cover 50% of total cover	7.7)% of total cov		Total % Cover of: Multiply by: OBL species: $\mathfrak{S}(x) = \mathfrak{S}(x)$
Sapling/Shrub Stratum (J.3.× 40')	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: X 2 = FAC species Y 3 = FACU species X 4 =
1		<u> </u>		UPL speciesX 5 =
2.				Column Totals: <u>85</u> (A) <u>93</u> (B)
3.		. V		PI=B/A= 1.09
4.	1.000	8	2	conex is a subspecies. sitchensis sos per Huten
5		- K	<u>6</u>	Conex is a subspecied. Sitchensis as
6.				per Hoten
7		- 14	100 m	
8.	S DAT	9.2		
9.				
Total Cover 50% of total cover	: 20	% of total cov	er:	
VEGETATION (use scientific names of plant	5)			A DECEMBER OF STREET, S
Herb Stratum (13 ×40')	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. Calamagrostis canadensis	4%		FAC	<u> </u>
2. Equisetum Fluvitile	1%		OBL	Notes)
3. Carry Aquatalis	R 0/	Y	OBL	N Problematic Hydrophytic Vegetation ¹ (Explain)
4. 00				¹ Indicators of hydric soil and wetland hydrology must be present unless
5.			1	disturbed or problematic.
6.		- 1		we have the second s
7.	1	113	-	15 % Bare Ground
8.	N Sec.	15	-	% Cover of Wetland Bryophytes
9.				Total Cover of Bryophytes
10.				% Cover of Water
and the second	an an			Hydrophytic Vegetation Present (Y/N):
Total Cover 50% of total cover		% of total cov	er: <u>17.0</u>	Notes: (If observed, list morphological adaptations below): Elongated we hand patch, excluding summaring firest in Vegetation

SOIL	NO MENTER STREET	CONTRACTOR OF		eature I	11.	-1-1-1-	A PAR AND	Soil Pit Required (Y/N)	
SOIL PROF	LE DESCRIPTION: (Describ	e to the depth neede	d to doc	ument the i	ndicator or	confirm the abse	nce of indicators.)	
Depth Matrix		Redox Features			× .				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes	
6-4								Organics stained Fed from iror	
4-11								saturated organics	
11.20 -	The second se		1					Saturated organics	
			2				-	0	
				1.00	4			19-10-10 A.	
	- 3		2.	_				10 10 10 12	
	1				21 A				
¹ Type: C=C	oncentration, D=Deple	etion, R	M=Reduced Matrix,	CS=Cov	ered or Coa	ated Sand C		on: PL=Pore Lining, M=Matrix.	
HYDRIC SO	IL INDICATORS	19245				ALL ALL	INDICATOR	S FOR PROBLEMATIC HYDRIC SOILS	
Histosol or H	istel (A1) 📑 Y	24	Alaska Gleye	Alaska Gleyed (A13)				r Change (TA4) ⁴	
Histic Epiped	lon (A2) 🛛 🦉 N	· · · ·	Alaska Redox	(A14)	N		Alaska Alpin	ne Swales (TA5) <u>N</u>	
Black Histic	(A3) N		Alaska Gleye	d Pores	(A15) N			ox with 2.5Y Hue	
Hydrogen Su	Ifide (A4)	84	-	-	2		Alaska Gleyed without 5Y Hue or Redder Underlying Layer N		
	urface (A12)	and a						ain in Notes)	
disturbed or Give details	problematic. of color change in Ne	tes.					appropriate lands	scape position must be present unless	
	ayer (if present): Typ			Depth (i	nches):				
Hydric Soll	Present (Y/N):		<u> </u>						
Notes:	K organic mat 5	-1 10	I Gol Com		Rei	THE REAL		Contraction of the second	

HYDROLOGY PRIMARY INDICATORS (any one indicator is sufficient)		SECONDARY INDICATORS (2 or more required)	
Surface Water (A1) Y	Surface Soil Cracks (B6)	Water-stained Leaves (B9) N	Stunted or Stressed Plants (D1)
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7){	Drainage Patterns (B10)	Geomorphic Position (D2) <u>N</u>
Saturstion (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3) <u>N</u>
Water Marks (B1)	Marl Deposits (B15) <u>N</u>	Presence of Reduced Iron (C4)	Microtopographic Relief (D4) <u> </u>
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1) N	Salt Deposits (C5) N	FAC-Neutral Test (D5) <u>y</u>
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:	
Algal Mat or Crust (B4) N	Other (Explain in Notes):		
Iron Deposits (B5)	A.S. A.	A AND A AND	S. M. Chargen and
Surface Water Present (Y/N): V	Depth (in): /.50		
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):	y creek
Saturation Present (Y/N): (includes capillary fringe)	Depth (in):	EC: Flashing 3999 ? DH 5.88 read "aleg.	
Notes:		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, P	M= Matrix		
Forested-Evergreen-Needle-leaved	acking Forested-Deciduous-Reedle-leaved Scrub Shrub-Deciduous-Needle-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent		
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (최	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) m) <u>\$5</u> Short herb (<1m)		
Number of Wetland Types (M): <u>a</u>	Evenness of Wetland Type Distribution (M): Even X_Highly UnevenModerately even X		
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%) Figh Density (20-40%) <			
Interspersion of Cover & Open Water (P): Peripheral Cover >75% Scattered	100% Cover or Open Water <25% Scattered/Peripheral Cover		
Plant Species Diversity (P): Low (< 5 plant	species) Medium (5-25 species) High (>25)		
Presence of Islands (M): Absent (none)	─────────────────────────────		
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 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	e patches, concentric rings) X Moderate (broken irregular rings)		
HGM Class (P): Slope_	Lacustrine Fringe Depressional Riverine Estaurine Fringe		
SOIL VARIABLES	Histosol:Fibric Histosol:HemicX Histosol: Sapric		
Soil Factors (P): Soil Lacking Mineral: Gravelly Mineral: Sandy			
HYDROLOGIC VARIABLES			
Inlet/Outlet Class (P): No Inlet/Outlet	No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No t Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial nlet/Perennial Outlet		
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Inlet/Outlet Class (P): No Inlet/Outlet	t Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Sonally Flooded, Temporarily Flooded, Saturated		
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial I Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed,	t Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perence Inlet/Perence Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennia		
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Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial I Wetland Water Regime (P): Drier: Sease Wet: Perm. Flooded, Intermittently Exposed, Evidence of Sedimentation (P): No Evider Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No C 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	t Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Outlet		
Inlet/Outlet Class (P): No Inlet/Outlet X Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial I Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, Evidence of Sedimentation (P): No Evider Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No C 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 Low Evidence of Seeps and Springs (P): No Sertification Degree of VARIABLES (M)	t Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Sediment ObservedX Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Sediment ObservedX Well Developed (6-18in.) Pronounced (>18in.) Poronunced (>18in.) Poron		
Inlet/Outlet Class (P): No Inlet/Outlet X Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial I Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, Evidence of Sedimentation (P): No Evider Created Microrelief of Wetland Surface (P): Absent Frequency of Overbank Flooding (P): No C 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 Low Evidence of Seeps and Springs (P): No Sertification Degree of VARIABLES (M)	t Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Outlet Outlet Outlet Outlet Outlet Outlet Outlet Outlet Outlet Perennial O		
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Inlet/Outlet Class (P): No Inlet/Outlet	t OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial OutflowPerennial OutflowPerennial OutflowPerennial OutflowPerennial OutflowPerennial OutflowPerennial OutflowPerennial SpringPerennial SpringPerennial SpringPerennial SpringPerennial SpringPerennial SpringPerennial Outplot Only Connected Below		

Jessie Browle

Page 4 of 4

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: \underline{W} 857103 $\overrightarrow{+}$ Field Target: $\underline{15045}$ Date: $\underline{7/16/15}$ For all items not checked, please provide detailed explanation in the notes section of data form.

1. Site Description

 \boxtimes Site description, site parameters and summary of findings are complete? \boxtimes 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?
- Solution 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

- Der 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)?

Marcon

6/15

Wetland Scientist (print)

Signature / Date

cio

-7/6/15 BARD

Field Crew Chief (print)

Signature / Date

		NOFF F	ON .
SITE DESCRIPTION		States of the second of the	District Reality of the State of the
Survey Type: Centerline Acce	ss Road (explain) Other (e	xplain) Field Target: 19	5245 Map #: 1524 Map Date: 7/6/15
Date: 7-7-2.015	Project Name & No.: Alaska L	NG 60418403 Feat	ture Id: W8STIO38
Investigators: JB, KV			Team No.: W85'
State: Alaska	Region: Alaska	Milepost: 673	 Interview differences
Latitude: 62" 1977779 0	N Longitu	ide: - 150, 2130643	Datum: WGS84
Logbook No.: 2	Logbook Page No.: 5		38-001 thr 004
SITE PARAMETERS		SAN AN AREA FRANK	The second second second
Subregion: Southrentr	a	Landform (hillslope, terrace, hur	mmocks, etc.):
Slope (%): 3-5		Local relief (concave, convex, n	
Pre-mapped Alaska LNG/NWI classifica	ation:	Evidence of Wildlife Use: N,	1
Are climatic/hydrologic conditions on the Yes No(if no expl	e site typical for this time of year? ain in Notes)	Are "Normal Circumstanc Yes No (If	
Are Vegetation, Soil, or Hyd	drology Significantly Disturbe	ed? No <u>v</u> (If yes, explain in	Notes)
Are Vegetation, Soil, or Hyd	drology Naturally Problemati	c? No (If yes, explain ir	n Notes.)
SUMMARY OF FINDINGS	Charles Contraction On Party	Survey of the State of State	
Hydrophytic Vegetation Present? Yes_	No	Is the Sampled Area within a Weti	and? Yes No
Hydric Soil Present? Yes_	No	Wetland Type:	12 5 W + 1 + 1
Wetland Hydrology Present? Yes_	No	Alaska Vegetation Classification (Vi	ereck):
corridor.	lists & rest Torn	notremeller and veg	Centerline, Photo Locations, and Survey looks like makine regen and grand Source. dry ash. No hydrology. Veg
a lada the confirm	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	gravel pit	tele/olectric lines fightury



VEGETATION (use scientific names of plants)			
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 Astrono All Strate: (B)
1. Betela Negalaskana	10!	N	FACU	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC: (A/B)
2. Picea Calauca	25	Y	FACU	
3. Populus balsamifera	25	Y	FACU	
4.	Ĩ.	B.K		Prevalence Index worksheet:
Total Cover: 50% of total cover	10	% of total cov	ver: 12	Total % Cover of: Multiply by: OBL species: X 1 =
Sapling/Shrub Stratum (Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $X_2 = 0$ FAC species $X_3 = 0$ FACU species 145 $X_4 = 580$
1. Betula Necalaskana	20	Y	FACO	UPL species O X 5 = O
2. Picea glavea	25	Y	FACU	Column Totals: 145 (A) 590 (B)
3. viburnum edule	T	14	FACU	PI = B/A =
4. oplopanax horridus	T		FACU	
5.			a)	
6.			i	
7.		X	<u>a</u> .	
8.		-		
9. Total Cover:	45			
50% of total cover		% of total cov	9	and the second second
VEGETATION (use scientific names of plants)		The second	
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: \underline{N} Dominance Test is > 50% \underline{N} Prevalence Index is \leq 3.0
1. Coumocorpium dryopteris	40	Y	FACU	Morphological Adaptations ¹ (Provide supporting data in
2. Streptopus amplexifalius	T		FACU	Notes)
3. Equisetum sulvaticum	1		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Good yera repens		-	FAC	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Neotría cordata	T		FACU	disturbed or problematic.
6.		9. Å 9	<u> </u>	NAME OF THE PROPERTY OF THE ADDRESS OF
7.				% Bare Ground
8.				Cover of Wetland Bryophytes
9.	1	P. J.		Total Cover of Bryophytes
10.	ain 1 7	, i ¹		Hydrophytic Vegetation Present (Y/N):
Total Cover: 50% of total cover:		% of total cov	rer:	Notes: (If observed, list morphological adaptations below):

Ba

-	Matrix		Redox Features				onfirm the absence	
Depth (inches)	Color (moist)	%		%	Trunel	Loc ²	Tautura	bletee
		70	Color (moist)	70	Type ¹	LOC	Texture	Notes
0-2	10.1011/2	TA		7				a.25./ /
~- 1	104R4/4 754R3/4	50	1 2		-	10.1	Fire Soudy Lan	~35% gravels
9-15	INR 4/3	100		-	- idente	100		'40% a ravels
15-24	IDYR S/i		7.54/2 4/4	25	C	RC./M	Sultloom	Ash: concentrations are
	10113 11		7. 7. 15 174	02		N. / M	OLIT LORM	~40/.gravels; boudary wavy
	b liter		-		-			Migrases, Devely wavy
Type: C=Co	ncentration, D=Deple	etion, RM	-Reduced Matrix, C	CS=Cove	red or Co	ated Sand Gr	ains. ² Location:	PL=Pore Lining, M=Matrix.
HYDRIC SOI	LINDICATORS	a Richards	祖母の話にない	Star Mar		March (12)	The second s	OR PROBLEMATIC HYDRIC SOIL
Histosol or Hi	istel (A1) N		Alaska Gleyed	(A13)	N		Alaska Color Ch	ange (TA4) ⁴
Histic Epiped	on (A2)	-	Alaska Redox	(A14)	N		Alaska Alpine S	wales (TA5) N
Black Histic (A3) N	1	Alaska Gleyed	Pores (A15)	1	Alaska Redox w	ith 2.5Y Hue
-lvdroaen Sul	lfide (A4) N	-						vithout 5Y Hue or Redder Underlyin
	urface (A12) N						Other (Explain in	a Nictor)
		etation, or	ne primary indicator	of wetla	nd hydrolo	ov and an ar		n Notes)
lydric Soli P	Present (Y/N):	1					A Low Low	and the second se
			gravely so:1.T	hicko	ish laye	ur w/reln	z concertions	tions at the bottom
Notes: Slight		. Very	the second second	1			INDICATORS (2 c	tions at the botton
Notes: Slight	By properties	TORS (a	the second second	ufficient)	S V		INDICATORS (2 c	
Notes: Sight HYDROLOGY Surface Wate	By properties	TORS (a	ny one indicator is s face Soil Cracks (Bé ndation/Visible on Aé	ufficient)	S 	ECONDARY Vater-stained eaves (B9) _	INDICATORS (2 c	or more required) Stunted or Stressed
Notes: Sight HYDROLOGY Surface Wate	PRIMARY INDICA r (A1) N able (A2) N	TORS (a Sur Inur (B7 Spa	ny one indicator is s face Soil Cracks (Bé ndation/Visible on Aé	ufficient)	gery C	ECONDARY Vater-stained eaves (B9) Drainage Patte	INDICATORS (2 c	or more required) Stunted or Stressed Plants (D1)
Notes: Sight HYDROLOGY Surface Wate High Water Ta	$f B_{bs} preperties$ $r (A1) N$ $able (A2) N$	TORS (a Sur (B7 Spa Cor Mar	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ae arsely Vegetated ncave Surface (B8) 1 Deposits (B15)	ufficient) 3) <u>N</u> erial Ima N	gery C	ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhize	INDICATORS (2 c	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Notes: Sight HYDROLOG Surface Wate High Water Ta Saturation (AS Vater Marks ($f B_{bs} preperties$ $r (A1) N$ $able (A2) N$	TORS (a Sur (B7 Spa Cor Mar – Hyd Odd	ny one indicator is s face Soil Cracks (Be indation Visible on Ae arsely Vegetated incave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1)	ufficient) 3) <u>N</u> erial Ima N	gery C L P Ir S	ECONDARY Vater-stained eaves (B9) Drainage Patter Dxidized Rhize iving Roots (C Presence of R ron (C4) alt Deposits (INDICATORS (2 c 	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)f Shallow Aquitard (D3) Microtopographic
Notes: Sight HYDROLOG Surface Wate High Water Ta Saturation (AS Vater Marks ($f B_{b} properties$ $r PRIMARY INDICAT r (A1) N able (A2) N able (A2) N (B1) N cosits (B2) N$	TORS (a Sur (B7 Spa Cor Mar Hyd Odd	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ae arsely Vegetated ncave Surface (B8) 1 Deposits (B15) Irogen Sulfide (ufficient) 3) <u>N</u> erial Ima N	gery C L P Ir S	ECONDARY Vater-stained eaves (B9) prainage Patter Dxidized Rhizo iving Roots (Corresence of R ron (C4)	INDICATORS (2 c 	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Signal IYDROLOGY Surface Wate High Water Ta Saturation (A3 Vater Marks (Sediment Dep	$F B_{b} preperties$ $Y PRIMARY INDICAT r (A1) N able (A2) N able (A2) N (B1) N (B1) N (B2) N (B3) N$	TORS (a Sur Inur (B7 Spa Cor Mar – Hyd Oddc Dry- Wat	ny one indicator is s face Soil Cracks (B6 ndation Visible on Ae arsely Vegetated ncave Surface (B8) 1 Deposits (B15) Irogen Sulfide or (C1) -Season	ufficient) 5) <u>N</u> erial Ima N J	gery C L P Ir S	ECONDARY Vater-stained eaves (B9) Drainage Patter Dxidized Rhize iving Roots (C Presence of R ron (C4) alt Deposits (INDICATORS (2 c 	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Study HYDROLOGY Surface Wate High Water Ta Saturation (AS Vater Marks (Sediment Dep Drift Deposits	$F B_{b} preperties$ $Y PRIMARY INDICAT r (A1) able (A2) able (A2) (B1) (B1) posits (B2) (B3) (B3) crust (B4)$	TORS (a Sur Inur (B7 Spa Cor Mar – Hyd Oddc Dry- Wat	ny one indicator is s face Soil Cracks (B6 ndation/Visible on Ae arsely Vegetated ncave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2)	ufficient) 5) <u>N</u> erial Ima N J	gery C L P Ir S	ECONDARY Vater-stained eaves (B9) Drainage Patter Dxidized Rhize iving Roots (C Presence of R ron (C4) alt Deposits (INDICATORS (2 c 	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Surface Wate High Water Ta Saturation (A3 Vater Marks (Sediment Dep Drift Deposits Ngal Mat or C ron Deposits ($F B_{b} preperties$ $Y PRIMARY INDICAT r (A1) able (A2) able (A2) (B1) (B1) posits (B2) (B3) (B3) crust (B4)$	TORS (a Sur Inur B7 Spa Cor Mar Odc Dry- Wat Oth	ny one indicator is s face Soil Cracks (B6 ndation/Visible on Ae arsely Vegetated ncave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2)	ufficient) 5) <u>N</u> erial Ima N J	gery C L P Ir S	ECONDARY Vater-stained eaves (B9) Drainage Patter Dxidized Rhize iving Roots (C Presence of R ron (C4) alt Deposits (INDICATORS (2 c 	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Notes: Surface Wate HydroLog N Surface Wate High Water Ta Saturation (AS Vater Marks (Sediment Dep Drift Deposits Ngal Mat or C ron Deposits Surface Water	$\frac{B_{B}}{B_{B}} preperties$ $\frac{PRIMARY INDICA}{r(A1) N}$	TORS (a Sur Inur Br Spa Cor Mar Odd Dry- Wat Oth	ny one indicator is s face Soil Cracks (Be ndation Visible on Ae arsely Vegetated ncave Surface (B8) 1 Deposits (B15) frogen Sulfide or (C1) -Season ter Table (C2) er (Explain in Notes)	ufficient) 5) <u>N</u> erial Ima N J	gery C L P In S N	ECONDARY Vater-stained eaves (B9) Drainage Patter Drainage Patter Drainag	INDICATORS (2 c 	or more required) 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-Dec Forested-Evergreen-Needle-leaved Scrub Shrub-Deciduous-Nee Scrub Shrub-Evergreen-Broad-leaved Scrub Shrub-Evergreen-Needle-Needl	dle-leaved Scrub Shrub-Deciduous-Broad-leaved
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6 Dwarf shrub (<0.5m)	n tall) Tall shrub (2-6m) Short shrub (0.5-2m)) Moss-Lichen Floating Submerged
Number of Wetland Types (M): Evenness of Wetland Type	Distribution (M): EvenHighly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Densit 80%) Very High Density (80-100%)	y (20-40%) Medium Density (40-60%) High Density (60-
Interspersion of Cover & Open Water (P): 100% Cover or Open Water_ Peripheral Cover >75% Scattered or Peripheral Cover	<pre><25% Scattered/Peripheral Cover 26-75% Scattered or N/A</pre>
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, S Open Small Scattered Patches Continuous Cover	cattered Stems1 or More Large Patches; Parts of Site
Dead Woody Material (P): Low Abundance (0-25% of surface) Abundant (>50% of surface)	Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) High (small groupings, diverse and interspersed)	Modérate (broken irregular rings)
HGM Class (P): Slope Flat Lacustrine Fringe	Depressional Riverine Estaurine Fringe
Statistic States and States	
SOIL VARIABLES	
Soil Factors (P): Soil Lacking Histosol:Fibric His Mineral: Gravelly Mineral: Sandy Mineral: Silty	osol:Hemic Histosol: Sapric Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet	No Inlet/Perennial Outlet Intermittent Inlet/No Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily F Wet: Perm. Flooded, Intermittently Exposed, Semiperm, Flooded	ooded, Saturated
	ent Observed on Wetland Substrate Fluvaquent Soils Sediment
Created Microrelief of Wetland Surface (P): Absent Poorly Developed (6ii	n.) Well Developed (6-18in.) Pronounced (>18in.)
Frequency of Overbank Flooding (P): No Overbank Flooding F Return Interval >5 yrs	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 Stratifie Glacial Till/Not Permeable	d Deposits Low Permeability Stratified Deposits
	h Gradient (之%) Observed Intermittent Spring Perennial Spring

W85T1038

Wetland Juxtaposition: Only Connected Above_		Wetlands within stream & Downstream	400m, Not Connected Unknown	Only Connected Below	-
Wetland Land Use:	High Intensity (i.e., ag.)_	Moderate Inte	ensity (i.e., forestry)	Low Intensity (i.e. open space)	
Watershed Land Use:	0-5% Rural	5-25% Urbanized	25-50% Urbanized	>50% Urbanized	(9)

Crew Chief QA/QC check:

fassie Brounder 7.7.15

GPS Technician QA/QC check:

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: W85T1038 Field Target: 5245 Date: 7-7-15

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

- X 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?
- Direct?
- All dominant species have been determined and recorded per strata?
- A 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

N/木 ロ 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?

1 Each logbook page is initialed and dated?

7. Maps

Wetland boundaries have been corrected if necessary?

Maps are initialed and dated?

8. Photos

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

per X hally Valper 7-7-15 Signature / Date X halpm Wetland Scientist (print)

X Jessie Bronnlee X Jes 7.7.15

Fleld Crew Chief (print)

Signature / Date

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SITE DESCRIPTION		and the second	E LEADE	Man H. C.D. Man Data: 7.71.15
	ss Road (explain) Other (explain)			• Map #: <u>850</u> Map Date: <u>7-31-15</u>
Date: 8/6/15	Project Name & No.: Alaska Ll	NG 60418403	Feature Id	W85T1039
Investigators: Sessie	prounker Mig	rayle t-i	sher	Team No.: 089
State: Alaska	Region: Alaska	Milepost:	761.85	
Latitude: 61° 69'05.6	Longitu	de: 15/00	7'56.66"4	/Datum: WGS84
Logbook No.: 0 7	Logbook Page No.: 28	Picture No.:	P-W857103	39-VEG_VEG_PIT_PU
SITE PARAMETERS		NT-BERGERAR		And The set of the set of the set
Subregion: Cook Inlet Base	in	Landform (hil	Islope, terrace, hummock	is, etc.): Lowland
Slope (%): 0-3		Local relief (c	concave, convex, none):	flat
Pre-mapped Alaska LNG/NWI classifica	tion: PSSI/EMIE INA	Evidence of V	Wildlife Use: MOOSe \	1000 Moose dropping
Are climatic/hydrologic conditions on the Yes No (if no expl	e site typical for this time of year? ain in Notes)	Are "N Yes	ormal Circumstances" pre	esent: plain in Notes.)
Are Vegetation, Soil, or Hyd	drology Significantly Disturbe	ed? No_X	(If yes, explain in Notes	3)
Are Vegetation, Soil, or Hyd	drology Naturally Problemati	c <u>? No_X</u>	(If yes, explain in Note:	s.)
SUMMARY OF FINDINGS	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			
Hydrophytic Vegetation Present? Yes_	No	Is the Sampled	Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	<u> </u>	Wetland Type:	PEMI/SSIE	
Wetland Hydrology Present? Yes_	No	Alaska Vegetatio	n Classification (Viereck)	111A3 1/CZ
Notes and Site Sketch: Please include I corridor. Plot is dominated by water inbetween the But mapping is go R3UBH to the ear stagnent water. See	vegu flu & Cal Ca pocking plants, The od as is for surr of has a thick Iron	in w/ lots his site is ounding sheen And	fuillow and r Righer in IN areas. Scorrectly has	Myr Cali Standing 11 than 551
i		×.	7 view ^y	

VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot sizes: IO() 1.	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: 3(A) Total Number of Dominant Species Across All Strata: 3(B) % Dominant Species that are OBL, FACW, or FAC: 100 (A/B)
2. 3. 4. Total Cover 50% of total cover 50% of total cover Sapling/Shrub Stratum () dof []) 1. Myrica galy 2. Galix Pintana 3. Almas Viridia 4. Betwa reorristana 5. Setura alanderoza 6. Salix fuscionscens 7. 8. 9.		% of total cov Dominant Species? (Y/N)	Indicator Status DBL Fac Fac FAC FAC	% Dominant Species that are OBL, FACW, of FAC: <u>IOC</u> (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species: 95 $x1 = 95$ FACW species: 5 $x2 = 10$ FAC species 94 $x3 = 292$ FAC species 94 $x3 = 292$ FACU species $x4 =$ UPL species $x5 = -$ Column Totals: 194 (A) PI = B/A = $1,99$
Total Cover 50% of total cover VEGETATION (use scientific names of plants	. <u>14</u> 20	% of total cov	er: <u>5,6</u>	
Herb Stratum (Absolute % Cover & \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Dominant Species? (Y/N)	Indicator Status OBJ Fac OBJ FACU	Hydrophytic Vegetation Indicators: Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
6. 7. 8. 9. 10. Total Cover: 50% of total cover:		% of total cove	er: 33, 2	% Bare Ground % Cover of Wetland Bryophytes Total Cover of Bryophytes % Cover of Water Hydrophytic Vegetation Present (Y/N): Notes: (If observed, list morphological adaptations below):

OIL PROFILE DESCRIPTION: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Bittink Redox Features Toxture Notes Color (moist) % Color (moist) % Type Loc ² Toxture Notes Color (moist) % Color (moist) % Type Loc ² Toxture Notes Color (moist) % Color (moist) % Type Loc ² Toxture Notes Color (moist) % Color (moist) % Type Loc ² Toxture Notes Color (moist) % Color (moist) % Type Loc ² Toxture Notes Ype: Co-Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix. YDRL CORR Alaska Gleyed A(13) Alaska Gleyed A(13) Alaska Robot Change (TA4) ⁴		2		8.10.15	W85	T1039		<u>/</u>
Matrix Redox Features Color (moist) % Color (moist) % Toyle Loc ² Texture Notas D2-78		CELES, ALARTS			Sale fore	22 No. 1 March	State Alexander	Soil Pit Required (Y/N)
Display Color (moist) % Type ¹ Loc ² Texture Notes 21/2 1 <td< td=""><td>OIL PROFIL</td><td>E DESCRIPTION: (De</td><td>escribe</td><td></td><td>nent the i</td><td>ndicator or o</td><td>confirm the absence</td><td>e of indicators.)</td></td<>	OIL PROFIL	E DESCRIPTION: (De	escribe		nent the i	ndicator or o	confirm the absence	e of indicators.)
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YNRC SOIL INDICATORS INDICATORS FOR PROBLEMATIC HYDRIC SOIL Histosoi or Histel (A1) // Alaska Gleyed (A13) // Alaska Color Change (TA4) // Histosoi or Histel (A1) // Alaska Gleyed (A13) // Alaska Alpine Swales (TA5) // Histo Epipedon (A2) // Alaska Gleyed Pores (A15) // Alaska Alpine Swales (TA5) // Histo Fisher (A3) // Alaska Gleyed Pores (A15) // Alaska Redox with 2.57 Hue // Hydrogen Sulfide (A4) // Alaska Gleyed Pores (A15) // Alaska Redox with 2.57 Hue // Hydrogen Sulfide (A4) // Indicator of hydrophylic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be prosent unless isturbed or proteimatic. Give details of color change in Notes. Give details of color change in Notes. Exect Depth (inches): 2.2 Hydric Soil Present (YN): // Leaves (B9) // Plants (D1) Surface Water (A1) Surface Soil Cracks (B6) // Water Fained Sturted or Stresged Hydric Soil Present (YN): // Inundation Visible on Aerial Imagery Drainage Patterns (B10) Geomorphic Position (D2) <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
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disturbed or problematic. Give details of color change in Notes. Restrictive Layer (if present): Type:	hick Dark Su	Irface (A12)//						
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ron Deposits (B5)	Drift Deposits	(B3)			1	Notes: Posi 4	ur DR in orga	unies
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Saturation Present (Y/N): V Donth (in): A FC: 67 U C 2 57	Water Table F	Present (Y/N):	Y	Depth (in): 3 11	We	etland Hydro	ology Present (Y/N	l):
(includes capillary fringe) Y Depth (in): A EC pri 5.63 55.				Depth (in):	EC	. 67		pH 5.63 53.9

AQUATIC SITE ASSESSMENT DATA FORM

W85T1039 8.6.15
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-Non-persistent Persistent X Aquatic Bed Aquatic Bed Aquatic Bed
Percent Cover (P): Tree (>5 dbh, >6m tall) O Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) 4 Short shrub (0.5-2m) 2.3 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%) Very High Density (80-100%) X
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <25% Scattered/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 CoverX 4
Dead Woody Material (P): Low Abundance (0-25% of surface) Moderately Abundant (25-50% of surface) Abundant (>50% of surface) Moderately Abundant (25-50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) X 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 Mineral: Gravelly Mineral: Silty Mineral: Gravelly Mineral: Silty
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/OutletNo Inlet/Intermittent OutletNo Inlet/Perennial Outlet Intermittent Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perenn
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded X
Evidence of Sedimentation (P): No Evidence Observed X 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 OutflowX
Water pH (P): No surface water Circumneutral (5.5-7.4) X Alkaline (>7.4) Acid (<5.5) pH Reading 3.63
Surficial Geologic Deposit Under Wetland (P): High Permeability Stratified Deposits Low Permeability Stratified Deposits
Basin Topographic Gradient (M): Low Gradient (<2%) High Gradient (≥2%)
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 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)

Size: Small (<10 acres)_____ Crew Chief QA/QC check:

esin Browler

GPS Technician QA/QC check

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID:
 W857/037
 Field Target:
 15007
 Date:
 8.615

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

1. Site Description

K 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?
- I 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)?

Х Wetland Scientist (print) Signature / Date

X Jess

Х Strile 8.6.15

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION			ENAL TREAM	and the state of the particular
Survey Type: Centerline 🗶 Acces	ss Road (explain)	Other (explain)	_ Field Target: SOOC	Map #: <u>2.50 Map Date: 7:3/.L</u> S
Date: 8/6/15	Project Name & No.:	Alaska LNG 60418403	Feature Id	W8571046
Investigators: Sessio R	roundel	Horachi	ridiel	Team No.: (1855
State: Alaska	Region: Alaska	Milepost:	761.9	251
Latitude: $GOOGOS.08$	" N	Longitude: 19 (°	0747.85°L	/ Datum: WGS84
Logbook No.:	Logbook Page No.:	28 Picture N	0.: P-W85T10	40-JEGNEGSIT
SITE PARAMETERS			WAR AND	
Subregion: Cook Wet B.	which miter	Landform	(hillslope, terrace, hummock	s, etc.): Low/and
Slope (%): 🎽 – 3		Local relie	ef (concave, convex, none):	undulating
Pre-mapped Alaska LNG/NWI classifica	tion: U 122,11132		of Wildlife Use: MOOSe	1-10
Are climatic/hydrologic conditions on the Yes <u>No</u> (if no exp	e site typical for this time lain in Notes)	of year? Are Yes	"Normal Circumstances" pre	esent: plain in Notes.)
Are Vegetation, Soil, or Hy	drology Significantl	y Disturbed? No	∑(If yes, explain in Notes) ⁺
Are Vegetation, Soil, or Hy	drology Naturally P	roblematic? No	$\underline{\times}$ (If yes, explain in Note:	s.)
SUMMARY OF FINDINGS			and the second	
Hydrophytic Vegetation Present? Yes_	No	Is the Sample	ed Area within a Wetland?	Yes No
Hydric Soil Present? Yes_	X No	Wetland Type	PFOI/4B	y
Wetland Hydrology Present? Yes_	XNo	- Alaska Vegeta	ation Classification (Viereck)	C2,11C2
Notes and Site Sketch: Please include	Directional & North Arrow	, Centerline, Length of fe	eature, Distances from Cente	erline, Photo Locations, and Survey
corridor.	il des mas	for updated	boundarys & con	ling
Mosaic/Transitional Tall mature Bet Neo, Pi	site. See may	of ~ 30-50'.	Lots of doined free	s. Diverse shrub industry
4 100 000 0110501 5.1	- Stand MAR	T reaming .		U U
		honzon. Use Li	dar/Contours for	mapping
Area dries out on way been Dd Not update the polygone	k to LZ befor	min	Jetting wet in P	c I don't have contain
Do Not update the paygone	the this HPD	PALL	pior of the page	
A	A SP PROD	XXX	a hill a	then in
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1		F01	PSS 25	LA S

VEGETATION (use scientific names of plants	s)			
Tree Stratum (Plot sizes: 100ff)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: You and the second se
2. Betula revalashana.	18	e Y	Fac	% Dominant Species that are OBL, FACW, or FAC: <u>71</u> (A/B)
4.				Prevalence Index worksheet:
Total Cover	ma		1	Total % Cover of: Multiply by:
50% of total cover		% of total cov	er: 6.4	OBL species: X1 =
Sapling/Shrub Stratum (26ft)	Absolute	Dominant	Indicator	FACW species: <u>38</u> x 2 = 76
	% Cover	Species? (Y/N)	Status	FAC species 78 $X_3 = 334$ FACU species 49 $X_4 = 196$
1. Spillea steveni	13	Y	FacO	UPL speciesX 5 =
2. Vaccinium Il lice Thesum	1		Fac	Column Totals: $(a) = 50b$ (B)
3. Menziesia Perivaino	-22	Y -	Facl	PI = B/A =
4. Oplopana × horridus	0		Facil	
5. Salix Pulchra	5		Fach	
6. ficea mariana	T.		Fach	Carlo Carlo
7. Betula repalaskan	4		Fac	
8. Vaccinium vitis-idaea			Fac	
9. Vaccinium Ovali Folium	2		Fac	
Total Cover:	61			
50% of total cover		% of total cov	er: <u>10,4</u>	
50% of total cover VEGETATION (use scientific names of plants	26 20	% of total cov	er: <u>10,4</u>	
	20) Absolute	Dominant	er: <u>(0,4</u> Indicator	Hydrophytic Vegetation Indicators:
VEGETATION (use scientific names of plants	<u>26</u> 20	Dominant Species?	A MALLAN	Hydrophytic Vegetation Indicators:
VEGETATION (use scientific names of plants Herb Stratum ($26 + 1$)	Absolute % Cover	Dominant	Indicator Status	
VEGETATION (use scientific names of plants Herb Stratum ($26 + 1$)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in
VEGETATION (use scientific names of plants Herb Stratum (26 FF) 1. (Symocarpin dryopte 2. Rubys Dadatis	Absolute % Cover	Dominant Species?	Indicator Status T-ac() Fac	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes)
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpin drygte 2. Rubus padatis 3. Equisetem prierse	Absolute % Cover ris 7 4 35	Dominant Species?	Indicator Status Fac Fac Fac	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpin dryopte 2. Rubus padatis 3. Equisetem arvense	Absolute % Cover ris 7 4 35 21-25 21-25	Dominant Species?	Indicator Status T-ac() Fac	Dominance Test is > 50% Prevalence Index is ≤3.0 Morphological Adaptations ¹ (Provide supporting data in Notes) Problematic Hydrophytic Vegetation ¹ (Explain)
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. Gyme carpin drygte 2. Kabus padatis 3. Equisetam arvense 4. Strepto pus amplication	Absolute % Cover 7:5 7 4 25 25 2	Dominant Species?	Indicator Status Fac Fac Fac Fac	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. Gume carpin dryopte 2. Rubus padatis 3. Equisetim arvense 4. Streptopus amplestic 5. Cabmagiostis Canader	Absolute % Cover $\frac{15}{4}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpin dryopte 2. Rubus padatis 3. Equisetim arvense 4. Streptopus amplexist 5. (abmagrostis Capadur 6. Equisetum Sulvaticum	Absolute % Cover (15 7 - 4) (15 7 - 4)	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) ✓ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpium Strygte 2. Rubus padatis 3. Equisetim arvense 4. Streptopus amplexity 5. (abmagiostis Canader 6. Equisetum Sulvaticum 7. Cornus canadensis	Absolute % Cover $\frac{15}{4}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac Fac Fac Fac Fac	✓ Dominance Test is > 50% ✓ Prevalence Index is ≤3.0 ✓ Morphological Adaptations ¹ (Provide supporting data in Notes) ✓ Problematic Hydrophytic Vegetation ¹ (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
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpin dryopte 2. Rubus Dadatis 3. Equisetim arvense 4. Streptopus amplexity 5. (abmagiostis Canader 6. Equischum Sulvaticum 7. Corrus canadensis 8. (arex disperma 9. Rubus cucticus 10.	Absolute % Cover $\frac{15}{4}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$	Dominant Species?	Indicator Status T-ac U Fac Fac Fac Fac Fac Fac Fac Fac Fac 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.
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpin dryopte 2. Mabus padatis 3. Equisetim arvense 4. Streptopus amplexity 5. (abmagiostis Capadur 6. Equisetum sulvaticum 7. (Sinus canadensis 8. (arex disperma 9. Rubus arcticus 10.	Absolute % Cover $\frac{15}{4}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac Fac Fac Fac Fac	→ Dominance Test is > 50% → Prevalence Index is ≤3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes) → Problematic Hydrophytic Vegetation ¹ (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):
VEGETATION (use scientific names of plants Herb Stratum (26) 1. Gymocarpium dryopte 2. Rubus padatis 3. Equisetim arvense 4. Streptopus amplexit 5. Calmagrostis Canader 6. Gauischum Sulvaticum 7. Corrus Canadensis 8. Carex disperma 9. Rubus archicus 10. Linnaec borealis Total Cover: 50% of total cover:	Absolute % Cover is 7 4 25 25 25 25 26 3 1 1 1 1 81 1 81	Dominant Species?	Indicator Status Fac Fac Fac Fac Fac Fac Fac Fac Fac 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.
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpin dryopte 2. Marson arvense 2. Marson arvense 4. Streptopus amplexity 5. (alamagrostis Canader 6. Cavisetum sulvaticum 7. (Srnus canaderss 8. (arex disperma 9. Rubus cuccicus 10. Linnaea borealis Total Cover: 50% of total cover: 11. Trientalis curopaea	Absolute % Cover is 7 4 25 25 25 25 26 3 1 1 1 1 81 1 81	Dominant Species? (Y/N)	Indicator Status Fac Fac Fac Fac Fac Fac Fac Fac Fac Fac	→ Dominance Test is > 50% → Prevalence Index is ≤3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes) → Problematic Hydrophytic Vegetation ¹ (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):
VEGETATION (use scientific names of plants Herb Stratum (26 H) 1. (Symocarpin dryopte 2. Marson arvense 2. Marson arvense 4. Streptopus amologistis 5. Calmagrostis Canader 6. Cavischum Sulvaticum 7. (Srnus canaderss 8. (arex disperma 9. Rubus culticus 10. Linnaec borealis Total Cover: 50% of total cover:	$ \begin{array}{c} $	Dominant Species? (Y/N)	Indicator Status Fac Fac Fac Fac Fac Fac Fac Fac Fac Fac	→ Dominance Test is > 50% → Prevalence Index is ≤3.0 → Morphological Adaptations ¹ (Provide supporting data in Notes) → Problematic Hydrophytic Vegetation ¹ (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):

OIL OIL PROF			Date	8-6-15 Fe	ature ID		<u> </u>	CAR AND AND	Soil Pit Required (Y/N)
	ILE DESCRIPTION: (Describe					indicator or co	onfirm the absend	ce of indicators.)
anth	Matrix			dox Features				*	
epth nches)	Color (moist)	%		lor (moist)	%	Type ¹	Loc ²	Texture	Notes
7-5	104R 2/2			<u>`</u>					drup sohagnem
5-10	1011 1 C	-							damp organics 5-10"
10-14	10YR 2/2	50	1					silf loam	mineral & organics mixed (70%)
4-24	104R 3/2	50	17	YR 4/4	3	с	MRC	way fine Sauche	1
	104R2/2	47	T	10-11					×.
2,	1011								
18 1	1	11							
Type: C=C	oncentration, D=Depl	etion, R	M=R	educed Matrix, C	CS=Cove	ered or Co	ated Sand Gr		a: PL=Pore Lining, M=Matrix
YDRIC SC	IL INDICATORS	the state		同時自己前近	1. ten	A 112 - 5		the state water and the state of the state o	FOR PROBLEMATIC HYDRIC SOILS
listosol or h	Histel (A1)		S	Alaska Gleyed	d (A13) _	N	_	Alaska Color	Change (TA4) ⁴
listic Epipe	don (A2)		14-	Alaska Redox	(A14)	N		Alaska Alpine	Swales (TA5) <u>N</u>
Black Histic	(A3)	-		Alaska Gleyed	d Pores (A15) N			with 2.5Y Hue
lvdroaen S	ulfide (A4)	- See	-					Alaska Gleyer Layer N	d without 5Y Hue or Redder Underlying
	Surface (A12)	7	-				1	Other (Explain	n in Notes) 🖌
One indice	tor of hydrophytic ven	etation	one	I primary indicator	of wetla	nd hydrol	ogy, and an a		cape position must be present unless
listurbed or	problematic.						1		
Give details	s of color change in N Layer (if present): Typ	otes.	/	-	Depth (ir	nches):			
vestrictive t	Layer (in present). Typ				Dopui (ii		1 A.		and the second second
Notes: Po	sitive XXi	n nle	ine	al soil	· Usi	y BP	J to cal	l soils hy	olnicquiren scoping Cillo
Notes: Po A lowla	sitive XX i nd positioning	m n(¢	i nei	al soil	• Usii	y BP	J to cal	l soils hy	ohicquen seeping Cle"
1	sitive XX is and positioning GY PRIMARY INDICA								ohic given seeping Cilo" 2 or more required)
1	GY PRIMARY INDICA	ATORS	(any		sufficient)		INDICATORS (i sedari Marana
HYDROLO Surface Wa	GY PRIMARY INDICA	ATORS S	(any Surfac	one indicator is	sufficient	9	SECONDAR) Water-stained Leaves (B9) _	INDICATORS (2 or more required) Stunted or Stressed
HYDROLO Surface Wa	GY PRIMARY INDICA ater (A1) // // Table (A2) //	ATORS S - (F	(any Surfac hunda B7) Sparse	one indicator is e Soil Cracks (B	sufficient	9	SECONDARY Water-stained Leaves (B9) _ Drainage Pat	r INDICATORS (2 or more required) Stunted or Stressed Plants (D1)
HYDROLO Surface Wa High Water	GY PRIMARY INDICA ater (A1) Table (A2) (A3)	ATORS S - Ir (E S C	(any Surfac hunda B7) Sparse Conca	e Soil Cracks (B tion Visjble on A	sufficient	9	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz	terns (B10) toppheres along (C3)	2 or more required) Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/
HYDROLO Surface Wa High Water Saturation (Water Mark	GY PRIMARY INDICA ater (A1) Table (A2) (A3)	ATORS S - Ir S C C M H	(any Surfac nunda B7) Sparse Conca Marl D	one indicator is e Soil Cracks (B ition Visible on A A ely Vegetated ve Surface (B8) eposits (B15) gen Sulfidę /	sufficient	9	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz Living Roots Presence of F	terns (B10)/ cospheres along (C3)/ Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic/
HYDROLO Surface Wa High Water Saturation (Water Mark	GY PRIMARY INDICA ater (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A4) (A5) (A6) (A7) (A8) (A9) (A1) (A2) (A3) (A3) (A3) (A4) (A5) (A6) (A7) (A	ATORS S - (F S C M M - H C C	(any surfac hunda B7) Sparse Conca Marl D Hydrog Odor (Dry-Se	one indicator is e Soil Cracks (B ition Visible on A A ely Vegetated ve Surface (B8) eposits (B15) gen Sulfidę /	sufficient	9	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz Living Roots Presence of F Iron (C4)	terns (B10)/ cospheres along (C3)/ Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)Y Shallow Aquitard (D3)/_ Microtopographic/ Relief (D4)
HYDROLO Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos	GY PRIMARY INDICA ater (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A4) (A5) (A6) (A7) (A8) (A9) (A1) (A2) (A3) (A3) (A3) (A4) (A5) (A6) (A7) (A	ATORS S - Ir C S C C M M C C	(any Burfac hunda B7)	one indicator is a e Soil Cracks (B tion Visible on A ely Vegetated ve Surface (B8) eposits (B15) gen Sulfide C1) passon	sufficient 6) <u> </u>	9	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz Living Roots Presence of F Iron (C4) Salt Deposits	terns (B10)/ cospheres along (C3)/ Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)Y Shallow Aquitard (D3)/_ Microtopographic/ Relief (D4)
HYDROLO Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos	GY PRIMARY INDICA ater (A1) Table (A2) (A3) (A4) (A5) (A6) (A7) (A8) (A9) (A1) (A2) (A3) (A1) (A2) (A3) (A1) (A2) (A3) (A1) (A2) (A2) (A1) (A2) (A2) (A1) (A2) (A2) (A1) (A2) (A2) (A1) (A2) (A1) (A1) (A1) (A1) (A1) (A1) (A1) (A	ATORS S - Ir C S C C M M C C	(any Burfac hunda B7) Sparse Conca Marl D Hydrog Odor (Dry-Se Water	one indicator is e Soil Cracks (B ttion Visible on A Ally Vegetated ve Surface (B8) eposits (B15) gen Sulfide C1) cason Table (C2)	sufficient 6) <u> </u>	9	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz Living Roots Presence of F Iron (C4) Salt Deposits	terns (B10)/ cospheres along (C3)/ Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)Y Shallow Aquitard (D3)/_ Microtopographic/ Relief (D4)
HYDROLO Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos	GY PRIMARY INDICA ater (A1) Table (A2) (A3) (A4) (A5) (A6) (A7) (A8) (A9) (A1) (A2) (A3) (A1) (A2) (A3) (A1) (A2) (A3) (A1) (A2) (A2) (A1) (A2) (A2) (A1) (A2) (A2) (A1) (A2) (A2) (A1) (A2) (A1) (A1) (A1) (A1) (A1) (A1) (A1) (A	ATORS S - Ir C S C C M M C C	(any uurfac B7) Sparse Conca Marl D Hydroo Odor (Dory-Se Vater Dther	one indicator is a e Soil Cracks (B ition Visible on A ely Vegetated ve Surface (B8) eposits (B15) gen Sulfide / cason Table (C2) (Explain in Note	sufficient 6) <u> </u>	9	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz Living Roots Presence of F Iron (C4) Salt Deposits	terns (B10)/ cospheres along (C3)/ Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)Y Shallow Aquitard (D3)/_ Microtopographic/ Relief (D4)
HYDROLO Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Algal Mat o Iron Depos	GY PRIMARY INDICA ater (A1) Table (A2) (A3) (A4) (A5) (A6) (A7) (A8) (A9) (A1) (A2) (A3) (A1) (A2) (A3) (A1) (A2) (A3) (A1) (A2) (A2) (A1) (A2) (A2) (A1) (A2) (A1) (A2) (A2) (A1) (A2) (A1) (A2) (A1) (A1) (A1) (A1) (A1) (A1) (A1) (A	ATORS S - Ir C S C C M M C C	(any uurfac B7) Sparse Conca Marl D Hydroo Odor (Dory-Se Vater Dther	one indicator is e Soil Cracks (B ttion Visible on A Ally Vegetated ve Surface (B8) eposits (B15) gen Sulfide C1) cason Table (C2)	sufficient 6) <u> </u>	agery	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits Notes:	terns (B10)/ terns (B10)/ cospheres along (C3)/ Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) _Y Shallow Aquitard (D3) _/ Microtopographic/ Relief (D4) FAC-Neutral Test (D5)
HYDROLO Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Algal Mat o Iron Depos Surface Wa	GY PRIMARY INDICA ater (A1) Table (A2) (A3) (A4) (B2) (A4) (B4) (A4) (B5) (A4) (A4) (A4)	ATORS S - Ir C S C C M M C C	(any aurfac B7) Sparse Conca Marl D Hydrog Odor (Dry-Se Vater Dther	one indicator is a e Soil Cracks (B ition Visible on A ely Vegetated ve Surface (B8) eposits (B15) gen Sulfide / cason Table (C2) (Explain in Note	sufficient 6) <u> </u>	agery	SECONDARY Water-stained Leaves (B9) _ Drainage Patt Oxidized Rhiz Living Roots (Presence of F Iron (C4) Salt Deposits Notes:	terns (B10)/ cospheres along (C3)/ Reduced	2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) _Y Shallow Aquitard (D3) _/ Microtopographic/ Relief (D4) FAC-Neutral Test (D5)
HYDROLO Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Algal Mat o Iron Depos Surface Wa Water Tabl Saturation	GY PRIMARY INDICA ater (A1) Table (A2) Table (A2) (A3) (A1) (B1) (B2) (B2) (B4) (B4) (B4) (B4) (B4) (B5) (B4) (B5) (B4) (B4) (B4) (B4) (B4) (B4) (B4) (B4) (B4)	ATORS S C C M M C C C V V V V	(any burfac anynda B7) Sparse Conca Marl D Hydrog Odor (Dry-Se Vater Dther Dther Dther Dther Dther	one indicator is a e Soil Cracks (B ition Visible on A ely Vegetated ve Surface (B8) eposits (B15) gen Sulfide C1) eason Table (C2) (Explain in Note epth (in): epth (in):	sufficient 6) <u> </u>	agery	SECONDARY Water-stained Leaves (B9) Drainage Patt Oxidized Rhiz Living Roots Presence of F Iron (C4) Salt Deposits Notes: Vetland Hydro C:	Y INDICATORS (2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) _Y Shallow Aquitard (D3) _/ Microtopographic/ Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM

W85T1040 8.6.15
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 Forested-Scrub Shrub-Evergreen-Needle-leaved Forested-Deciduous-Broad-leaved
Percent Cover (P): Tree (>5 dbh, >6m tall) Sapling (<5 dbh, <6m tall)
Number of Wetland Types (M): 3 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%) Very High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water <a> <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 CoverX
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 X Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric
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/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Inlet/
Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded
Evidence of Sedimentation (P): No Evidence Observed <u>X</u> 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 X Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs Return Interval >5 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%)
Evidence of Seeps and Springs (P): No Seeps or Springs Keeps 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 Below
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)
Crew Chief QA/QC check: Jesaic Brownley Page 4 o

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>W8571040</u> Field Target: <u>15006</u> Date: <u>8-6-15</u>

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

1. Site Description

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

form

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

- Discrete 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

- M 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)?

Wetland Scientist (print) Signature / Date X Х 8.10.15 Œ 2.00

Field Crew Chief (print)

Signature / Date

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SITE DESCRIPTION	「「「「「「「「」」」		
Survey Type: Centerline Access Road (explain) Other (e		Field Target: 1524	17 F ())
Date: 8/6/15 Project Name & No.: Alaska,L	NG 60418403	Feature Id:	W8STIULI
Investigators: Jessie Brounke, Ali	raule 7	isher	Team No.: \ J 83
State: Alaska Region: Alaska /	Milépost: 7	464.1	•
Latitude: 6 (0 7 4 9 5 1 Longitu	ide: 151° 00	5°06.45"h	/Datum: WGS84
Logbook No.: 67 Logbook Page No.: 29	Picture No.:	PINSSTIDY	VEG-VEG PIT-PLUG
SITE PARAMETERS		「日本ないないない」	
Subregion: Cont Inlet Bosin	Landform (hills	slope, terrace, hummock	s, etc.): Bluff / (rastal Terrace
Slope (%): 0 - 3		oncave, convex, none):	Flat
Pre-mapped Alaska LNG/NWI classification:	Evidence of W	/ildlife Use:///.oos-e	- brothse
Are climatic/hydrologic conditions on the site typical for this time of year? Yes <u>No</u> (if no explain in Notes)	Are "No Yes	rmal Circumstances" pre <u>×</u> No (If no, ex	esent: plain in Notes.)
Are Vegetation, Soil, or Hydrology Significantly Disturb	ed? No <u>×</u>	_(If yes, explain in Notes	
Are Vegetation, Soil, or Hydrology Naturally Problemat	ic? No <u>×</u>	_ (If yes, explain in Notes	5.)
SUMMARY OF FINDINGS		はないない	and the second second second second second
Hydrophytic Vegetation Present? Yes No	is the Sampled A	rea within a Wetland?	Yes No
Hydric Soil Present? Yes NoX	Wetland Type:		2
Wetland Hydrology Present? Yes No	Alaska Vegetation	Classification (Viereck):	1.B2, III AZ
Notes and Site Sketch: Please include Directional & North Arrow, Centerli corridor. Deeps steep 'Acised erosional feature next to point Jumped down and dig around. It's dry up ortremely soil "12" deep. Acts as geasonal run of route in futhin down toward the inhet.	SP	Tall E Re Gla Car Ca	Bet Neo open forestand w/ afew . Dense Calcang m Cover. Dry soils mo of hydrology

VEGETATION (use scientific names of plants	5)			
Tree Stratum (Plot sizes: <u>1(9()</u> ++)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC:
1. Betala negalaskan	: 35	Y	Fas	Total Number of Dominant Species Across All Strata:
2. Picea alarca	10	1	FACU	% Dominant Species that are OBL, FACW, or FAC:(A/B)
3.				The second s
4.				Prevalence Index worksheet:
Total Cover:	45			Total % Cover of: Multiply by:
50% of total cover:	<u>22.5</u> 20	% of total cov	ver: <u>9</u>	OBL species:X 1 =
Sapling/Shrub Stratum (`267)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $4 \times 2 = 34$ FAC species: $81 \times 3 = 243$ FACU species: $108 \times 4 = 432$
1. Spiraea stevenii	15	Y	Facu	UPL speciesX 5 =
2. Salix puchra	5		Fach	Column Totals: 206 (A) 709 (B)
3. Oplopanax horridus	2		FacO	PI = B/A =
4. Salix bebbianc	15	Y	FAC	
5. Kibestriste	.4	1	Fae	
6.				and the second
7.				
8.				
9.			_	
Total Cover: 50% of total cover:		% of total any	82	26
30% of total gover.	2012 20			
VEGETATION (use scientific names of plants)				
Herb Stratum ()	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. Cornus canadensis	78	Y	FacU	_ ⊢/_ Prevalence Index is ≤3.0
2. Drugosteris expansa	3	-1	Facil	<u>_</u> Morphological Adaptations ¹ (Provide supporting data in Notes)
3. (panerion anowstitolive	3		Fail	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Rishing acctions	7		Fac	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Calamacrostis canad	ensie 20	- /	-	disturbed or problematic.
6. Galum paceale	T		tae	
7. Viola Langsdock	12		Fach	% Bare Ground
8. Trientalis purpopaga	Ĩ		Fact	% Cover of Wetland Bryophytes
9. Steen tarus car paifi	n T	2	E	Total Cover of Bryophytes
10.	> 1		tac	% Cover of Water
Total Cover:	120			Hydrophytic Vegetation Present (Y/N):
50% of total cover:		% of total cove	r 24	Notes: (If observed, list morphological adaptations below):
	20			
	_			

Browse

SOIL				ature l	and the second sec	NG CONTRACTOR		Soil Pit Required (Y/N)
SOIL PROF	ILE DESCRIPTION: (Describe	to the depth needed	to doo	cument the	Indicator or c	onfirm the absence	e of indicators.)
Depth	Matrix		Redox Features			۲		
inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
7-4	104R3/3	100			_	0	(sam -	Dense most most
4-5	Black	100						Burned organics
5-11	7.54R.4/4	100	8	-	K ST	H	Siltloam	0
1-18	104R6/4	30					Fine Sandy loop	
	10YR 3/4	70						
8-24	10YR4/2	50			-		Siltloom	"Solorganic material with very plate
								611 C
	concentration, D=Deple	tion, RN	Reduced Matrix, C	S=Cov	vered or Co	bated Sand G	and the second se	PL=Pore Lining, M=Matrix.
IYDRIC SC	DIL INDICATORS	2, 2430		SH WIN	いった たぼう	and the first		FOR PROBLEMATIC HYDRIC SOILS
Histosol or Histel (A1) Alaska Gleyed (A13)			-		hange (TA4) ⁴			
listic Epipe	don (A2)		Alaska Redox (A14)		N	-	Alaska Alpine S	Swales (TA5) //
Black Histic	(A3)/		Alaska Gleyed	Alaska Gleyed Pores (A15)		<u>/</u>	The second se	vith 2.5Y Hue
lydrogen Si	ulfide (A4)		2	122			Alaska Gleyed	without 5Y Hue or Redder Underlying
	Surface (A12)						Other (Explain	-
disturbed or Give details	tor of hydrophytic vege problematic. s of color change in No .ayer (if present): Type	tes.	1		inches):			pe position must be present unless
•	Present (Y/N):/	/					· .	
votes: All	boundaries wavey.	due to .	tree throw possi	Ыy.	Below Z	24" Soil is	104R.5/1 w/~10	0%, relic concentrations
HYDROLOG	GY PRIMARY INDICA	TORS (a	ny one indicator is s	ufficier	nt)	SECONDARY	INDICATORS (2	
	1					Water-stained	1 /	Stunted or Stressed
Surface Wat	ter (A1)/	Su	face Soil Cracks (B6	i)/		Leaves (B9)	N	Plants (D1)

Surface Water (A1)	Surface Soil Cracks (B6)/	Leaves (B9)	Plants (D1)	
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)	
Saturation (A3)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres/along Living Roots (C3)	Shallow Aquitard (D3)	
Water Marks (B1)	Marl Deposits (B15)/	Presence of Reduced Iron (C4)	Microtopographic Relief (D4)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1) <u>N</u>	Salt Deposits (C5)	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)		19-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		
		的复数和美国新生产的 人名法法法 化		
Surface Water Present (Y/N):	Depth (in): -		1	
Water Table Present (Y/N): N Depth (in):		Wetland Hydrology Present (Y/N): <u>N</u>		
Saturation Present (Y/N): (includes capillary fringe) Depth (in):		EC:		
Notes:				

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 Emergent-Needle-leaved 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%) 80%) Very High Density (80-100%) Every High Density (80-100%) Ever
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 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) Interspersed) 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
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
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
Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Restricted Outflow
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)
Return Interval >5 yrs Degree of Outlet Restriction (P): No Outflow Restricted Outflow
Return Interval >5 yrs
Return Interval >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
Return Interval >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
Return Interval >5 yrs
Return Interval >5 yrs

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

Feature ID: <u>118577641</u> Field Target: <u>15241</u> Date: <u>8.6.15</u>

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?

Form

- 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

- S Wetland boundaries have been corrected if necessary?
- L 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 Two photos were taken for each Observation Point (vegetation/site overview)?

Х Wetland Scientist (print) Signature / Date

Х Brownlee

Х 210

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	No. State and a		Charles and a star	ALL TRANK	and the second	
Survey Type: Centerline 🗶 Acce	ss Road (explain)	Other (expla	ain)	Field Targ	jet:15278	Map #: <u>252 Map Date: 8.7.15</u>
Date: 8/7/15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	WRST1047
Investigators: PSSie BC	ounder Abi	gaule	Fisher	_		Team No.: W85
State: Alaska	Region: Alaska	00	Milepost: 7	63		~
Latitude: 61°08 33.4	3 N	Longitude	: 15100	06414	~48W	Datum: WGS84
Logbook No.: 02	Logbook Page No.:	30	Picture No.:	PINE	STICHE	2-VEG_VEG_PIT_PULC
SITE PARAMETERS		地外国家的		10 m 4	教育部性主义	CONTRACTOR AND A SHORE SHORE
Subregion: Cook Inlet Basin	2		Landform (hill	slope, terrad	ce, hummock	s, etc.): historic cookinlet ferrace
Slope (%): () - 3						ndubtine
Pre-mapped Alaska LNG/NWI classifica	ation: U: C2, 11	BZ	Evidence of V			
Are climatic/hydrologic conditions on the Yes No (if no exp	e site typical for this time lain in Notes)	of year?	Are "No Yes_	No	nstances" pre (If no, exp	sent: blain in Notes.)
Are Vegetation, Soil, or Hy		ly Disturbed?	? No X	_(If yes, exp	plain in Notes	
Are Vegetation, Soil, or Hy	drology Naturally F	Problematic?	No_X	_ (If yes, ex	plain in Notes	.)
SUMMARY OF FINDINGS						and the second second
Hydrophytic Vegetation Present? Yes_	No乂	Is	the Sampled A	Area within	a Wetland?	Yes No
Hydric Soil Present? Yes_	No	w	/etland Type: (V		
Wetland Hydrology Present? Yes_	No X	— AI	laska Vegetatior	n Classificat	ion (Viereck):	102 11BZ
Notes and Site Sketch: Please include corridor. Meture open Pic Gla 9 Men Fer is thick 9 ~5 Dry sandy E/Bs 5 Clossic dry Frest	Bet Neo forent I fall , Diverse	t ~ 30 - shrub & B hydra trail	40' tall u Forb com	with lot:	sof Be	FNed Sapplings in understa

VEGETATION (use scientific names of plants	s)			
Tree Stratum (Plot sizes: 1004)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: (A)
1. Pricea alauca	10	Y	Face	Total Number of Dominant Species Across All Strata: 6 (B)
2 Betula novalashara	10	Y	Fac	% Dominant Species that are OBL, FACW, or FAC: <u>I</u> (
3.	-		1.4	
4.				Prevalence Index worksheet:
Total Cover	:20	- 4 1		Total % Cover of: Multiply by:
50% of total cover	: 20	% of total cov	/er: <u>4</u>	OBL species:X 1 =
Sapling/Shrub Stratum ()	Absolute % Cover	Dominant Species?	Indicator Status	FACW species: $X_2 = $ FAC species $3/$ $X_3 = 93$
AA		(Y/N)	1	FACU species 153 $X4 = 472$
1. Menziesia terruain	a ZS	Y	Fach	UPL speciesX 5 =
2. V. burnum edule J	8		Face	Column Totals: 184 (A) 703 (B)
3. Diceo denca	5		Fac	PI=B/A=83
4. Betula negalashana	7		Fau	
5. Vaccinium vitro indaea	T	18	Fac	1. A
6. Vaccinium intiginesum	-		Fac	
7. 2050 acicularis	T		Fael	
8. Sorbus scopulina	3		FACU	
9/				
Total Cover	98			
50% of total cover	: 49 20	% of total cov	er: 19.6	
VEGETATION (use scientific names of plants	5)		44.440.472	
Herb Stratum (Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species?	Status	\mathcal{N} Dominance Test is > 50%
		(Y/N)		\overline{N} Prevalence Index is ≤ 3.0
1. Chamerion aneustifa	um 2		Fae	
2. Putros padatus	3		Fac	Notes)
3. Equisetum sulvation	T		Xac	Problematic Hydrophytic Vegetation ¹ (Explain)
4. GUMACQUERIUM Aryon	eric 17	Y	Fail	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Spinulum annofnum	20	Ý	Facl	disturbed or problematic.
6. Rubus arcticus	3		Fac	
7. Equisetum arvense	1		Fac	% Bare Ground
8. Cornus canadensis	14	· Y	FacU	% Cover of Wetland Bryophytes
9. Pyrola grandiflora	5		Fac	Total Cover of Bryophytes
10. Pyrola aserifolia	$\sum_{i=1}^{n} e^{-i\omega_i \omega_i}$		Facu	Hydrophytic Vegetation Present (Y/N):
Total Cover:			1	Notes: (If observed, list morphological adaptations below):
50% of total cover:	33 20	% of total cov		
1. Rubus chamaemorus	T		Facw	-ci dell
		N	18 8	

Bas

-

Death	Matrix		Redox Features				confirm the absen	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-5	1	1						Bundopmineral in middle of hor
5-6	2.54 %	100					loamy sand	0
6-10	7.SYR 5/10	100					Sandy loan	2.5
10-18	10YR 5/8	100					Sandy Loam	
18-201	B					_		
18-24	7.SYR4/4	85	10YR 3/1	5	organics		Soundy loam	Asht organics in pockets - free
	IDYR SI4	10		- 1 ·		1 N N		possibly.
¹ Type: C=Co	oncentration, D=Depl	etion, RN	I=Reduced Matrix,	CS=Cov	ered or Coat	ed Sand (n: PL=Pore Lining, M=Matrix.
HYDRIC SO	IL INDICATORS	Station in	(1) 法社会社会	1312-1-3	a garage	R age in	THE REAL PROPERTY OF THE PROPERTY OF THE REAL PROPE	FOR PROBLEMATIC HYDRIC SOIL
Histosol or H	listel (A1)		Alaska Gleye	ed (A13)	N		Alaska Color	Change (TA4) ⁴
Histic Epiped	ion (A2)		Alaska Redo	x (A14) _	N		Alaska Alpine	Swales (TA5) <u>/</u>
Black Histic	(A3) <u>N</u>		Alaska Gleye	ed Pores	(A15) N			with 2.5Y Hue <u>N</u>
Hydrogen Su	ydrogen Sulfide (A4)						Alaska Gleye Layer	d without 5Y Hue or Redder Underlying
Thick Dark S	Surface (A12) N						Other (Explai	
disturbed or	or of hydrophytic veg problematic. of color change in N		11 - 1 - 1			y, and an	appropriate landso	cape position must be present unless
	ayer (if present): Typ		N	Depth (i	nches): N			
	Present (Y/N):					3		

HYDROLOGY PRIMARY INDICATO	RS (any one indicator is sufficient)	SECONDARY INDICATORS (2 or more required)			
Surface Water (A1)	Surface Soil Cracks (B6)	Water-stained Leaves (B9)	Stunted or Stressed Plants (D1)		
High Water Table (A2)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)	Geomorphic Position (D2)		
Saturation (A3)N	Sparsely Vegetated Concave Surface (B8)N	Oxidized Rhizospheres along Living Roots (C3)	Shallow Aquitard (D3)		
Water Marks (B1)	Marl Deposits (B15)	Presence of Reduced Iron (C4)	Microtopographic Relief (D4) <u>IV</u>		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)N	Salt Deposits (C5)N	FAC-Neutral Test (D5)		
Drift Deposits (B3)	Dry-Season Water Table (C2)	Notes:			
Algal Mat or Crust (B4)	Other (Explain in Notes):	623			
Iron Deposits (B5)	- S				
	NEW TO CHARGE AND ADDRESS OF ADDRES	ICENTRAL ROOM (INCOMENDATION OF THE REAL PROPERTY AND THE	sen opense se s		
Surface Water Present (Y/N): N	Depth (in):		- 1		
Water Table Present (Y/N):	Depth (in):	Wetland Hydrology Present (Y/N):	<u>N</u>		
Saturation Present (Y/N):					
Notes:					

AQUATIC SITE ASSESSMENT DATA FORM

VEGETATION VARIABLES P= Plot, N	n= Matrix
Forested-Evergreen-Needle-leaved	acking 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
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (≥	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) m) Short herb (<1m) Moss-Lichen Floating 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 Cover75% Scattere	100% Cover or Open Water <25% Scattered/Peripheral Cover 26-75% Scattered or dor 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
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) ed)
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	
Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Ir	No Inlet/Intermittent OutletNo Inlet/Perennial Outlet Intermittent Inlet/No OutletIntermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet
Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S	onally Flooded, Temporarily Flooded, Saturated
Evidence of Sedimentation (P): No Evidence Created	e 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 Or Return Interval >5 yrs	verbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs
Degree of Outlet Restriction (P): No Outflow	
	rcumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
Surficial Geologic Deposit Under Wetland (Glacial Till/Not Permeable	P): High Permeability Stratified Deposits Low Permeability Stratified Deposits
	Gradient (<2%) High Gradient (≥%)
Evidence of Seeps and Springs (P): No See	ps or SpringsSeeps ObservedIntermittent SpringPerennial Spring
LANDSCARE VARIABLES (M)	. \
LANDSCAPE VARIABLES (M) Wetland Juxtaposition: Wetland Isolate	d Matlanda within 400m Nat Community
	d Wetlands within 400m, Not Connected Only Connected Below Upstream & Downstream Unknown
	g.) 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) Mediu	Im (10-100 acres) Large (>100 acres)
Crew Chief QA/QC check:	GPS Technician QA/QC check:
fassée Broundage	Page 4 of 4
3a -	

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID:
 W 8577042
 Field Target:
 15272
 Date:
 8.7.15

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?

Form

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

- 四 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)?

Signature / Date Wetland Scientist (print) Х Х ler

Field Crew Chief (print)

Signature / Date

SITE DESCRIPTION	San State Fredhilling		e sin herizan			
Survey Type: Centerline X Acces	ss Road (explain)	Other (expla	ain)	Field Targe	t: <u>/5005</u>	Map #: <u>25/_</u> Map Date: <u>6.4.15</u>
Date: 8.7.15	Project Name & No.:	Alaska LNG	60418403		Feature Id:	W.85T1043
Investigators: Jessie Brownle	e Albby fishe	ur				Team No.: WSS
State: Alaska	Region: Alaska		Milepost:	762.7		
Latitude: 61°08'412.51	O"N	Longitude	: ISION	339.10	WW	Datum: WGS84
Logbook No.: OZ	Logbook Page No.:	31	Picture No.:	PINS	57104	3-VEG_VEG_PIT-PU/G
SITE PARAMETERS	于将这些关系的		NEWBRA			物现在的特殊性的
Subregion: Cook Inlet Basin			Landform (hill	Islope, terrace	e, hummock	s, etc.): Flood plain Back channel
Slope (%): 0-3	2					nduktin q
Pre-mapped Alaska LNG/NWI classifica	ation: PSSIE 11B	32, 11CZ	Evidence of V	Vildlife Use: (Moose d	Iroppingo, trails
Are climatic/hydrologic conditions on the			Are "No Yes_)	ormal Circum	stances" pre	sent: 0 plain in Notes.)
Are Vegetation, Soil, or Hy	drology Significant	tly Disturbed?	No <u>X</u>	_(If yes, expl	ain in Notes)
Are Vegetation, Soil, or Hy	drology Naturally	Problematic?	No_X	_ (If yes, exp	ain in Notes	i.)
SUMMARY OF FINDINGS		in the set	Service P	4		的一些有些"自由"的。 第二章
Hydrophytic Vegetation Present? Yes_	<u>K</u> No	Is	the Sampled A	Area within a	Wetland?	Yes No
Hydric Soil Present? Yes_	X No	w	etland Type:	PSSI/E	MIC	
Wetland Hydrology Present? Yes_	<u> </u>	— Ala	aska Vegetatior	n Classificatio	n (Viereck):	1132, 111 AZ
1460 5	Creek Floods the being dry and up at	of woher f	every 1-2.y	st farea	rea is a here is a	rline, Photo Locations, and Survey Mosaic which cleverthan low enough to be uct. hiding in shadows of imagene

VEGETATION (use scientific names of plants	s)			
Tree Stratum (Plot sizes: <u>15 × 35 '</u>)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: $\frac{4}{100}$ (A)
1. Alous viridis	5	Y	Fac	Total Number of Dominant Species Across All Strata: (B) % Dominant Species that are OBL, FACW, or FAC:(00(A/B)
3.		_		
4.				Prevalence Index worksheet:
Total Cover			34	Total % Cover of: Multiply by:
50% of total cover Sapling/Shrub Stratum (_/5× 35')	Absolute % Cover	0% of total cov Dominant Species? (Y/N)	rer:l Indicator Status	OBL species: 32 $X1 = 32$ FACW species: 9 $X2 = 18$ FAC species $8/$ $X3 = 243$
1. Betula negalaskan	a 1		Fae	FACU species X 4 =
2. Alnung Viridis	39	Y	Fac	UPL speciesX 5 = Column Totals: $[2,2]$ (A) 2^{9} (B)
3. Myrrca gale	10		OBL	PI = B/A = 2,40
5. Salix Scoulerian	10		Fac	Plot size adjusted to represent Back Channel & Not the terraces bordering it
6.			1000.00	Channel & Not the terraces bordering.
7.			r	$\times \Lambda 5$ E
8.				15
9.				× (2) 25
Total Cover:				× (0- (2=]
50% of total cover	: 26.5 20	% of total cov	er: 10.6	N C +
VEGETATION (use scientific names of plants)			
<u>Herb Stratum</u> ($15 \times 35'$)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	Hydrophytic Vegetation Indicators: Dominance Test is > 50%
1. Carex utriculata	7	(OBL	_ <u>Υ</u> Prevalence Index is ≤3.0
2. Deschampsia cespitosa	2	-	FAC	Morphological Adaptations ¹ (Provide supporting data inNotes)
3. Achillae Millefalium	T		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Calancarostis carender	5522	У	Fac	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.
Equisetion prodense		N	Fact-	
7. Cation + Cifidum	20	- 1 -	OBK Factor	% Bare Ground
8. 1. 26 50.	T			% Cover of Wetland Bryophytes
9.	1			Total Cover of Bryophytes
10.				% Cover of Water
Total Cover:	64			Hydrophytic Vegetation Present (Y/N):
50% of total cover:		% of total cov	er: 12.8	Notes: (If observed, list morphological adaptations below):
	*			and the second sec

OIL PROFI	LE DESCRIPTION: (Describe	to the depth needed	to doc	ument the	indicator or	confirm the abser	nce of indicators.)
epth	Matrix		Redox Features			-		
nches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-5	251 4/2	100	0.01	-		-	Sand	
5-11	2544/2	75	7.51/8 43	15			Sand	Con primarily around rock & organ
	(n)	_	7.54R4/6	10				
1-16	N4/	lio					Sand	Buried organics. Pos XX
6-24	N 3/	100				-	Sand	
-		_		-		-	-	
	neentrotion D=Donk	otion Pl	I /I=Reduced Matrix, CS		orod or Co	atod Sand C		n: PL=Pore Lining, M=Matrix.
and the second se	IL INDICATORS		N-Reduced Mainx, Co	5-000		aleu Sanu C		S FOR PROBLEMATIC HYDRIC SOILS
			Alaska Gleyed	(12)	Λ.		A STATISTICS OF STATISTICS	Change (TA4) ⁴
listosol or H				_		·)		e Swales (TA5)
listic Epiped	1	_	Alaska Redox (_		/		
llack Histic (- 1		Alaska Gleyed	Pores	(A15)			x with 2.5Y Hue <u>}/</u> ed without 5Y Hue or Redder Underlying
lydrogen Su	Ifide (A4) <u></u>	_					Layer Y	
	urface (A12) '//						Other (Expla	
	or of hydrophytic vege problematic.	etation, c	one primary indicator o	of wetla	and hydrolo	gy, and an a	appropriate lands	cape position must be present unless
Give details	of color change in No							
Restrictive La	ayer (if present): Typ	e:/	0D	epth (i	nches):	X		
	Present (Y/N):	/	t but below 1	'2 ⁴¹	Positive	XX.	throughout	Bg17Bg2 horrons.
lotes: Hyd	vogen Sulfide j	presen	· · · · · · · · · · · · · · · · · · ·					
Iotes: Alyo	vogen Sulfide j	ATORS (t but below 1 any one indicator is su	ifficien	t) 5	SECONDAR Vater-staine	TY INDICATORS	(2 or more required) Stunted or Stressed
Notes: Hyd YDROLOG Surface Wate	vogen Sulfide j Y PRIMARY INDICA er (A1)	ATORS (Su	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae	ifficien	t) £	SECONDAR Vater-staine .eaves (B9)	TY INDICATORS	(2 or more required)
Iotes: Hyd IYDROLOG Surface Water T ligh Water T	vogen Sulfide j Y PRIMARY INDICA	TORS (Su - (B Sp	any one indicator is su Iface Soil Cracks (B6) Indation Visible on Ae 7) arsely Vegetated	ifficien	t) \$ / L agery [SECONDAR Vater-staine Leaves (B9) Drainage Pa Dxidized Rhi	tterns (B10)	(2 or more required) Stunted or Stressed Plants (D1) <u>1</u> Geomorphic Position (D2) <u>N</u>
Iotes: Hype IYDROLOG Surface Water High Water T Saturation (A	Y PRIMARY INDICA PRIMARY INDICA er (A1) N able (A2)	ALCELO M NTORS (Su - (B Sp Cc	any one indicator is su Iface Soil Cracks (B6) Indation Visible on Ae 7)/	ifficien	t) 5 / L agery [C F	ECONDAR Vater-staine eaves (B9) Drainage Pa Dxidized Rhi iving Roots Presence of	tterns (B10) <u> </u>	(2 or more required) Stunted or Stressed Plants (D1)/ Geomorphic Position (D2)/ Shallow Aquitard (D3)/ Microtopographic/
Iotes: Hydro IYDROLOG Surface Water High Water T Saturation (A Vater Marks	Y PRIMARY INDICA PRIMARY INDICA er (A1) N able (A2)	ATORS (Su - (B Sp Cc Ma Hy	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae 7) arsely Vegetated incave Surface (B8)	ifficien	t) 5 / L agery [[[[F]	ECONDAR Vater-staine eaves (B9) Drainage Pa Dxidized Rhi iving Roots	tterns (B10) red izospheres along (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)/_
Iotes: Hype IYDROLOG Surface Water High Water T Saturation (A Vater Marks Sediment De	Y PRIMARY INDICA er (A1) N able (A2) N (B1) N	ATORS (Su - (B Sp Cc Ma - Hy Oc	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae 7)/ arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide	ifficien	t) 5 / L agery [C _ C	SECONDAR Vater-staine Leaves (B9) Drainage Pa Dxidized Rhi Living Roots Presence of ron (C4)	tterns (B10) red izospheres along (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Iotes: Hype IYDROLOG Surface Water High Water T Saturation (A Vater Marks Sediment De Drift Deposits	Y PRIMARY INDICA er (A1) N able (A2) N (B1) N	ATORS (Su - (B Sp Cc Ma - Hy Oc Dr Wa	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae 7)/ arsely Vegetated incave Surface (B8) arl Deposits (B15) drogen Sulfide lor (C1)N y-Season	ifficien) rial Im 	t) 5 / L agery [C _ C	SECONDAR Vater-staine Leaves (B9) Drainage Pa Dxidized Rhi Living Roots Presence of ron (C4) Salt Deposits	tterns (B10) red izospheres along (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Notes: Hype Notes: Hype Notes: Hype Surface Water High Water T Saturation (A Vater Marks Sectiment De Drift Deposits	Y PRIMARY INDICA er (A1) N able (A2) N (B1) N eposits (B2) Y s (B3) N Crust (B4) N	ATORS (Su - (B Sp Cc Ma - Hy Oc Dr Wa	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae 7)/ arsely Vegetated uncave Surface (B8) arl Deposits (B15) drogen Sulfide tor (C1)N y-Season ater Table (C2)/	ifficien) rial Im 	t) 5 / L agery [C _ C	SECONDAR Vater-staine Leaves (B9) Drainage Pa Dxidized Rhi Living Roots Presence of ron (C4) Salt Deposits	tterns (B10) red izospheres along (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Notes: Hype Notes: Hype Notes: Hype Surface Water High Water T Saturation (A Vater Marks Sectiment De Drift Deposits	Y PRIMARY INDICA er (A1) N able (A2) N (B1) N eposits (B2) Y s (B3) N Crust (B4) N	ATORS (Su - (B Sp Cc Ma - Hy Oc Dr Wa	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae 7)/ arsely Vegetated uncave Surface (B8) arl Deposits (B15) drogen Sulfide tor (C1)N y-Season ater Table (C2)/	ifficien) rial Im 	t) 5 / L agery [C _ C	SECONDAR Vater-staine Leaves (B9) Drainage Pa Dxidized Rhi Living Roots Presence of ron (C4) Salt Deposits	tterns (B10) red izospheres along (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Notes: Hype Notes: Hype Number of the second Surface Water High Water T Saturation (A Vater Marks Sectiment De Drift Deposite Ngal Mat or ron Deposite	Y PRIMARY INDICA er (A1) N able (A2) N (B1) N eposits (B2) Y s (B3) N Crust (B4) N	ATORS (Su - (B Sp Cc Ma - Hy Oc Dr Wa	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae 7)/ arsely Vegetated uncave Surface (B8) arl Deposits (B15) drogen Sulfide tor (C1)N y-Season ater Table (C2)/	ifficien) rial Im 	t) 5 / L agery [C _ C	SECONDAR Vater-staine Leaves (B9) Drainage Pa Dxidized Rhi Living Roots Presence of ron (C4) Salt Deposits	tterns (B10) red izospheres along (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3)/ Microtopographic Relief (D4)
Notes: Hype IYDROLOG Surface Water High Water T Saturation (A Water Marks Sediment De Drift Deposits Algal Mat or ron Deposits Surface Wate	Y PRIMARY INDICA er (A1)	ATORS (Su - (B Sp Cc Ma - Hy Oc Dr Wa	any one indicator is su rface Soil Cracks (B6) undation Visible on Ae 7)	ifficien) rial Im 	t) 5 / L agery [L [] [1 [1	SECONDAR Vater-staine Leaves (B9) Drainage Pa Dxidized Rhi Living Roots Presence of ron (C4) Salt Deposits	tterns (B10) red izospheres along (C3) Reduced	(2 or more required) Stunted or Stressed Plants (D1)/ Geomorphic Position (D2) _/ Shallow Aquitard (D3) _/ Microtopographic Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM

W8571043 8.7.15
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 Forested-Deciduous-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) Image: Second Seco
Number of Wetland Types (M): Evenness of Wetland Type Distribution (M): Even <u>X</u> Highly UnevenModerately even
Vegetation Density/Dominance (P): Sparse (0-20%) Low Density (20-40%) Medium Density (40-60%) High Density (60- 80%) & Wery High Density (80-100%)
Interspersion of Cover & Open Water (P): 100% Cover or Open Water X <25% Scattered/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 OpenX Small Scattered Patches Continuous Cover 1
Dead Woody Material (P): Low Abundance (0-25% of surface) Abundant (>50% of surface)
Vegetative Interspersion (P): Low (large patches, concentric rings) Moderate (broken irregular rings) High (small groupings, diverse and interspersed) Image: the second s
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine X Estaurine Fringe
SOIL VARIABLES
Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Gravelly Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Intermittent Outlet Intermittent Inlet/No Intermittent Inlet/No Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Intermittent Outlet Perennial Inlet/Perennial Outlet Perennial Perennial Wetland Water Regime (P): Drier: Seasonally Flooded, Temporarily Flooded, Saturated A Wet: Perm. Flooded, Intermittently Exposed, Semiperm. Flooded Perennial A
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Outlet Perennial Inlet/No OutletPerennial Inlet/Perennial Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/Perennial Inlet/Perenninlet/Perennial Inlet/Perennial Inlet/Peren
OutletIntermittent Inlet/Intermittent OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Inlet/Perenninlet/Perennial Inlet/Perennial Inlet/Perennial Inlet/
OutletIntermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet
Outlet Intermittent Inlet/Intermittent Outlet Intermittent 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/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.) Frequency of Overbank Flooding (P): No Overbank Flooding Return Interval 1-2 yrs Return Interval 2-5 yrs Return Interval >5 yrs
Outlet Intermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Inlet/Perennial Outlet Perennial Inlet/Perennial Outlet Peren
OutletIntermittent Inlet/Intermittent Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet
OutletIntermittent Inlet/Intermittent Inlet/No OutletPerennial Inlet/Intermittent Inlet/Intermittent Inlet/Intermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Observed on Wetland SubstratePerennial Section Perennial Section (P): No Overbank FloodingReturn Interval 1-2 yrsReturn Interval 2-5 yrs
OutletIntermittent Inlet/Intermittent OutletPerennial OutletPerennial Inlet/Perennial OutletPerenniout Inlet/Perennial Inlet/Perennial OutletPerennial Inlet/P
OutletIntermittent Inlet/Intermittent OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial Inlet/Perennial OutletPerennial Inlet/No OutletPerennial OutletPerennial OutletPerennial OutletPerennial OutletPerennial OutletPerennial OutletPerennial OutletPerennial Inlet/No OutletPerennial Inlet/No OutletPerennial SpringPerennial Spring

Size: Small (<10 acres) / Medium (10-100 acres)

GPS Technician QA/QC check:

Crew Chief QA/QC check: ssic Brownlee

_ Large (>100 acres)

Page 4 of 4

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

 Feature ID:
 W85770343
 Field Target:
 15005
 Date:
 8.7.15

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?

Form

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

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

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

Wetland Scientist (print) Signature / Date

Х males

Х 8-10.15 Sulle. Signature / Date

Field Crew Chief (print)

SITE DESCRIPTION	
Survey Type: Centerline Access Road (explain) Other (e	explain) Field Target: <u>1507</u> Map #: <u>1501</u> Map Date: <u>5.15</u>
Date: X/7/(5 Project Name & No.: Alaska I	NG 60418403 Feature Id: 185 TLO 44
Investigators: Jessie Brownee, Ange	yk Fisher Team No.: W85
State: Alaska Region: Alaska	Milepost:
Latitude: 61° (7'09,87'N Longit	ude: 15/603 38.13 Datum: WGS84
Logbook No.: 02 Logbook Page No.: 3	Picture No.: P_W85T1044WEG_VEG_PIT_PLUG
SITE PARAMETERS	
Subregion: Cook Inlet Basin	Landform (hillslope, terrace, hummocks, etc.): $\mu_i = \frac{1}{2} \int_{-\infty}^{\infty} \frac{1}{2} \int_{-\infty}^{$
Slope (%): 0-3	Local relief (concave, convex, none): Flat
Pre-mapped Alaska LNG/NWI classification: PFO4B . IAZ	Evidence of Wildlife Use: Nowe
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 Disturb	ed? No_X(If yes, explain in Notes)
Are Vegetation, Soil, or Hydrology Naturally Problema	tic? No (If yes, explain in Notes.)
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Hydric Soil Present? Yes <u>*</u> No	Wetland Type: PFOMB
Wetland Hydrology Present? Yes No	Alaska Vegetation Classification (Viereck):
金 年 第 1 年 1 至	ine, Length of feature, Distances from Centerline, Photo Locations, and Survey A 4 down slope. Marginal Hydrology but thick "Redraw boundary to include this sport ils in due to high organic content & Positive XX
4N: Tall Pic Mar open Forest with thick sphagnur Covering ground. Diverse Shruba Forb community HOUSS	nestroy of the the the the

VEGETATION (use scientific names of plant	s)			
Tree Stratum (Plot sizes: 1004	Absolute % Cover	Dominant Species? (Y/N),	Indicator Status	Dominance Test worksheet: No. of Dominant Species that are OBL, FACW, or FAC: $4/2$ (A)
1. Picea Marania	30	Y	Fach	Total Number of Dominant Species Across All Strata: _5_ (B)
2.		P	<u> </u>	% Dominant Species that are OBL, FACW, or FAC:(A/B)
3.			1	
4.				Prevalence Index worksheet:
Total Cover	: 30	7	L	Total % Cover of: Multiply by:
50% of total cover		% of total cov	/er:	OBL species:X 1 =
Sapling/Shrub Stratum (26 H)	Absolute % Cover	Dominant Species? (Y/N)	Indicator Status	FACW species: $\underline{GQ} \times 2 = \underline{1G4}$ FAC species $\underline{G3} \times 3 = \underline{279}$
1. Vaccinium utiainosym	T	Y	Fac	FACU species $27 \times 4 = 88$
2. Vaccinium Vitis-idea	. 6	/	Fac	UPL species $x_5 =$ Column Totals: A 4 71 (B)
3. Empetrum niarum	17	1	Fac	PI = B/A = 2.83
4. Betula negalaskara	5		Fac,	
5. Meneresia ferrucinen	15	Y	Fad	
6. Picea Mariana	5		Fach	
7. Betula alandulosa	L		Fac	
8. Anododeddrum toment	osum T		Fach	
9.			100	
Total Cover	. 46			
50% of total cover	: 23 20	% of total cov	er: 9,2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
VEGETATION (use scientific names of plants			al the set	
Herb Stratum ('06 H)	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
	% Cover	Species?	Status	Dominance Test is > 50%
	10 st	_ (Y/N)		\checkmark Prevalence Index is ≤ 3.0
1. Equisetum andense	60	. Y	Fac	Morphological Adaptations ¹ (Provide supporting data in
2. Fourisetum Sylvation	L		Fac	Notes)
3. Rubus chamaemon	1513		Fach	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Signalumannotinem	10		Fac	¹ Indicators of hydric soil and wetland hydrology must be present unless
5. Rubus Dedatus	T		For	disturbed or problematic.
6. Cornes canadence	T		Facl	
7. Purola acantiflore	-+	1	Fac	% Bare Ground
8.		-	- un	% Cover of Wetland Bryophytes
9.	-		¥	<u> </u>
10.				% Cover of Water
100	ai	*		Hydrophytic Vegetation Present (Y/N):/
Total Cover: 50% of total cover		0/ - 64-4-4	er: 16,7-	Notes: (If observed, list morphological adaptations below):
50% Of total Cover.	. <u>, -,, j</u> 20	70 OT LOCAL COV	er:	
	2 8	ni) – s		

SOIL PROFILI	E DESCRIPTION: (D		Date Feature ID			Soil Pit Required (Y/N)
	E DESCRIPTION. (D	escribe	to the depth needed to document	the indicator or o	confirm the absence	of indicators.)
Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % Type	e ¹ Loc ²	Texture	Notes
0.15%	, ,	-				2 have of mineral in horicor
7-13	7.5YR 2.5/2	100			MILKY BRANICS	
12-10	7.5 YR 2.5/2	100			minky silf loam	Prilie Not
18-24	7 5YR 3/3	100				Positive XX
10.21	1.510-10	100			1.1.2.7.1.2.7.1.2.1	
1 and 1						T.
1. Sec. 1						
Type: C=Con	centration, D=Deple	tion, RN	I=Reduced Matrix, CS=Covered o	r Coated Sand G	rains. ² Location:	PL=Pore Lining, M=Matrix.
The sea there are a	INDICATORS	21/20	With the total the state of the second	210 (B)		OR PROBLEMATIC HYDRIC SOIL
Histosol or His	tel (A1)	POWLER OF	Alaska Gleyed (A13)		Alaska Color Ch	ange (TA4) ⁴
Histic Épipeden (A2)			Alaska Redox (A14)		Alaska Alpine S	
Black Histic (A	11	1	Alaska Gleyed Pores (A15)	N	Alaska Redox w	
Hydrogen Sulf						vithout 5Y Hue or Redder Underlying
Thick Dark Su	rface (A12)					Notes) Y Positive XX
		ation, o	ne primary indicator of wetland hy	drology, and an a		be position must be present unless
disturbed or pr	roblematic.					
	of color change in Not yer (if present): Type		Depth (inches):		
						cont meetindicator bu
HYDROLOGY	PRIMARY INDICAT	ORS (a	any one indicator is sufficient)	SECONDAR	Y INDICATORS (2 0	or more required)
Surface Water	· (A1) N	Su	rface Soil Cracks (B6)	Water-stained Leaves (B9)	d	Stunted or Stressed Plants (D1)
High Water Ta	able (A2)	Inu (B7	ndation Visible on Aerial Imagery	Drainage Pat	terns (B10)	_ Geomorphic Position (D2)
Saturation (A3	»N	Sp. Co	arsely Vegetated ncave Surface (B8)	Oxidized Rhiz Living Roots	zospheres along (C3)	Shallow Aquitard (D3)
Concave			rl Deposits (B15)/	Presence of Reduced Iron (C4)		Microtopographic Relief (D4)
Water Marks (B1)	IVI2			28 /	
Water Marks (Sediment Dep		Hy	drogen Sulfide/ or (C1)	Salt Deposits	s (C5) <u>/</u>	FAC-Neutral Test (D5)
	posits (B2)	- Hy	or (C1) <u>N</u>	Salt Deposits Notes:	s (C5) <u>/</u>	FAC-Neutral Test (D5)
Sediment Dep	(B3)	- Hy Od Dry Wa	or (C1)		s (C5) <u>//</u>	FAC-Neutral Test (D5)
Sediment Dep Drift Deposits	(B3) (B3) Crust (B4)	- Hy Od Dry Wa	or (C1) /-Season ater Table (C2)		s (C5) <u>/</u>	FAC-Neutral Test (D5)
Sediment Dep Drift Deposits Algal Mat or C	(B3) (B3) Crust (B4)	- Hy Od Dry Wa	or (C1) /-Season ater Table (C2)		s (C5) <u>//</u>	FAC-Neutral Test (D5)
Sediment Dep Drift Deposits Algal Mat or C Iron Deposits	(B3) (B3) Crust (B4)	- Hyu Od Dry Wa	or (C1) /-Season ater Table (C2)		s (C5) <u>/</u>	FAC-Neutral Test (D5)
Sediment Dep Drift Deposits Algal Mat or C Iron Deposits	(B3)	- Hyu Od Dry Wa	or (C1) <u>N</u> /-Season ater Table (C2) <u>N</u> ner (Explain in Notes):	Notes:	s (C5)	
Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Water Water Table P Saturation Pre (includes capil	Doosits (B2) N (B3) N (B3) N Crust (B4) N (B5) N r Present (Y/N): N Present (Y/N): N Desent (Y/N): N	- Hyy Od Dry Wa Ott	or (C1) <u>N</u> -Season ater Table (C2) <u>N</u> ner (Explain in Notes): Depth (in): Depth (in): Depth (in):	Wetland Hydro	blogy Present (Y/N)	

AQUATIC SITE ASSESSMENT DATA FORM

WEST1044 8715
VEGETATION VARIABLES P= Plot, M= Matrix
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 Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall) 30 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
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 CoverX
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) X Moderate (broken irregular rings) High (small groupings, diverse and interspersed) Moderate (broken irregular rings)
HGM Class (P): Slope Flat Lacustrine Fringe Depressional Riverine Estaurine Fringe
SOIL VARIABLES
Soil VARIABLES Soil Factors (P): Soil Lacking Histosol:Fibric Histosol:Hemic_X Mineral: Gravelly Mineral: Silty Mineral: Gravelly Mineral: Silty
Inlet/Outlet Class (P): No Inlet/Outlet No Inlet/Intermittent Outlet No Inlet/Perennial Outlet Intermittent Inlet/No Outlet Intermittent Inlet/No 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
Evidence of Sedimentation (P): No Evidence Observed X Sediment Observed on Wetland Substrate Fluvaquent Soils Sediment Created
Microrelief of Wetland Surface (P): Absent Poorly Developed (6in.) X Well Developed (6-18in.) Pronounced (>18in.)
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
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 Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
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 Water pH (P): No surface water Circumneutral (5.5-7.4) Alkaline (>7.4) Acid (<5.5) pH Reading
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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
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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

Wetland Determination Form QA/QC Checklist

This form to be completed before leaving the field site.

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

- D 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)?

Х Signature / Date Wetland Scientist (print)

X Jessie Brownlee

X 8.10.15 Bronneer Signature / Date

Field Crew Chief (print)

SITE DESCRIPTION			4.11 ² -1-1.10		1000	
Survey Type: Centerline /	Access Road (explain)	Other (expla	ain)	Field Tar	get: <u> </u>	Map #: 221 Map Date: 1.15
Date: 7 . 3.15	Project Name & No.:	Alaska LNG	a LNG 60418403 Feature Id: W85T10			
Investigators: Jessie Brown	lee, Jennifer Ander	SON				Team No.: W85
State: Alaska	Region: Alaska		Milepost:	739.3		
Latitude: 61° 23, 490	8	Longitude	: 150° 41,	100	2	Datum: WGS84
Logbook No.:	Logbook Page No.:	1	Picture No.:		4 , N	, 5W
SITE PARAMETERS	California and the second	Col Manuel	N westing	Ro Free	A DO NO	
Subregion: South Central			Landform (hil	Islope, terra	ce, hummock	s, etc.): Terrace
Slope (%):3			Local relief (c	oncave, con	ivex, none):	slightly convex
Pre-mapped Alaska LNG/NWI class	sification: U: ICZ	-	Evidence of V	Vildlife Use:	NO	
Are climatic/hydrologic conditions of Yes No (if no	n the site typical for this time explain in Notes)	of year?	Are "No Yes		nstances" pre (If no, exp	sent: plain in Notes.)
Are Vegetation, Soil, or			~ No_X	_(If yes, exp	olain in Notes)
Are Vegetation, Soil, or	HydrologyNaturally F	Problematic?	No_X	_ (If yes, ex	plain in Notes	5.)
SUMMARY OF FINDINGS		Gung Sterre				
Hydrophytic Vegetation Present? Y	es No	Is t	he Sampled A	rea within a	a Wétland?	Yes No
Hydric Soil Present? Ye	эs NoҲ	We	tland Type:	U		S11.
Netland Hydrology Present? Ye	98 NoX	Ala	ska Vegetatior	Classificati	on (Viereck):	11B3, 111+2
Plot sits between to str this Plot is on. Plot is out in mapping. Veg is a Alderwoodla Soil is marginal + sho But Not an welland Put Toy uto dropogy	ad with thick fe	rn cove	r. ble 16-			old terrace that at should be pulled
ol	a. Dired		-	-		\cap ,
	t lions					WE

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes: 160)	% Cover	Species? (Y/N)	Status	No. of Dominant Species that are OBL, FACW, or FAC: 3 (A
1. Alnus fruticosa	15%	Y	FAC	Total Number of Dominant Species Across All Strata: <u>5</u> (E
2.				- % Dominant Species that are OBL, FACW, or FAC: 60/ (A/I
3.				
4.				Prevalence Index worksheet:
Total Cove	er:15			Total % Cover of: Multiply by:
50% of total cov	er: <u>7,5</u> 20	0% of total cov	/er: <u>3</u>	OBL species:X 1 =O
Sapling/Shrub Stratum (246)	Absolute	Dominant	Indicator	FACW species: 5 X 2 = 10
- the state of the	% Cover	Species? (Y/N)	Status	FAC species 53 X 3 = 15 9
1.41		(17(3))	1 - T	FACU species 73 X4 = 292
1. Viburnum edule	2/.	V	FACU	UPL species X 5 =
2. Rubus idneus 3. Ribeo triste	61.	5	FACU	Column Totals: 131 (A) $4(o1$ (B)
4.	57	7	FAC	PI = B/A = <u>3.5</u>
5.			1.2.1	
6.			1.2	
7.	1			
8.		911	1	
9.			1.1	
Total Cove	ər:			
50% of total cove	er: <u>5.5</u> 20	% of total cov	юr: <u>2.2</u>	and the second
VEGETATION (use scientific names of plan	nts)	Constant of the		
Herb Stratum ((o`)	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
And a start Party	% Cover	Species?	Status	Dominance Test is > 50%
1 Att is and a sure		(Y/N)	MAR	$M_{\text{Prevalence Index is}}$ ≤ 3.0
1. Athyrium cyclosorum	25%	- <u>X</u>	FAC	Morphological Adaptations ¹ (Provide supporting data in
2. Dryopteris expansa 3. Urtica dioica	46%	Υ	FACU	Notes)
				¹ Indicators of hydric soil and wetland hydrology must be present unless
Heracleum Maximum	51.		FACU	disturbed or problematic.
D	21		FACU	and the second state of the second state of the second state of the
I rientalis europaeg	K 1		FACU	
6. Equisation pratense	5%		TACIL	🖒 % Bare Ground
6. Fausetum pratense 7. Gymnucarpium dryopteris	5%		FACU	
6. Equisation pratense 7. Gymnocarpium dryopteris 8. Galium borealo	· 24 11:		FACU	% Bare Ground % Cover of Wetland Bryophytes Total Cover of Bryophytes
B. Fausetum pratense Gymnucacpium drupteris B. Galium borealo Galamagrostis canadensis			1	% Cover of Wetland Bryophytes
^{6.} Equisitum pratense ^{7.} Gymancarpium dryopteris ^{8.} Galium borealo	- 27. 11. 107 -		FACU	% Cover of Wetland Bryophytes O Total Cover of Bryophytes

Lionth	Matrix	02.	e to the depth needed Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Notes
0-3					.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		TOALGIO	
3-9	104R 3/2	-		-	1	1 1	Silf Loan	Dry organics
7-16	10 VR 3/3	63	7.518 4/0 7.518 3/4	5	C	PC.9-M	Silt Loan	Parteto of organics
16-18	7.5YR 4/3	38	2.5Y 5/1	2	D	RCZ	1 ognivisand	Layers of organk Si Depletions 10YR
N. A.	- Agin - S	1.00	5YR 5/6	60		NC.	1 Bomy Cano	1 1
18-25	2.574/1	100		1			very fine sandy loom	1 Burled organics; Preitine XX @ 10
Turner C. C							1. The state	
ton which the same of the	oncentration, D=Deple	etion, Hi	M=Heduced Matrix, C	S=Cov	ered or Co	ated Sand Gra		PL=Pore Lining, M=Matrix.
MARCON AND SOCIOL	and the second se	Vic		11.10	-	CAR STO		FOR PROBLEMATIC HYDRIC SOILS
Histosol or H	7		Alaska Gleyed		N			hange (TA4) ⁴
	don (A2)	K -	Alaska Redox		N			Swales (TA5)
Black Histic	(A3)		Alaska Gleyed	Pores	(A15) <u>N</u>			with 2.5Y Hue
Hydrogen Si	ulfide (A4)		- 100				Alaska Gleyed	without 5Y Hue or Redder Underlying
Thick Dark S	Surface (A12)			17			Other (Explain	in Notes)
Give details	of color change in No	otes.		onth (i	nches):	_	10	1
Restrictive L	ayer (if present): Typ Present (Y/N):		C	epui (i				and the second se
Hydric Soil Notes: Soil d Colete Mas	ayer (if present): Typ Present (Y/N):	N ated. t band	abiter table flue	tuate	a in the	16-25" r	ange for bong .	enough pertodo in spring to
Hydric Soll Hydric Soll Notes: Soil d Colete Mas Soi Ave Dia	Present (Y/N): http://www.set.satur http://www.set.satur	N ated. band beepin	abter table flue of concentration profile to use	tuate	a in the above an indi	16-25" r 14. cator		enough pertodo in spring to
Hydric Soll Hydric Soll Notes: Soil d Golde mas Soi five Nick HYDROLOG	ayer (if present): Typ Present (Y/N): trix and events - in Bg but too a	N tecpin tors (a	abter table flue of concentration profile to use	tvate	a bove an indi	16-25" r 14. cator	INDICATORS (2	V.
Hydric Soll Hydric Soll Notes: Soil d Colete mas Societice Mas HYDROLOG Surface Wat	ayer (if present): Typ Present (Y/N): hamp but not soture trik and evente a in Bg but too a ay PRIMARY INDICA	N ated. band becpin TORS (a Sur	abitica table filue of concentration profile to use any one indicator is su rface Soil Cracks (B6) ndation Visible on Ae	tuate	a in the a bove an indi	16-25" 14. catol ECONDARY Vater-stained	INDICATORS (2	or more required) Stunted or Stressed
Hydric Soll Hydric Soll Notes: Soil d Colete mas Societice Mas HYDROLOG Surface Wat	ayer (if present): Typ Present (Y/N): amp but not satur trik and areate a in Bg but too a ay PRIMARY INDICA er (A1) Fable (A2)	N ated. t band tecpin TORS (e Sur (B7 Spr	abitica table filue of concentration profile to use any one indicator is su rface Soil Cracks (B6) ndation Visible on Ae	fuate las lflicient N rial Ima	a boue an indi	IG-25" IF: Catol SECONDARY Vater-stained eaves (B9) Drainage Patte	INDICATORS (2 N rns (B10) spheres along	or more required) Stunted or Stressed Plants (D1)
Hydric Soll Notes: Soil d Colete mas Soit ve Not HYDROLOG Surface Water T High Water T	ayer (if present): Typ Present (Y/N): trix and events active trix and events a - in Bg but too a	N ated. band deepil TORS (a Sur (B7 Spa Cor	abitica table filuc of concentration profile to use any one indicator is su rface Soil Cracks (B6) indation Visible on Ae arsely Vegetated	tuate las ufficient N rial Ima	a bove a bove an indi	IG-25" IF, Catol ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhizo	INDICATORS (2 N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Application (A Application (A Application (A Application (A Application (A Application (A Application (A Vater Marks	ayer (if present): Typ Present (Y/N): trix and events active trix and events a - in Bg but too a	N ated. band becpin TORS (a Sun (B7 Con Ma Hyd	abter table flue of concentration of concentration of concentration of concentration of concentration any one indicator is su frace Soil Cracks (B6) ndation Visible on Ae arsely Vegetated incave Surface (B8) _	tuate las ufficient N rial Ima	a bove an india) s agery c L P In	IG-25" IF, Cator ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhizo- iving Roots (C Presence of Re	INDICATORS (2 N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic
Application (A Application (A Application (A Application (A Application (A Application (A Application (A Vater Marks	ayer (if present): Typ Present (Y/N): amp but not soture trik and events a in Bg but too a ay PRIMARY INDICA er (A1) rable (A2) (B1) posits (B2)	N ated. band beep in TORS (a Sun Inu (B7 Con Ma Ma - Hyc Odd	Abta table fluc of concentrat profile to ass any one indicator is su rface Soil Cracks (B6) ndation Visible on Ae arsely Vegetated incave Surface (B8) rl Deposits (B15) drogen Sulfide	tuate las ufficient N rial Ima	a in the a bove an indi y agery C L C L C C L S	IG-25" IF, Catol ECONDARY Vater-stained eaves (B9) Drainage Patte Diving Roots (C Presence of Re on (C4)	INDICATORS (2 N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Asstrictive L Aydric Soll Notes: Soil d Colored mass Sol Ave Nate AyDROLOG Surface Wate Aligh Water T Saturation (A Vater Marks Sediment De	ayer (if present): Typ Present (Y/N): amp but not soture frik and evente a in Bg but too a ay PRIMARY INDICA er (A1) (B1) (B1) (B1) (B3) s (B3)	N ated. band becpin TORS (a Sun (B7 Spa Con Ma Hyc Odd Dry Wa	Abta table fluc of concentrat any one indicator is su frace Soil Cracks (B6) indation Visible on Ae arsely Vegetated incave Surface (B8) _ rl Deposits (B15)N drogen Sulfide or (C1)N	fuate las ufficient N N J	a in the a bove an indi y agery C L C L C C L S	IG-25" Id- Catol ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhizon iving Roots (C Presence of Re on (C4)	INDICATORS (2 N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Asstrictive L Aydric Soll Notes: Sil d Cold- mas Sold- mas Sold- mas Alter Marks Sediment De Drift Deposite	ayer (if present): Typ Present (Y/N): have but not soture frik and events a in Bg but too a in B	N ated. band becpin TORS (a Sun (B7 Spa Con Ma Hyc Odd Dry Wa	Abta table fluc of concentration profile to use any one indicator is su rface Soil Cracks (B6) indation Visible on Ae) arsely Vegetated incave Surface (B8) ri Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2)	fuate las ufficient N N J	a in the a bove an indi y agery C L C L C C L S	IG-25" Id- Catol ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhizon iving Roots (C Presence of Re on (C4)	INDICATORS (2 N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Asstrictive L Hydric Soll Notes: Sol d Gelder may Sol de may Sol d	ayer (if present): Typ Present (Y/N): have but not soture frik and events a in Bg but too a in B	N ated. band becpin TORS (a Sun (B7 Spa Con Ma Hyc Odd Dry Wa	Abta table fluc of concentration profile to use any one indicator is su rface Soil Cracks (B6) indation Visible on Ae) arsely Vegetated incave Surface (B8) ri Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2)	fuate las ufficient N N J	a in the a bove an india) S agery C L L - Ir Ir S	IG-25" Id- Catol ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhizon iving Roots (C Presence of Re on (C4)	INDICATORS (2 N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Asstrictive L Hydric Soll Notes: Soil d Gelder may Soil five December HyDROLOG Surface Water High Water T Saturation (A Vater Marks Sediment De Drift Deposits Igal Mat or G on Deposits urface Wate	ayer (if present): Typ Present (Y/N): amp but not seture trix and execte and and <td>N ated. band beepin TORS (a Sun Inu (B7 Con Ma Ma Dry Wa Oth</td> <td>Abta table fluc of concentration any one indicator is su frace Soil Cracks (B6) indation Visible on Ae arsely Vegetated incave Surface (B8) ri Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2) her (Explain in Notes):</td> <td>fuate las ufficient N N J</td> <td>a in the a bove an indi</td> <td>IG-25" IF, Cator ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhizo- iving Roots (C Presence of Re on (C4) railt Deposits (C lotes:</td> <td>INDICATORS (2 N</td> <td>or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)</td>	N ated. band beepin TORS (a Sun Inu (B7 Con Ma Ma Dry Wa Oth	Abta table fluc of concentration any one indicator is su frace Soil Cracks (B6) indation Visible on Ae arsely Vegetated incave Surface (B8) ri Deposits (B15) drogen Sulfide or (C1) -Season ter Table (C2) her (Explain in Notes):	fuate las ufficient N N J	a in the a bove an indi	IG-25" IF, Cator ECONDARY Vater-stained eaves (B9) Drainage Patte Dxidized Rhizo- iving Roots (C Presence of Re on (C4) railt Deposits (C lotes:	INDICATORS (2 N	or more required) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)

AQUATIC SITE ASSESSMENT DATA FORM

	I= Matrix
Forested-Evergreen-Needle-leaved Scrub Shrub-Evergreen-Broad-leaved Persistent Aquatic Bed	acking 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-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Deciduous-Broad-leaved Scrub Shrub-Evergreen-Needle-leaved Emergent-Non-persistent
Percent Cover (P): Tree (>5 dbh, >6m tall)_ Dwarf shrub (<0.5m) Tall herb (>1	Sapling (<5 dbh, <6m tall) Tall shrub (2-6m) Short shrub (0.5-2m) m) Short herb (<1m) Moss-Lichen Floating 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% Scattered/Peripheral Cover
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
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) ed)
HGM Class (P): Slope Flat	Lacustrine Fringe Depressional Riverine Estaurine Fringe
Mineral: Gravelly Mineral: Sandy	Histosol:Fibric Histosol:Hemic Histosol: Sapric Mineral: Silty Mineral: Clayey
HYDROLOGIC VARIABLES	
Inlet/Outlet Class (P): No Inlet/Outlet Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Ir	No Inlet/Intermittent OutletNo Inlet/Perennial OutletIntermittent Inlet/No OutletIntermittent Inlet/Perennial OutletPerennial Inlet/No OutletPerennial Inlet/Perennial Outlet
Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Ir	Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Inlet/Perennial Outlet Perennial Perennial Inlet/Perennial Outlet Inlet/Perennial Perennial Perennial
Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Ir Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Eviden Created	Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Inlet/Perennial Outlet Perennial Perennial Inlet/Perennial Outlet Seconded Inlet/Perennial Perennial Inlet/Perennial Outlet Seconded Inlet/Perennial Perennial Inlet/Perennial Outlet Flooded Inlet/Perennial Perennial Semiperm. Flooded Flovaquent Soils Sediment Sediment Ce Observed Sediment Observed on Wetland Substrate Flovaquent Soils Sediment
Outlet Intermittent Inlet/Intermittent Inlet/Intermittent Outlet Perennial Ir Wetland Water Regime (P): Drier: Seas Wet: Perm. Flooded, Intermittently Exposed, S Evidence of Sedimentation (P): No Evidence	Outlet Intermittent Inlet/Perennial Outlet Perennial Inlet/No Outlet Perennial Inlet/Perennial Outlet Inlet/Perennial Outlet Perennial Perennial Inlet/Perennial Outlet Inlet/Perennial Perennial Perennial Inlet/Perennial
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Watershed Land Use: 0-5% Rural 5-25% Urbanized_ 25-50% Urbanized >50% Urbanized Large (>100 acres)

Medium (10-100 acres)

Size: Small (<10 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.

Feature ID: W8ST Field Target: 5041

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?
- Ar Each logbook page is initialed and dated?

7. Maps

- B 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)?

XX

292

N.

1. X

1.

4

N.

6.3.15

son pit, 1 son plug)?

Х 3/15 ONCON Signature / Date Wetland Scientist (print)

Х Tessie B

Field Crew Chief (print)

Signature / Date

APPENDIX D – EXAMPLES OF EXTRAPOLATING FIELD DATA TO ADJACENT MAPPING

Alaska LNG.

In the following example, three field reference data points (W84HT003, W84HT003_OP, W84HT004) collected on a terrace of the Middle Fork Chulitna River (MP 586) assisted in map revisions in the immediate area. Initially mapped conservatively as an assemblage of forested and scrub-shrub riverine wetland communities, field data established photographic signatures and landscape positions associated with wetlands and non-wetlands on the terrace. Notated field maps and field notes informed the mapper's understanding of the landscape and vegetation classifications of the areas surrounding the field reference data points and calibrated the mapper's eyes to these photo signatures in context with LiDAR contour data. The two map views (below) are followed by field site photos of the area (Figures D-3 to D-7).



Figure D-1. Initial Project Mapping near Mile Post 586 of the Rev B Study Area Corridor

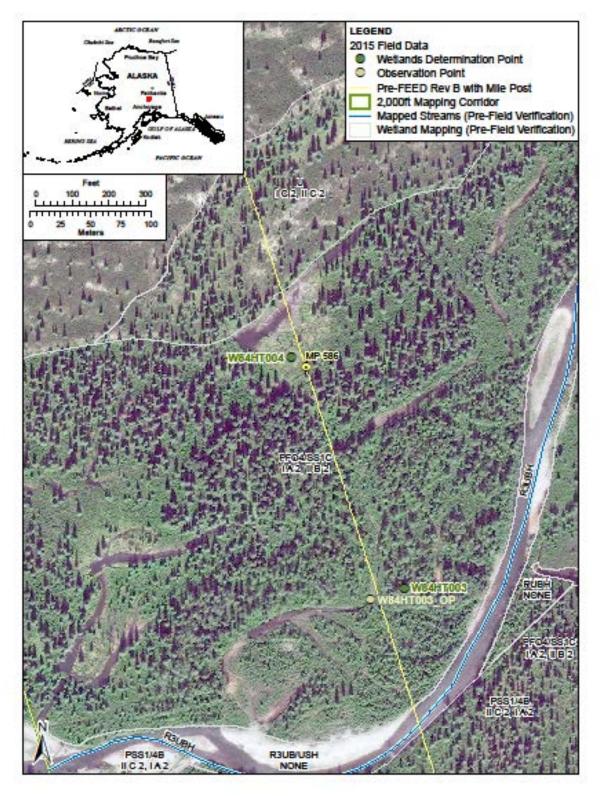


Figure D-2. Post Field Updated Mapping near Mile Post 586 of the Rev B Study Area Corridor

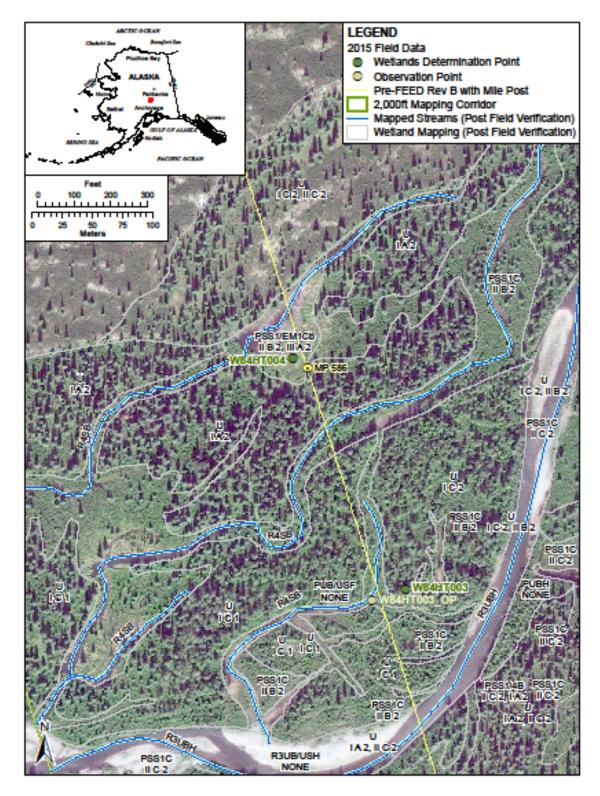


Figure D-3. W84HT003 Vegetation - Upland, White Spruce-Cottonwood Forest (I C 2)



Photo by Jennifer Anderson

Figure D-4. W84HT003 WDF Soil Pit – Well Drained Gravelly Alluvium



Photo by Jennifer Anderson



Figure D-5. W84HT003_OP – PUB/USF Pond on a Low River Terrace

Photo by Jennifer Anderson

Figure D-6. W84HT004 – PSS1/EM1Cb Tall Open Willow/ Emergent Herbaceous



Photo by Jennifer Anderson



Figure D-7. W84HT004 – Soil Plug - A14 Alaska Redox

A second example demonstrating the application of extrapolated field data (MP 220) shows two data points (W84AY009, W84AY009_OP) establishing a repeating pattern of subtle concave swales supporting hydric soils and wetland hydrology separated by slightly convex landscape features (interfluves) hosting non-wetland communities. Previously mapped as a continuous wetland, field data established the subtle landscape pattern that mappers were able to extrapolate to the surrounding area. A slight but noticeable difference in the size and density of white spruce and a coincident shift in tone and texture in the aerial imagery correspond to the muted topographical features that differentiate the two soil drainage classes of each swale and interfluve in the vicinity of the field data. The two map views (below) are followed by field site photos of the area (Figures D-10 to D-13).

Photo by Jennifer Anderson

Figure D-8. Initial Project Mapping near Mile Post 220 Rev B Study Area Corridor

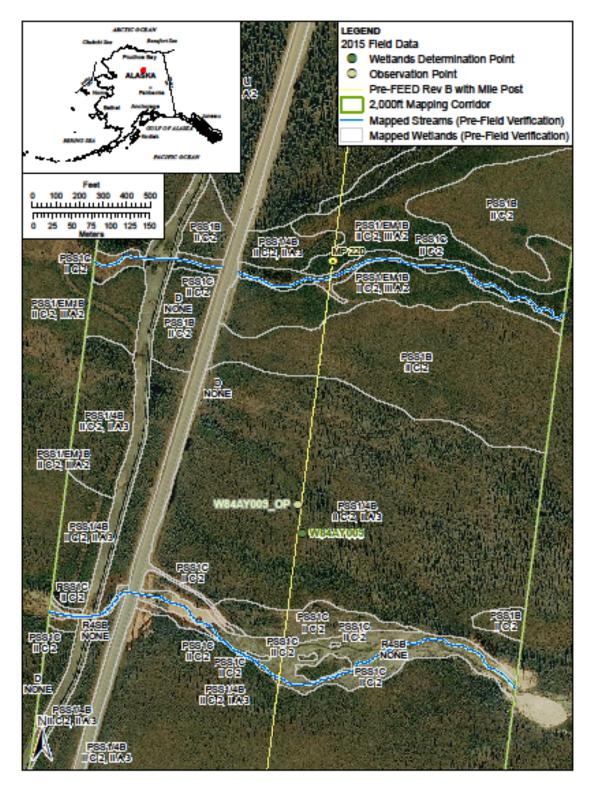


Figure D-9. Post Field Updated Mapping near Mile Post 220 of the Rev B Study Area Corridor

