Wetland Delineation Report
City of Wasilla
Parcel Lot 1B

Prepared for:
City of Wasilla
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Executive Summary

In September 2014, Stantec Consulting, Inc. (formerly USKH) delineated wetlands and assessed habitat within a parcel purchased by the City of Wasilla west of the existing Wastewater Treatment Plant. Potential future improvements to the treatment plant may involve changes to the natural wetland complex, and would possibly construct additional wetlands on the property. This survey delineates and classifies wetland and upland habitats within the 77-acre study area to assess habitats potentially impacted by future improvements. The wetland delineation was completed in accordance with the United States Army Corps of Engineers *Wetlands Delineation Manual* (USACE, 1987) as well as the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE, 2007). Stantec investigated vegetation, soils, hydrology, and habitat characteristics at all test plot and photo point locations. Stantec also looked for relatively permanent water bodies within the study area.

The City parcel includes several different habitat types (e.g., Open Canopy Forested Upland, Forested Wetland, Scrub-Shrub Wetland, Pond) within a relatively undeveloped area. Of the 77-acre study area, Stantec determined that 39 acres are wetlands. All wetlands documented during the field investigation do not have surface water connection to a traditional navigable water of the United States. The wetlands may be hydrologically connected through groundwater to Rabbit Slough, which ultimately flows into Knik Arm, a traditional navigable water of the United States, and therefore may be under the jurisdiction of United States Army Corps of Engineers per Section 404 of the Clean Water Act and Section III.D.2 of the Jurisdictional Determination Form.

Abbreviations

ADF&G	Alaska Department of Fish and Game
CWA	Clean Water Act
GPS	Global Positioning System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
Stantec	Stantec Consulting Inc. (formerly USKH)
U.S.	United States
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey

1.0 INTRODUCTION

1.1 SITE LOCATION

The evaluated parcel is located at approximately 61.5634˚ North Latitude, -149.3745˚ West Longitude, Township 17 North, Range 1 West, Section 13, Seward Meridian. The parcel sub-region is south-central Alaska, which lies within the Cook Inlet Zone, a transition between maritime and continental climatic zones. The Cook Inlet Zone is characterized by maritime summer temperatures moderated by Cook Inlet, and continental winter temperatures moderated by sea ice presence during the coldest months. Figure 1 (Appendix A) displays the location and vicinity of the evaluated parcel.

1.2 PROJECT DESCRIPTION

The City of Wasilla is considering development of an area west of an existing wastewater treatment plant in Wasilla, Alaska, located south of the Parks Highway and west of Jude Drive. The improvements would use the natural wetland complex, and possibly construct additional wetlands to accommodate future improvements to the treatment plant. .

Wetlands and waters of the United States (U.S.) were delineated to assess habitat types within the 77-acre study area. The purpose of this report is to describe those habitats identified within the study area. Wetlands are defined by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers (USACE) as, "*. . . those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" (33 Code of Federal Regulations 328.3 [b]). Wetlands, by this definition, are vegetated. Waters of the U.S. include open water bodies (e.g., streams, lakes, and tidal waters). By federal law (Clean Water Act [CWA]), and associated policy, it is necessary to avoid discharge of fill associated with project impacts to wetlands and waters of the U.S. wherever practicable, minimize unavoidable impacts, and/or compensate for unavoidable impacts.

2.0 BACKGROUND INFORMATION

2.1 EXISTING WETLAND INFORMATION

Existing wetlands mapping conducted by the Kenai Watershed Forum *Cook Inlet Wetlands* (Gracz, 2007) and the U.S. Fish and Wildlife Service *National Wetlands Inventory* (NWI) (2011) were reviewed. Gracz mapped Discharge Slope and Drainageway wetland complexes within the study area and the NWI mapped Palustrine Emergent and Palustrine Forested/Scrub-Shrub wetland complexes within the study area. Previous field wetland investigations or mapping efforts for the study area were not found.

2.2 EXISTING VEGETATION INFORMATION

Existing vegetation information from *The Alaska Vegetation Classification* (Viereck, et al., 1992) identifies the study area as interior forest or taiga. These vegetation classifications are dominated by closed, open, and woodland evergreen forests of black and white spruce; however, they are also known for having extents of open and closed deciduous forests of paper birch, aspen, and balsam poplar. In addition, mosaics of shrubs and herbs can be observed in lowland sedge, sedge-moss bogs, scrub-shrub bogs, and graminoid bogs. Following fires and alluvial deposition in these vegetation classifications, closed and open shrub communities propagate.

2.3 EXISTING SOILS INFORMATION

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) *Soil Survey* provides detailed coverage of the study area. The NRCS *Soil Survey* (2007) map units within the study area consist of Kalmbach silt loam (loess over gravelly till), cryaquepts, depressional, 0-7 percent slopes (silty volcanic ash and/or silty loess over gravelly glacial drift and/or loamy outwash), histosols (organic material over organic material and/or gravelly alluvium and/or loamy glacial drift), Cryods and Cryochrepts (silty volcanic ash and/or silty loess over gravelly glacial drift and/or loamy outwash), and Knik silt loam (loess over sandy and gravelly outwash). Soils within the study area were formed following repeated glacial advances and retreats during the Pleistocene epoch (10,000-2 million years ago) (Jokels, et al., 1991). Topography relief of the study area and surrounding area consists of rolling hills with scattered ponds, lakes, and wetlands in the catchment basins.

2.4 EXISTING HYDROLOGY INFORMATION

U.S. Geological Survey (USGS) topographic maps, Alaska Department of Fish and Game (ADF&G) *Fish Resource Monitor*, and aerial imagery show drainage within the study area flows into a small unnamed stream, unmapped on NHD hydrography, into a small pond

approximately 1.5 miles to the south. From here, it may be connected through groundwater to Rabbit Slough. Rabbit Slough flows into Knik Arm, a traditional navigable water of the U.S.

3.0 METHODOLOGY

Methodology for the wetland delineation followed guidance outlined in the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE, 2007). The wetland delineation was completed over two days starting 9/30/2014 by a team of two field investigators.

3.1 FIELD PREPARATION

Prior to the initial field visit, existing background information and mapping described in Section 2 was used to assess the study area and to identify areas requiring field verification. To determine potential wetland areas within the study area, target sampling locations were identified based on existing background information and mapping.

3.2 WETLAND DELINEATION

The delineation was completed according to wetland sampling methodology for routine determinations combining levels one and two as outlined in the 1987 USACE *Wetland Delineation Manual*. This methodology combines use of available desktop data and field sampling to make wetland determinations for study areas larger than 5 acres. The three-tiered survey approach outlined in the 1987 USACE *Wetland Delineation Manual* was followed for each sampling location and included examination of vegetation, soil, and hydrology at all test plot locations. Standard USACE Wetland Determination Data Forms were completed at all test plot locations and are included in Appendix B. A test plot was completed at least once per community type.

Photo points were completed where habitat was observed similar to that of previously documented test plot locations, which allows best professional judgment to apply test plot findings between similar habitats. Each test plot and photo point location sampled during the field investigation was collected in a handheld *Global Positioning System (GPS)* unit. Test plot and photo point locations are shown on maps included in Appendix A. Characteristic photographs of test plot and photo point habitat type, soil pits, and other observations are included in Appendix C.

The field investigators walked transects across the study area to ensure accurate field observations of different habitat types. Delineation of wetland and upland boundaries in the field was completed by walking the transition area with a handheld GPS unit where vegetation and terrain permitted. If areas proved to be inaccessible, a combination of field data and aerial photograph signatures was used to complete the delineation.

3.3 DATA DOWNLOAD AND MAPPING

After the field investigation, data sheets, site photographs, observations, and GPS locations were compiled to complete the delineation. Wetlands were assigned classifications using field data collected in addition to existing Kenai Watershed Forum *Cook Inlet Wetlands* (Gracz, 2007) mapping, NWI (2011) mapping, and habitat systems and classes described in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979).

4.0 RESULTS AND DISCUSSION

Table 1 below summarizes the different wetlands and upland habitat types found within the study area. A little more than half (39 acres) of habitat within the 77-acre study area is comprised of wetlands and 38 acres were identified as uplands. Each habitat type is described in further detail in the sections below.

Table 1: Summary of Wetlands and Uplands

Habitat Type	Acres	Percent of the Study Area
Wetlands		
Forested Wetlands	36	47 %
Scrub-Shrub Wetlands	3	4 %
Pond	< 0.01	< 0.01%
Total Wetlands	**39**	**51 %**
Uplands		
Open Canopy Forested Upland	38	49 %
Total Study Area	**77**	**100 %**

Weather during the field investigation 9/30/2014 was approximately 38 degrees Fahrenheit and overcast. The month of the field investigation, September 2014, observed 1.02 more inches of rain than normal (National Weather Service, 2014). Therefore, it was noted on the wetland data forms (Appendix B) that climatic conditions within the study area are not typical for this time of year.

4.1 WETLANDS

Three different wetland habitat types, Forested Wetlands, Scrub-Shrub Wetlands, and Pond were documented within the study area. The majority of documented wetland habitats within the study area are Forested Wetlands (36 acres). Scrub-Shrub Wetlands are minimal (3 acres) and one small Pond (< 0.01 acre) is present within the study area. Connection of surface hydrology between the majorities of wetland complexes was readily observed by visible surface water in depressions between hummocks.

Wetlands were mapped only within the study area and are typically connected to larger extents of the same wetland type beyond the study area boundary to the southeast. The presence of wetlands within the study area appears to be driven by topography. Topography relief of the study area consists of a low-lying depression surrounded by rising topography. The documented

wetland habitats contained all three wetland parameters; hydrophytic vegetation, hydric soil, and wetland hydrology. The following sections describe the specific characteristics of each wetland habitat type.

4.1.1 Forested Wetlands

Within the study area Forested Wetlands comprise two Cowardin classifications, PFO1/4B, which is specifically characterized as palustrine, forested, broad-leaved deciduous/needle-leaved evergreen, saturated; and PFO1/4C, which is specifically characterized as palustrine, forested, broad-leaved deciduous/needle-leaved evergreen, seasonally flooded. These wetlands consist of a mix of deciduous and evergreen tree cover as well as smaller shrubs, and generally have a thick understory of bluejoint (*Calamagrostis canadensis*). Vegetation dominating these areas includes Alaska paper birch (*Betula neoalaskana*), speckled alder (*Alnus incana*), balsam poplar (*Populus balsamifera*), and a mix of other herbaceous species including purple marshlocks (*Comarum palustre*) and field horsetail (*Equisetum arvense*). Histosol soils and depressions of standing water between hummocks were observed within the Forested Wetlands in the study area. These wetlands have no slope and are comprised of one large contiguous complex, also connected to a Scrub-Shrub Wetland complex. Forested Wetlands documented in the study area generally match *NWI* mapping of Freshwater Forested/Shrub Wetland classifications, but were ground-truthed to be greater in extent. Forested Wetlands within the study area are documented by test plots 6, 12, 18, 19, 22 and 29 and photo points 7, 8, 9, 11, 13, and 20 on Figure 2 (Appendix A). Forested Wetlands comprise 36 acres, or 47%, of the total study area.

Forested Wetlands are moderate–functioning wetlands within the study area, as they have a presence of standing water between hummocks coupled with the high density of woody vegetation which provides a functional ability to moderate flood flow. Thick organic soils and frequent-to-constant inundation allow for moderate organic matter production. Forested Wetlands also provide habitat and food to a variety of wildlife.

4.1.2 Scrub-Shrub Wetlands

Within the study area Scrub-Shrub Wetlands comprise one Cowardin classification, PSS1/4C, which is specifically characterized as palustrine, scrub-shrub, broad-leaved deciduous/needle-leaved evergreen, seasonally flooded. This wetland consists of small shrubs and trees and *Calamagrostis canadensis* dominating the herbaceous stratum. Vegetation dominating this habitat includes black spruce (*Picea mariana*), and dwarf birch (*Betula nana*), and bog Labrador tea (*Rhododendron groenlandicum*). Organic soils and surface water in the depressions between hummocks are characteristic of this habitat. This habitat has little to no slope and is connected to a larger contiguous Forested Wetland complex. The Scrub-Shrub Wetland documented in the study area generally matches *NWI* mapping of Freshwater Emergent Wetland classifications. Based on our site investigation we agree with the rest of the *NWI* mapped boundaries of the Scrub-Shrub Wetland complex.

The Scrub-Shrub Wetland within the study area is documented by photo point 10 on Figure 2 (Appendix A). Three acres of the study area is comprised of Scrub-Shrub Wetlands, or 4% of the total study area.

Scrub-Shrub Wetlands provide high- to moderate-value functions within the study area for presence of moderate surface water and shrubby vegetation which provides a functional ability to moderate flood flow. Thick organic soils and frequent-to-constant inundation allow for moderate organic matter production. Shrubs also provide areas of cover and food to a variety of wildlife.

4.1.3 Pond

Within the study area the Pond comprises one Cowardin classification, PEM1H, which is specifically characterized as palustrine, emergent, persistent, permanently flooded. The Pond observed in the study area lies within the Forested Wetland complex in a small depression. The Pond documented between photo points 7 and 8 on Figure 2 (Appendix A). Less than 0.01-acre of the study area is comprised of Pond or less than > 0.01% of the total study area.

Ponds are high-functioning and provide sediment, nutrient, and toxicant removal as well as nutrient export. Ponds also provide excellent habitat for waterfowl and overwintering juvenile fish.

4.2 UPLANDS

4.2.1 Open Canopy Forested Upland

Uplands are the dominant habitat type throughout the study area and are characteristic for their steep slopes. Upland habitat within the study area is characterized as Open Canopy Forest for its mixed tree canopy of broad-leaved deciduous and needle-leaved evergreen. The tree canopy is dominated by *Betula neoalaskana*, white spruce (*Picea glauca*), *Picea mariana* and *Populus balsamifera*. The shrub and herbaceous cover greatly varies in Open Canopy Forest across the study area, but is typically an open understory. Soil composition also varies in the Open Canopy Forest across the study area, but is generally well-drained and consists of organics sometimes underlain by silt. Open Canopy Forest within the study area is documented by test plots 5, 14, 27, 28, 30 and photo points 21, 25, and 26 on Figure 2 (Appendix A). Approximately 38 acres of the study area is comprised of Open Canopy Forest, or 49% of the total study area.

4.3 CONCLUSION

Development activities from construction of the parcel would likely impact wetlands and/or waters of the U.S. under USACE jurisdiction. Based on the review of existing hydrology information, drainage within the study area may flow into Rabbit Slough, which ultimately outlets

into Knik Arm, a traditional navigable water of the U.S. For this reason, wetlands and waters of the U.S. in the study area will require jurisdictional determination by the USACE under Section 404 of the CWA and Section III.D.2 of the Jurisdictional Determination Form. Development will need to include coordination with USACE and compliance with Section 404 of the CWA.

5.0 REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. United States Department of the Interior. Fish and Wildlife Service. Office of Biological Services. Washington D.C. 20240

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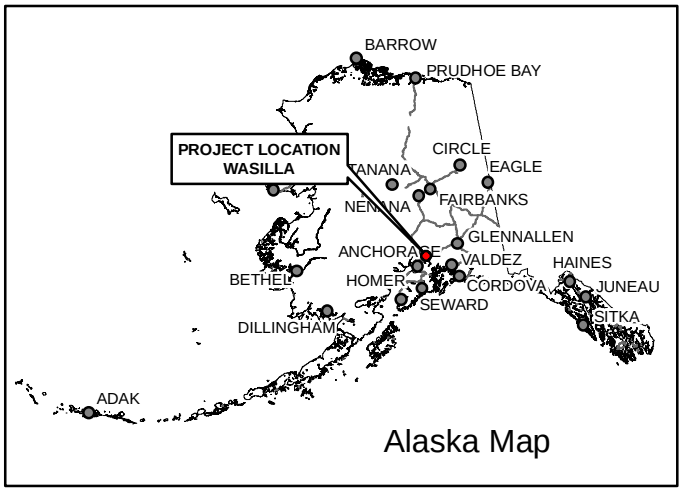
Appendix A Site Maps



Alaska Map

N

PROJECT STUDY AREA

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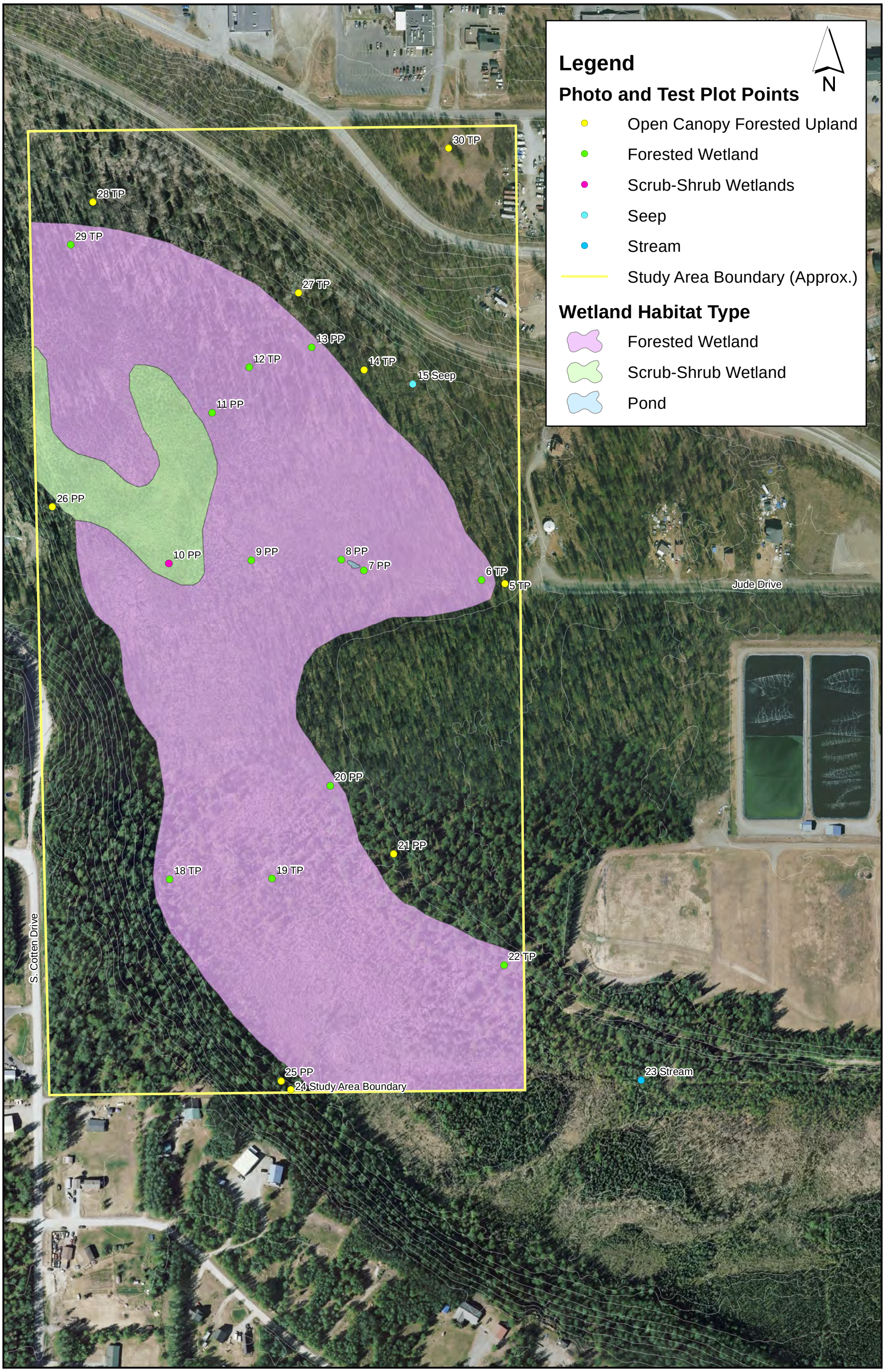
Wasilla Wastewater Outfall
Location & Vicinity Map

CITY OF WASILLA - WASILLA, ALASKA

Date	DEC 2014
Drawn	CDP
Checked	KDH/SL
Project No.	WO# 204700415

Figure 1

Path: U:\204700415\GIS\Projects\Wetlands\204700415_Fig-01-Loc_Vicinity_Map.mxd



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Wasilla Wastewater Outfall
Wetland Delineation

CITY OF WASILLA - WASILLA, ALASKA

Date	DEC 2014
Drawn	CDP
Checked	KDH/SL
Project No.	WO# 204700415

Figure 2

Path: U:\204700415\GIS\Projects\Wetlands\204700415_Fig-02-Wetland_Delineation.mxd

Appendix B Wetland Delineation Data Sheets

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP Borough/City: Wasilla Sampling Date: 09/30/14

Applicant/Owner: City of Wasilla Sampling Point: 5 TP

Investigator(s): CDP, SL Landform (hillside, terrace, hummocks, etc.): Slope

Local relief (concave, convex, none): Sight Slope Slope (%): 2%

Subregion: Anchorage/Matsu Lat: 61.567079 Long: -149.382797 Datum: WGS84

Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No x	**Is the Sampled Area within a Wetland?** Yes ____ No x
Hydric Soil Present?	Yes ____	No x	
Wetland Hydrology Present?	Yes ____	No x	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Area: slight slope at edge of wetland.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	Betneo	Betula neoalaskana	60	Yes	FACU
2.	picgla	Picea glauca	10	No	FACU
3.					
4.					
		Total Cover:	70		
		50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum					
1.	vibedu	Viburnum edule	5	No	FACU
2.	rosaci	Rosa acicularis	30	Yes	FACU
3.	ribtri	Ribes triste	5	No	FAC
4.		Salix sp.	T	No	FAC
5.					
6.					
		Total Cover:	40		
		50% of total cover: 20	20% of total cover: 8		
Herb Stratum					
1.	chaang	Chamerion angustifolium	5	No	FACU
2.	gymdry	Gymnocarpium dryopteris	40	Yes	FACU
3.	equarv	Equisetum arvense	70	Yes	FAC
4.	calcan	Calamagrostis canadensis	50	Yes	FAC
5.	corcan	Cornus canadensis	T	No	FACU
6.	equsyl	Equisetum sylvaticum	5	No	FAC
7.					
8.					
9.					
10.					
		Total Cover:	170		
		50% of total cover: 85	20% of total cover: 34		

Plot size (radius, or length x width) 15 foot radius % Bare Ground 0

% Cover of Wetland Bryophytes (Where applicable) 0 Total Cover of Bryophytes 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	130	x 3 =	390
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column Totals:	280 (A)		990 (B)

Prevalence Index = B/A = 3.54

Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

No Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No x

Remarks: Upland forest - most vegetation dead or dying. Some cut, downed spruce at bottom of slight slope from road

SOIL

Sampling Point: 5 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-9							Organic/duf	Lots of roots
9-20	2.5Y 4/4	100					silt	light brown, no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

20" Pit- Some glistening at bottom of pit but plants senescing-glistening not typical during growing season. Conditions are end of growing season.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No field indication of hydrology.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP Borough/City: Wasilla Sampling Date: 09/30/14

Applicant/Owner: City of Wasilla Sampling Point: 6 TP

Investigator(s): CDP, SL Landform (hillside, terrace, hummocks, etc.): hummocks

Local relief (concave, convex, none): none Slope (%): 0%

Subregion: Anchorage/Matsu Lat: 61.567107 Long: -149.38316 Datum: WGS84

Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes NWI classification: PF01/4B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No _____	**Is the Sampled Area within a Wetland?** Yes x No _____
Hydric Soil Present?	Yes x	No _____	
Wetland Hydrology Present?	Yes x	No _____	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Stressed birch, water table at surface level. Alder in sample plot area dead.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo	Betula neoalaskana	10	Yes	FACU
2.	picgla	Picea glauca	T	No	FACU
3.					
4.					
		Total Cover:	10		
		50% of total cover: 5	20% of total cover: 2		
Sapling/Shrub Stratum					
1.	alninc	Alnus incana	T	No	FAC
2.					
3.					
4.					
5.					
6.					
		Total Cover:	0		
		50% of total cover: 0	20% of total cover: 0		
Herb Stratum					
1.	compal	Comarum palustre	40	No	OBL
2.	calcan	Calamagrostis canadensis	90	Yes	FAC
3.	carlae	Carex laeviculmis	70	Yes	FACW
4.	epicil	Epilobium ciliatum	T	No	FAC
5.	rubarc	Rubus arcticus	5	No	FAC
6.	polacu	Polemonium acutiflorum	T	No	FAC
7.	corcan	Cornus canadensis	5	No	FACU
8.					
9.					
10.					
		Total Cover:	210		
		50% of total cover: 105	20% of total cover: 42		

Plot size (radius, or length x width) 15 foot radius % Bare Ground 5

% Cover of Wetland Bryophytes _____ (Where applicable) Total Cover of Bryophytes 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	70	x 2 =	140
FAC species	95	x 3 =	285
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	220 (A)		525 (B)

Prevalence Index = B/A = 2.39

Hydrophytic Vegetation Indicators:

Y Dominance Test is >50%

Y Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No _____

Remarks: Birch stressed, dying, sphangnum moss, sedges, tufted Jacobs ladder on hummock.

SOIL

Sampling Point: 6 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	organic							living moss layer
7-15	organic							saturated
15-20	organic							muck

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] No [ ]

Remarks:

Thick layers of saturated organic material observed at sample point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [X] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [X] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [X] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 0
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 1 in.
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): surface

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology observed at sample point.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP Borough/City: Wasilla Sampling Date: 09/30/14

Applicant/Owner: City of Wasilla Sampling Point: 12 TP

Investigator(s): CDP, SL Landform (hillside, terrace, hummocks, etc.): slight hummocks

Local relief (concave, convex, none): none Slope (%): 0%

Subregion: Anchorage/Matsu Lat: 61.568697 Long: -149.386734 Datum: WGS84

Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes NWI classification: PF01/4B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area within a Wetland?** Yes x No ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes x	No ____	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Trees on pedestals, significant forest duff, slight hummocks, high water table.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo	Betula neoalaskana	20	Yes	FACU
2.	picgla	Picea glauca	10	Yes	FACU
3.					
4.					
		Total Cover:	30		
		50% of total cover: 15	20% of total cover: 6		
Sapling/Shrub Stratum					
1.	alninc	Alnus incana	30	Yes	FAC
2.					
3.					
4.					
5.					
6.					
		Total Cover:	30		
		50% of total cover: 15	20% of total cover: 6		
Herb Stratum					
1.	equsyl	Equisetum sylvaticum	20	No	FAC
2.	equarv	Equisetum arvense	60	Yes	FAC
3.	calcan	Calamagrostis canadensis	60	Yes	FAC
4.	rosaci	Rosa acicularis	5	No	FACU
5.	carlae	Carex laeviculmis	20	No	FACW
6.	compal	Comarum palustre	5	No	OBL
7.					
8.					
9.					
10.					
		Total Cover:	170		
		50% of total cover: 85	20% of total cover: 34		

Plot size (radius, or length x width) 15 foot radius % Bare Ground 0

% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 100

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	20	x 2 =	40
FAC species	170	x 3 =	510
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	230 (A)		695 (B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:

Y Dominance Test is >50%

No Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yesx ____ No ____

Remarks: Mix of veg-upland more on hummocks, definitely lower areas where marsh 5 finger is growing, vegetation stressed

SOIL

Sampling Point: 12 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	organics							organics, saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] No [ ]

Remarks:

Thick layers of saturated organic material observed at sample point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [X] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [X] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): surface
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 3 in.
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): surface

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology observed at sample point.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP Borough/City: Wasilla Sampling Date: 09/30/14

Applicant/Owner: City of Wasilla Sampling Point: 14 TP

Investigator(s): CDP, SL Landform (hillside, terrace, hummocks, etc.): flat/hummocks

Local relief (concave, convex, none): none Slope (%): <1%

Subregion: Anchorage/Matsu Lat: 61.568672 Long: -149.384951 Datum: WGS84

Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No x	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____	No x	
Wetland Hydrology Present?	Yes _____	No x	

Remarks:

Anchorage received 1.02 in. of rain above average during the month of September.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo`	betula neoalskana	70	Yes	FACU
2.					
3.					
4.					
		Total Cover:	70		
		50% of total cover: 35		20% of total cover: 14	
Sapling/Shrub Stratum					
1.	rosace	Rosa acicularis	20	Yes	FACU
2.	riblax	Ribes Laxiflorum	T	Yes	FACU
3.	samrac	Sambucus racemosa	5	Yes	FACU
4.					
5.					
6.					
		Total Cover:	25		
		50% of total cover: 12.5		20% of total cover: 5	
Herb Stratum					
1.	equarv	Equisetum arvense	70	Yes	FAC
2.	gymdry	Gymnocarpium dryopteris	20	Yes	FACU
3.	alninc	Alnus incana	5	No	FAC
4.	athfil	Athyrium filix-femina	5	No	FAC
5.	hermax	Heracleum maximum	T	No	FACU
6.					
7.					
8.					
9.					
10.					
		Total Cover:	100		
		50% of total cover: 50		20% of total cover: 20	

Plot size (radius, or length x width) 15 foot radius % Bare Ground _____

% Cover of Wetland Bryophytes (Where applicable) _____ Total Cover of Bryophytes _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	115	x 4 =	460
UPL species	0	x 5 =	0
Column Totals:	195 (A)		700 (B)

Prevalence Index = B/A = 3.59

Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

No Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks:

Some moss hummocks over dead wood, small pocket of upland.

SOIL

Sampling Point: 14 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	organic							
9-20	organic							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil slightly saturated due to being @ the end of the growing season and higher than normal rainfall.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 9 in.

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil slightly saturated but not indicative of hydrology, end of season conditions wetter than typical due to plant senescence.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP Borough/City: Wasilla Sampling Date: 09/30/14
Applicant/Owner: City of Wasilla Sampling Point: 18 TP
Investigator(s): CDP, SL Landform (hillside, terrace, hummocks, etc.): slight hummocks
Local relief (concave, convex, none): none Slope (%): 0%
Subregion: Anchorage/Matsu Lat: 61.564916 Long: -149.388038 Datum: WGS84
Soil Map Unit Name: Histosols NWI classification: PF01/4B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No _____	**Is the Sampled Area within a Wetland?** Yes x No _____
Hydric Soil Present?	Yes x	No _____	
Wetland Hydrology Present?	Yes x	No _____	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Very wet, hummocks, birch is stressed. edge of wetland at bottom of slope

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo	Betula neoalaskana	10	Yes	FACU
2.	picgla	Picea glauca	T	No	FACU
3.	picmar	Picea mariana	T	No	FACW
4.					
		Total Cover:	10		
		50% of total cover: 5	20% of total cover: 2		
Sapling/Shrub Stratum					
1.	alninc	Alnus incana	T	No	FAC
2.	rhogro	Rhinanthus groenlandicum	T	No	FAC
3.	corcan	Cornus canadensis	5	Yes	FACU
4.					
5.					
6.					
		Total Cover:	5		
		50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum					
1.	compal	Comarum palustre	60	Yes	OBL
2.	equflu	Equisetum fluviatile	5	No	OBL
3.	calcan	Calamagrostis canadensis	90	Yes	FAC
4.	rubarc	Rubus arcticus	10	No	FAC
5.					
6.					
7.					
8.					
9.					
10.					
		Total Cover:	165		
		50% of total cover: 82.5	20% of total cover: 33		

Plot size (radius, or length x width) 15 foot radius % Bare Ground _____
% Cover of Wetland Bryophytes (Where applicable) _____ Total Cover of Bryophytes _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	180 (A)		425 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators:
No Dominance Test is >50%
Y Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yesx No _____

Remarks: Stressed and dead birch, living birch on high hummocks.

SOIL

Sampling Point: 18 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	Organics							Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] No [ ]

Remarks:

Very mucky and wet organics.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [X] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [X] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 0
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0-1
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): surface

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Very saturated area, low areas between hummocks w/open water.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP Borough/City: Wasilla Sampling Date: 09/30/14
Applicant/Owner: City of Wasilla Sampling Point: 19 TP
Investigator(s): CDP, SL Landform (hillside, terrace, hummocks, etc.): slight hummocks
Local relief (concave, convex, none): none Slope (%): 0%
Subregion: Anchorage/Matsu Lat: 61.564913 Long: -149.386453 Datum: WGS84
Soil Map Unit Name: Histosols NWI classification: PF01/4B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area within a Wetland?** Yes x No ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes x	No ____	

Remarks:
Anchorage received 1.02 in. of rain above average during the month of September. Flooded area, flat.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo	Betula neoalaskana	20	Yes	FACU
2.	picmar	Picea mariana	T	No	FACW
3.					
4.					
		Total Cover:	20		
		50% of total cover: 10	20% of total cover: 4		
Sapling/Shrub Stratum					
1.	betneo	Betula neoalaskana	5	Yes	FACU
2.	alninc	Alnus incana	5	Yes	FAC
3.	corcan	Cornus canadensis	T	No	FACU
4.					
5.					
6.					
		Total Cover:	10		
		50% of total cover: 5	20% of total cover: 2		
Herb Stratum					
1.	compal	Comarum palustre	20	Yes	OBL
2.	calcan	Calamagrostis canadensis	70	Yes	FAC
3.	equflu	Equisetum fluviatile	5	No	OBL
4.	polacu	Polemonium acutiflorum	T	No	FAC
5.					
6.					
7.					
8.					
9.					
10.					
		Total Cover:	95		
		50% of total cover: 47.5	20% of total cover: 19		

Plot size (radius, or length x width) 15 foot radius % Bare Ground T
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 70

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	125 (A)		350 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
Y Dominance Test is >50%
Y Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No ____

Remarks:
Areas of open water between hummocks where marsh five finger (compal) dominates, lots of dead downed birch, living birch is stressed

SOIL

Sampling Point: 19 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	organic							saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] No [ ]

Remarks:

Thick layers of saturated organic material observed at sample point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [X] Iron Deposits (B5)
- [X] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [X] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): surface
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 3 in.
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): surface

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology observed at sample point.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP | Borough/City: Wasilla | Sampling Date: 09/30/14

Applicant/Owner: City of Wasilla | Sampling Point: 22 TP

Investigator(s): CDP, SL | Landform (hillside, terrace, hummocks, etc.): Toe of hill/flat/ hummocks

Local relief (concave, convex, none): none | Slope (%): 0%

Subregion: Anchorage/Matsu | Lat: 61.564258 | Long: -149.382864 | Datum: WGS84

Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes | NWI classification: PF01/4B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No _____	**Is the Sampled Area within a Wetland?** Yes x No _____
Hydric Soil Present?	Yes x	No _____	
Wetland Hydrology Present?	Yes x	No _____	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Base of hill, flat and very wet, hummocks.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo	Betula neoalaskana	5	Yes	FACU
2.	picgla	Picea glauca	T	No	FACU
3.	popbal	Populus balsamifera	20	Yes	FACU
4.					
		Total Cover:	25		
		50% of total cover: 12.5	20% of total cover: 5		
Sapling/Shrub Stratum					
1.	alninc	Alnus incana	5	Yes	FAC
2.	rosaci	Rosa acicularis	10	Yes	FACU
3.	rubida	Rubus idaeus	5	Yes	FACU
4.					
5.					
6.					
		Total Cover:	20		
		50% of total cover: 10	20% of total cover: 4		
Herb Stratum					
1.	calcan	Calamagrostis canadensis	70	Yes	FAC
2.	equarv	Equisetum arvense	20	Yes	FAC
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
		Total Cover:	90		
		50% of total cover: 45	20% of total cover: 18		

Plot size (radius, or length x width) 15 foot radius | % Bare Ground 0

% Cover of Wetland Bryophytes _____ (Where applicable) | Total Cover of Bryophytes 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	135 (A)		445 (B)

Prevalence Index = B/A = 3.30

Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

No Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

x ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No x

Remarks: Area was very saturated and mucky, all vegetation growing on hummocks, low saturated areas were bare of vegetation or super saturated w/open water, problematic hydrophytic vegetation.

SOIL

Sampling Point: 22 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	organics							Some sand mixed in @ bottom

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] No [ ]

Remarks:

Thick layers of saturated organic material observed at sample point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [X] Surface Water (A1)
- [ ] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [X] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 0
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology observed at sample point. Very mucky, water entering pit @ 5 inches, sides of pit running with water, plants stressed, areas of hummocks with very mucky wet areas in between.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP | Borough/City: Wasilla | Sampling Date: 09/30/14
Applicant/Owner: City of Wasilla | Sampling Point: 27 TP
Investigator(s): CDP, SL | Landform (hillside, terrace, hummocks, etc.): Slight slope
Local relief (concave, convex, none): none | Slope (%): 5-10%
Subregion: Anchorage/Matsu | Lat: 61.569246 | Long: -149.385957 | Datum: WGS84
Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes | NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No x	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____	No x	
Wetland Hydrology Present?	Yes _____	No x	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Upland area at edge of wetlands, slight slope @ base of RR track embankment.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo	Betula neoalaskana	40	Yes	FACU
2.	popbal	Populus balsamifera	40	Yes	FACU
3.					
4.					
		Total Cover:	80		
		50% of total cover: 40	20% of total cover: 16		
Sapling/Shrub Stratum					
1.	rosaci	Rosa acicularis	20	Yes	FACU
2.	oplhor	Oplopanax horridus	30	Yes	FACU
3.	hermax	Heracleum maximum	40	Yes	FACU
4.					
5.					
6.					
		Total Cover:	90		
		50% of total cover: 45	20% of total cover: 18		
Herb Stratum					
1.	equarv	Equisetum arvense	70	Yes	FAC
2.	athfil	Athyrium filix-femina	20	Yes	FAC
3.	pyrgra	Pyrola grandiflora	T	No	FAC
4.	calcan	Calamagrostis canadensis	5	No	FAC
5.					
6.					
7.					
8.					
9.					
10.					
		Total Cover:	95		
		50% of total cover: 47.5	20% of total cover: 19		

Plot size (radius, or length x width) 15 foot radius | % Bare Ground 0
% Cover of Wetland Bryophytes _____ (Where applicable) | Total Cover of Bryophytes _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 29% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	170	x 4 =	680
UPL species	0	x 5 =	0
Column Totals:	265 (A)		965 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:
No Dominance Test is >50%
No Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: Thick duff, upland plants, moss growing over dead stumps, devils club towards south end of plot nearer to wetlands, cow parsnip and rose towards north end

SOIL

Sampling Point: 27 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	Organic							Rocks at 14"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:
Soil plot very rooty and rocky, not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area on slight slope, no drainage patterns or low spots.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP Borough/City: Wasilla Sampling Date: 09/30/14
Applicant/Owner: City of Wasilla Sampling Point: 28 TP
Investigator(s): CDP, SL Landform (hillside, terrace, hummocks, etc.): Flat
Local relief (concave, convex, none): none Slope (%): 0%
Subregion: Anchorage/Matsu Lat: 61.56993 Long: -149.38913 Datum: WGS84
Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No x	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____	No x	
Wetland Hydrology Present?	Yes _____	No x	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Area flat, bordering wetter area, distinct vegetation change. Plot at bottom of slope.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	betneo	Betula neoalaskana	60	Yes	FACU
2.	picgla	Picea glauca	T	No	FACU
3.					
4.					
		Total Cover:	60		
		50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum					
1.	rosaci	Rosa acicularis	70	Yes	FACU
2.	alninc	Alnus incana	T	No	FAC
3.	hermax	Heracleum maximum	5	No	FACU
4.					
5.					
6.					
		Total Cover:	75		
		50% of total cover: 37.5	20% of total cover: 15		
Herb Stratum					
1.	corcan	Cornus canadensis	20	No	FACU
2.	calcan	Calamagrostis canadensis	10	No	FAC
3.	equarv	Equisetum arvense	60	Yes	FAC
4.	equsyl	Equisetum sylvaticum	20	No	FAC
5.	athfil	Athyrium filix-femina	20	No	FAC
6.					
7.					
8.					
9.					
10.					
		Total Cover:	130		
		50% of total cover: 65	20% of total cover: 26		

Plot size (radius, or length x width) 15 foot radius % Bare Ground _____
% Cover of Wetland Bryophytes (Where applicable) _____ Total Cover of Bryophytes _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	110	x 3 =	330
FACU species	155	x 4 =	620
UPL species	0	x 5 =	0
Column Totals:	265 (A)		950 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

No Dominance Test is >50%
No Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: Lots of elderberry in adjacent areas, healthy birch, thin white spruce saplings (not within plot).

SOIL

Sampling Point: 28 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	Organics							Rooty/Rocks at 18"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No indications of hydric soil observed at sample location - site well drained.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flat to slightly sloping, trees on hummocks, no presence of water in low areas between hummocks, thick duff layer.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP | Borough/City: Wasilla | Sampling Date: 09/30/14
Applicant/Owner: City of Wasilla | Sampling Point: 29 TP
Investigator(s): CDP, SL | Landform (hillside, terrace, hummocks, etc.): hummocks
Local relief (concave, convex, none): | Slope (%): 0%
Subregion: Anchorage/Matsu | Lat: 61.569617 | Long: -149.389479 | Datum: WGS84
Soil Map Unit Name: Cryaquepts, depressional, 0 to 7 percent slopes | NWI classification: PF01/4B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No x (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area within a Wetland?** Yes x No ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes x	No ____	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Area is flat with more grass and distinct vegetation changes from sample point #28.

VEGETATION – Use scientific names of plants. List all species in the plot.

			Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum					
1.	Betnan	Betula nana	5	Yes	FAC
2.	picgla	Picea glauca	T	No	FACU
3.					
4.					
		Total Cover:	5		
		50% of total cover: 2.5	20% of total cover: 1		
Sapling/Shrub Stratum					
1.	alninc	Alnus incana	T	No	FAC
2.	picgla	Picea glauca	T	No	FACU
3.		Salix Sp.	T	No	FAC
4.	rosaci	Rosa acicularis	T	No	FACU
5.	vacmac	Vaccinium macrocarpon	T	No	OBL
6.					
		Total Cover:	0		
		50% of total cover: 0	20% of total cover: 0		
Herb Stratum					
1.	calcan	Calamagrostis canadensis	90	Yes	FAC
2.	corcan	Cornus canadensis	5	No	FACU
3.	rubarc	Rubus arcticus	5	No	FAC
4.	gymdry	Gymnocarpium dryopteris	T	Yes	FACU
5.	equarv	Equisetum arvense	50	Yes	FAC
6.	epicil	Epilobium ciliatum	T	Yes	FAC
7.					
8.					
9.					
10.					
		Total Cover:	150		
		50% of total cover: 75	20% of total cover: 30		

Plot size (radius, or length x width) 15 foot radius | % Bare Ground ____
% Cover of Wetland Bryophytes (Where applicable) ____ | Total Cover of Bryophytes ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	150	x 3 =	450
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	155 (A)		470 (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

Y Dominance Test is >50%
No Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No ____

Remarks: Vegetation is stressed, dead birch, lots of downed logs, very thick moss growing over hummocks, upland vegetation growing on hummocks.

SOIL

Sampling Point: 29 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-23	Organics							saturated/high water table

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] No [ ]

Remarks:

Thick layers of saturated organic material observed at sample point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [X] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [X] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [X]	Depth (inches):
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology observed at sample point.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Wasilla WWTP | Borough/City: Wasilla | Sampling Date: 09/30/14

Applicant/Owner: City of Wasilla | Sampling Point: 30 TP

Investigator(s): CDP, SL | Landform (hillside, terrace, hummocks, etc.): flat

Local relief (concave, convex, none): none | Slope (%): 0%

Subregion: Anchorage/Matsu | Lat: 61.570303 | Long: -149.383607 | Datum: WGS84

Soil Map Unit Name: Kalambach silt loam, sloping and moderately steep | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No x (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No x	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____	No x	
Wetland Hydrology Present?	Yes _____	No x	

Remarks: Anchorage received 1.02 in. of rain above average during the month of September. Open, previously disturbed area with regrowth.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum			Absolute % Cover	Dominant Species?	Indicator Status
1.	betneo	Betula neoalaskana	25	Yes	FACU
2.					
3.					
4.					
		Total Cover:	25		
		50% of total cover: 12.5		20% of total cover: 5	
Sapling/Shrub Stratum					
1.	alninc	Alnus incana	T	No	FAC
2.					
3.					
4.					
5.					
6.					
		Total Cover:	0		
		50% of total cover: 0		20% of total cover: 0	
Herb Stratum					
1.	chaang	Chamerion angustifolium	60	Yes	FACU
2.	achmil	Achillea millefolium	70	Yes	FACU
3.	phlpra	Phleum pratense	60	Yes	FACU
4.	broine	Bromus inermis	T	No	UPL
5.	taroff	Taraxacum officinale	10	No	FACU
6.					
7.					
8.					
9.					
10.					
		Total Cover:	200	OK	
		50% of total cover: 100		20% of total cover: 40	

Plot size (radius, or length x width) 60 foot diameter | % Bare Ground 0

% Cover of Wetland Bryophytes _____ (Where applicable) | Total Cover of Bryophytes _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	225	x 4 =	900
UPL species	0	x 5 =	0
Column Totals:	225 (A)		900 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

No Prevalence Index is ≤3.0

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: Elderberry on fringe of lot, increased plot size to include both disturbed forest and field. Grass species planted, assume area seeded after previous development.

SOIL

Sampling Point: 30 TP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	Organics/Mineral							Mixed organics and mineral

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Alaska Color Change (TA4)[4]
___ Alaska Alpine Swales (TA5)
___ Alaska Redox With 2.5Y Hue
___ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
___ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No indications of hydric soil observed at sample location. Gravel (old fill) at bottom of test pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-stained Leaves (B9)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

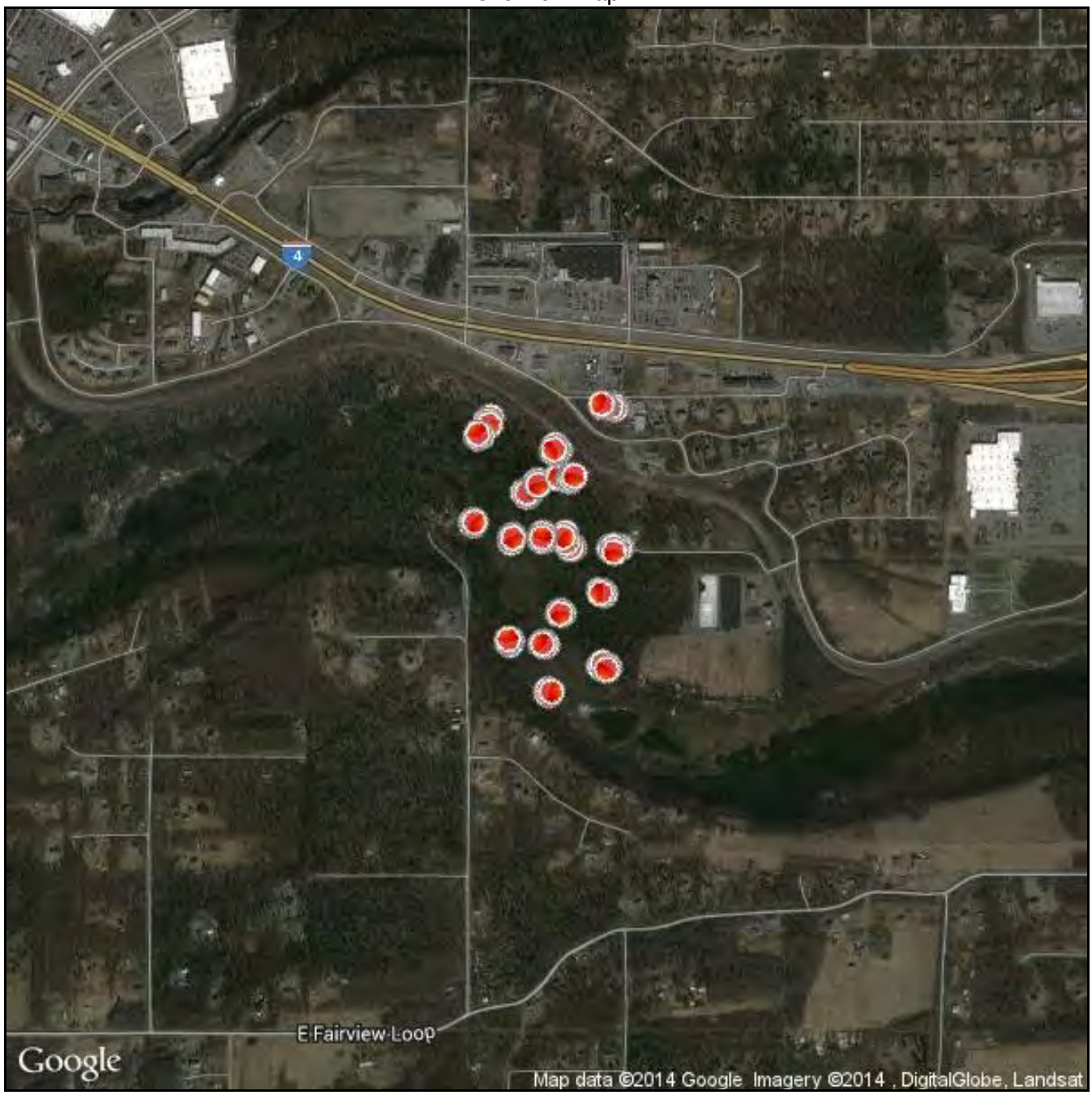
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No field indication of hydrology. Flat, disturbed field/forest, top of embankment with roads on all sides of property.

Appendix C Photo Log

Overview Map



Attributes	
Title	5 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 1:45:37 PM
Latitude	N 61° 34' 01.48"
Longitude	W 149° 22' 58.07"
Elevation	
Photo Direction	334° NNW

IMGP1915.JPG

Description: Bottom of embankment from end of Jude Drive, adjacent to wetland. Upland forest, most vegetation dead or dying.

Attributes	
Title	5 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 1:46:00 PM
Latitude	N 61° 34' 01.48"
Longitude	W 149° 22' 58.07"
Elevation	
Photo Direction	50° NE

IMGP1916.JPG

Description: Bottom of embankment from end of Jude Drive, adjacent to wetland. Upland forest, most vegetation dead or dying.

Attributes	
Title	5 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 1:46:09 PM
Latitude	N 61° 34' 01.48"
Longitude	W 149° 22' 58.07"
Elevation	
Photo Direction	164° SSE

IMGP1917.JPG

Description: Bottom of embankment from end of Jude Drive, adjacent to wetland. Upland forest, most vegetation dead or dying.

Attributes	
Title	5 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 1:46:19 PM
Latitude	N 61° 34' 01.48"
Longitude	W 149° 22' 58.07"
Elevation	
Photo Direction	277° W

IMGP1918.JPG

Description: Bottom of embankment from end of Jude Drive, edge of wetland. Upland forest, most vegetation dead or dying.

Attributes	
Title	5 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 1:46:31 PM
Latitude	N 61° 34' 01.48"
Longitude	W 149° 22' 58.07"
Elevation	
Photo Direction	340° NNW

IMGP1919.JPG

Description: Bottom of embankment from end of Jude Drive, adjacent to wetland. Upland forest, most vegetation dead or dying.

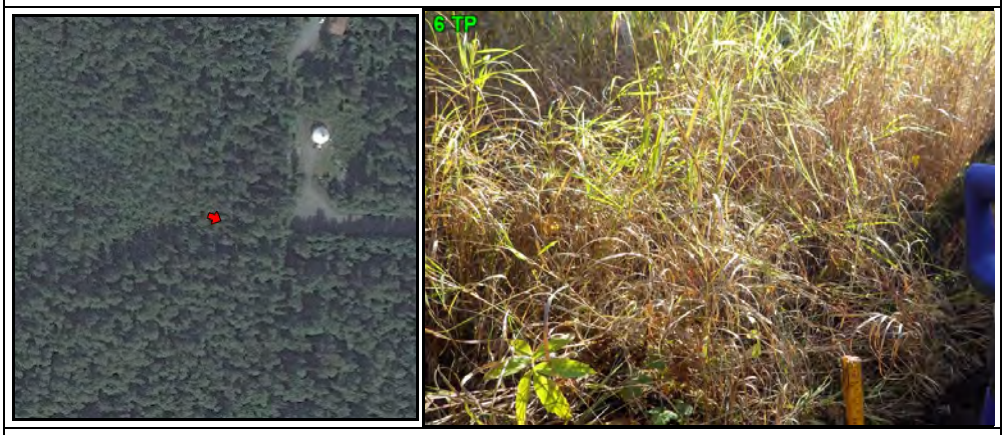
Attributes	
Title	6 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 1:59:08 PM
Latitude	N 61° 34' 01.41"
Longitude	W 149° 22' 59.20"
Elevation	247 ft
Photo Direction	128° SE

IMGP1921.JPG

Description: Hummocky, water table at surface, stressed birch, spagnum moss, Carex laeviculmis, jacobs ladder, tuffed on drier portion of hummocks.

Attributes	
Title	6 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 1:59:15 PM
Latitude	N 61° 34' 01.41"
Longitude	W 149° 22' 59.20"
Elevation	247 ft
Photo Direction	114° ESE

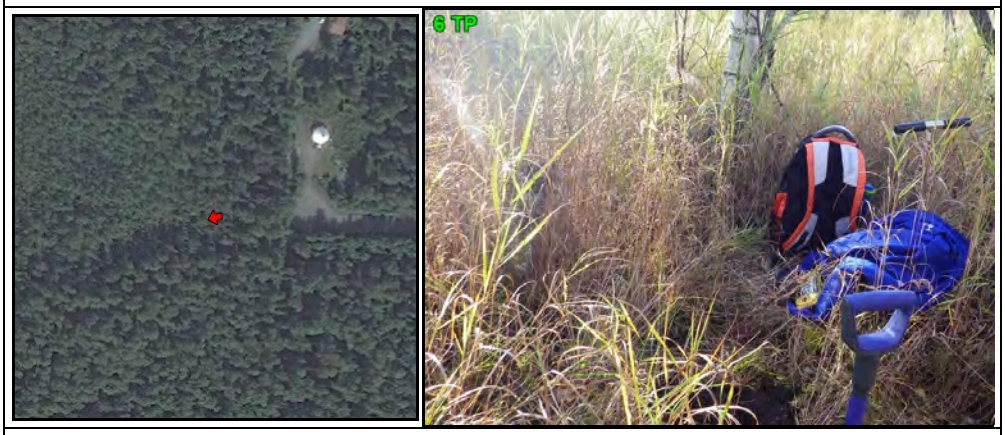
IMGP1922.JPG



Description: Hummocky, water table at surface, stressed birch, spagnum moss, Carex laeviculmis, jacobs ladder, tuffed on drier portion of hummocks.

Attributes	
Title	6 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 1:59:25 PM
Latitude	N 61° 34' 01.41"
Longitude	W 149° 22' 59.20"
Elevation	247 ft
Photo Direction	254° WSW

IMGP1923.JPG



Description: Hummocky, water table at surface, stressed birch, spagnum moss, Carex laeviculmis, jacobs ladder, tuffed on drier portion of hummocks.

Attributes	
Title	6 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 1:59:32 PM
Latitude	N 61° 34' 01.41"
Longitude	W 149° 22' 59.20"
Elevation	247 ft
Photo Direction	311° NW

IMGP1924.JPG

Description: Hummocky, water table at surface, stressed birch, spagnum moss, Carex laeviculmis, jacobs ladder, tuffed on drier portion of hummocks.

Attributes	
Title	6 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 2:00:06 PM
Latitude	N 61° 34' 01.31"
Longitude	W 149° 22' 59.22"
Elevation	251 ft
Photo Direction	16° NNE

IMGP1925.JPG

Description: Hummocky, water table at surface, stressed birch, spagnum moss, Carex laeviculmis, jacobs ladder, tuffed on drier portion of hummocks.

Attributes	
Title	7 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:19:14 PM
Latitude	N 61° 34' 01.69"
Longitude	W 149° 23' 06.14"
Elevation	232 ft
Photo Direction	331° NNW

IMGP1927.JPG

Description: Southeast end of pond, open water surrounded by very wet hummocks of sedge and dead alder.. Standing water between hummocks, hydro sulfide odor.

Attributes	
Title	7 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:19:19 PM
Latitude	N 61° 34' 01.69"
Longitude	W 149° 23' 06.14"
Elevation	232 ft
Photo Direction	14° NNE

IMGP1928.JPG

Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	7 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:19:35 PM
Latitude	N 61° 34' 01.69"
Longitude	W 149° 23' 06.14"
Elevation	232 ft
Photo Direction	102° ESE

IMGP1929.JPG

Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	7 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:19:48 PM
Latitude	N 61° 34' 01.69"
Longitude	W 149° 23' 06.14"
Elevation	232 ft
Photo Direction	225° SW

IMGP1930.JPG

Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	7 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:19:55 PM
Latitude	N 61° 34' 01.69"
Longitude	W 149° 23' 06.14"
Elevation	232 ft
Photo Direction	1° N

IMGP1931.JPG

Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	8 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:34:32 PM
Latitude	N 61° 34' 02.93"
Longitude	W 149° 23' 06.80"
Elevation	240 ft
Photo Direction	89° E

IMGP1934.JPG

Description: Northwest end of Pond, open water surrounded by very wet hummocks of sedge and dead alder.Standing water between hummocks, hydro sulfide odor.

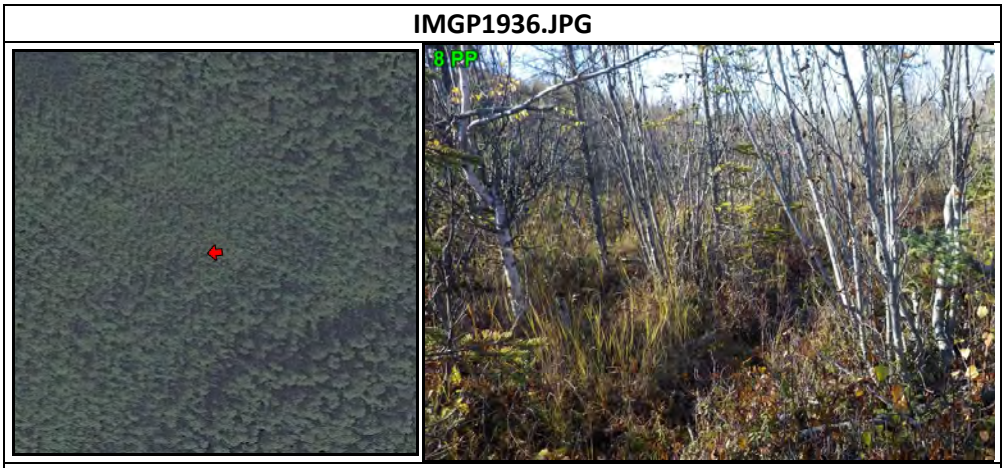
Attributes	
Title	8 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:34:37 PM
Latitude	N 61° 34' 02.18"
Longitude	W 149° 23' 07.13"
Elevation	247 ft
Photo Direction	201° SSW

IMGP1935.JPG

Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	8 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:34:41 PM
Latitude	N 61° 34' 02.18"
Longitude	W 149° 23' 07.13"
Elevation	247 ft
Photo Direction	265° W

IMGP1936.JPG



Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	8 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:34:47 PM
Latitude	N 61° 34' 02.18"
Longitude	W 149° 23' 07.13"
Elevation	247 ft
Photo Direction	17° NNE

IMGP1937.JPG

Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	8 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:37:37 PM
Latitude	N 61° 34' 02.30"
Longitude	W 149° 23' 07.78"
Elevation	243 ft
Photo Direction	319° NW

IMGP1938.JPG

Description: Area adjacent to pond. Standing water between very wet hummocks of sedge and dead alder, Calamagrostis canadensis, trace of Equisetum fluviatile, birch sapling on hummocks, Carex aquatilis, Carex utriculata, Carex lasiocarpa, Salix sp, Epilobium ciliatum, hydro sulfide odor.

Attributes	
Title	9 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:51:28 PM
Latitude	N 61° 34' 02.68"
Longitude	W 149° 23' 11.65"
Elevation	282 ft
Photo Direction	329° NNW

IMGP1940.JPG

Description: Open water, hummocky, floating mat with dead alder, lots of saturated moss.

Attributes	
Title	9 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:51:45 PM
Latitude	N 61° 34' 02.68"
Longitude	W 149° 23' 11.65"
Elevation	282 ft
Photo Direction	305° NW

IMGP1941.JPG

Description: Open water, hummocky, floating mat with dead alder, lots of saturated moss.

Attributes	
Title	9 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:51:52 PM
Latitude	N 61° 34' 02.24"
Longitude	W 149° 23' 11.54"
Elevation	198 ft
Photo Direction	12° NNE

IMGP1942.JPG

Description: Open water, hummocky, floating mat with dead alder, lots of saturated moss.

Attributes	
Title	9 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:52:02 PM
Latitude	N 61° 34' 02.24"
Longitude	W 149° 23' 11.54"
Elevation	198 ft
Photo Direction	95° E

IMGP1943.JPG

Description: Open water, hummocky, floating mat with dead alder, lots of saturated moss.

Attributes	
Title	9 PP
Subject	Forested Wetland (PF01/4C)
Date Time Stamp	9/30/2014 2:52:17 PM
Latitude	N 61° 34' 02.24"
Longitude	W 149° 23' 11.54"
Elevation	198 ft
Photo Direction	212° SSW

IMGP1944.JPG

Description: Open water, hummocky, floating mat with dead alder, lots of saturated moss.

Attributes	
Title	10 PP
Subject	Scrub-Shrub Wetland (PSS1/4C)
Date Time Stamp	9/30/2014 3:11:30 PM
Latitude	N 61° 34' 01.97"
Longitude	W 149° 23' 17.03"
Elevation	168 ft
Photo Direction	338° NNW

IMGP1946.JPG

Description: Flat hummocky ground with standing water between hummocks.

Attributes	
Title	10 PP
Subject	Scrub-Shrub Wetland (PSS1/4C)
Date Time Stamp	9/30/2014 3:11:37 PM
Latitude	N 61° 34' 02.40"
Longitude	W 149° 23' 16.72"
Elevation	186 ft
Photo Direction	69° ENE

IMGP1947.JPG

Description: Flat hummocky ground with standing water between hummocks.

Attributes	
Title	10 PP
Subject	Scrub-Shrub Wetland (PSS1/4C)
Date Time Stamp	9/30/2014 3:11:48 PM
Latitude	N 61° 34' 02.40"
Longitude	W 149° 23' 16.72"
Elevation	186 ft
Photo Direction	253° WSW

IMGP1948.JPG

Description: Flat hummocky ground with standing water between hummocks.

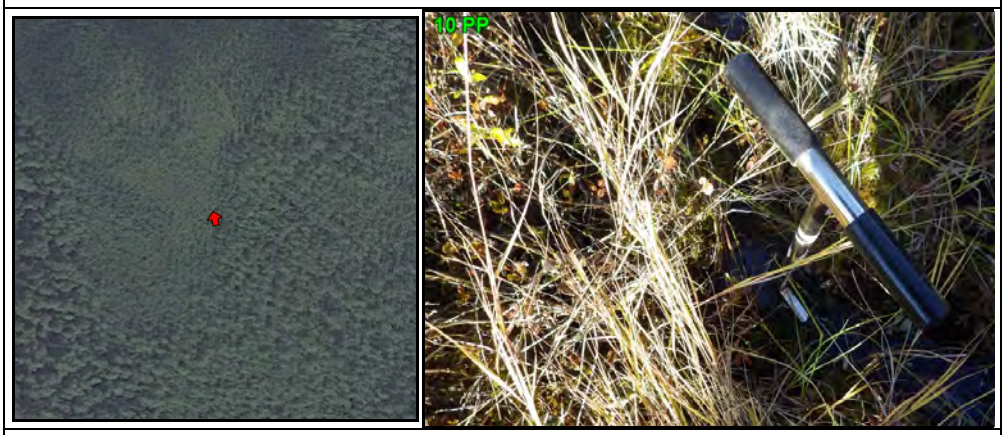
Attributes	
Title	10 PP
Subject	Scrub-Shrub Wetland (PSS1/4C)
Date Time Stamp	9/30/2014 3:11:56 PM
Latitude	N 61° 34' 02.40"
Longitude	W 149° 23' 16.72"
Elevation	186 ft
Photo Direction	312° NW

IMGP1949.JPG

Description: Flat hummocky ground with standing water between hummocks.

Attributes	
Title	10 PP
Subject	Scrub-Shrub Wetland (PSS1/4C)
Date Time Stamp	9/30/2014 3:12:02 PM
Latitude	N 61° 34' 02.40"
Longitude	W 149° 23' 16.72"
Elevation	186 ft
Photo Direction	348° NNW

IMGP1950.JPG



Description: Flat hummocky ground with standing water between hummocks.

Attributes	
Title	11 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:28:32 PM
Latitude	N 61° 34' 05.96"
Longitude	W 149° 23' 13.80"
Elevation	121 ft
Photo Direction	75° ENE

IMGP1952.JPG

Description: Edge of PSS and PFO, still wet with water table 1 inch below surface, thick saturated organics.

Attributes	
Title	11 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:28:38 PM
Latitude	N 61° 34' 05.96"
Longitude	W 149° 23' 13.80"
Elevation	121 ft
Photo Direction	339° NNW

IMGP1953.JPG

Description: Edge of PSS and PFO, still wet with water table 1 inch below surface, thick saturated organics.

Attributes	
Title	11 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:28:42 PM
Latitude	N 61° 34' 06.01"
Longitude	W 149° 23' 14.29"
Elevation	124 ft
Photo Direction	275° W

IMGP1954.JPG

Description: Edge of PSS and PFO, still wet with water table 1 inch below surface, thick saturated organics.

Attributes	
Title	11 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:28:53 PM
Latitude	N 61° 34' 06.01"
Longitude	W 149° 23' 14.29"
Elevation	124 ft
Photo Direction	190° S

IMGP1955.JPG

Description: Edge of PSS and PFO, still wet with water table 1 inch below surface, thick saturated organics.

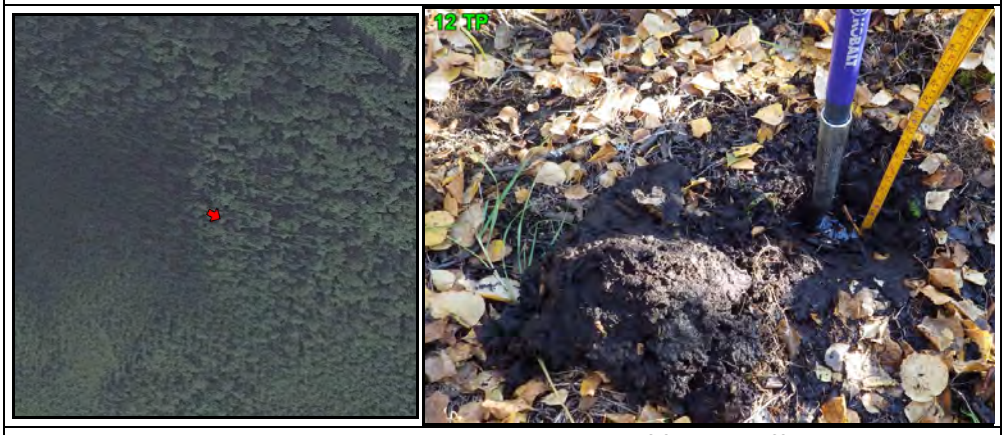
Attributes	
Title	11 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:29:13 PM
Latitude	N 61° 34' 06.01"
Longitude	W 149° 23' 14.29"
Elevation	124 ft
Photo Direction	241° WSW

IMGP1956.JPG

Description: Edge of PSS and PFO, still wet with water table 1 inch below surface, thick saturated organics.

Attributes	
Title	12 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:46:02 PM
Latitude	N 61° 34' 06.83"
Longitude	W 149° 23' 12.16"
Elevation	164 ft
Photo Direction	119° ESE

IMGP1958.JPG



Description: Flat, trees on somewhat pedestals, lots of forest duff, some hummocks, high water table.

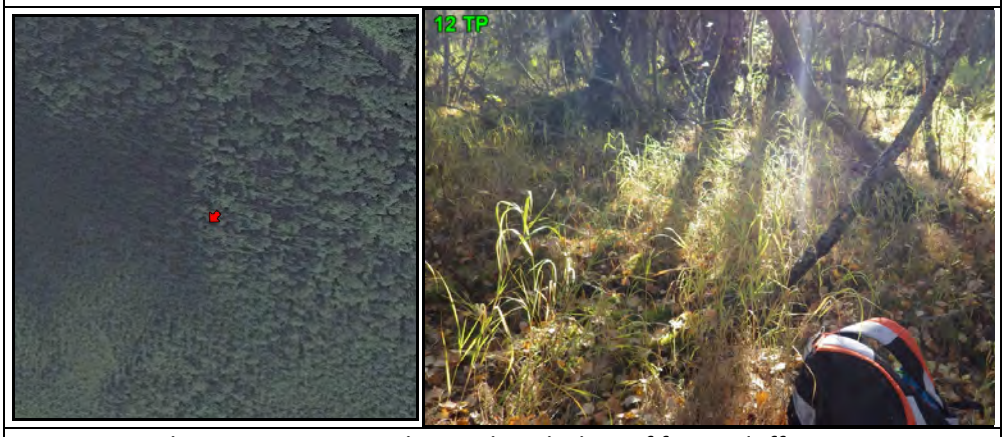
Attributes	
Title	12 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:46:07 PM
Latitude	N 61° 34' 06.83"
Longitude	W 149° 23' 12.16"
Elevation	164 ft
Photo Direction	115° ESE

IMGP1959.JPG

Description: Flat, trees on somewhat pedestals, lots of forest duff, some hummocks, high water table.

Attributes	
Title	12 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:46:14 PM
Latitude	N 61° 34' 06.83"
Longitude	W 149° 23' 12.16"
Elevation	164 ft
Photo Direction	224° SW

IMGP1960.JPG



Description: Flat, trees on somewhat pedestals, lots of forest duff, some hummocks, high water table.

Attributes	
Title	12 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:46:21 PM
Latitude	N 61° 34' 06.83"
Longitude	W 149° 23' 12.16"
Elevation	164 ft
Photo Direction	282° WNW

IMGP1961.JPG

Description: Flat, trees on somewhat pedestals, lots of forest duff, some hummocks, high water table.

Attributes	
Title	12 TP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:46:30 PM
Latitude	N 61° 34' 06.83"
Longitude	W 149° 23' 12.16"
Elevation	164 ft
Photo Direction	2° N

IMGP1962.JPG

Description: Flat, trees on somewhat pedestals, lots of forest duff, some hummocks, high water table.

Attributes	
Title	13 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:59:50 PM
Latitude	N 61° 34' 07.49"
Longitude	W 149° 23' 08.14"
Elevation	108 ft
Photo Direction	201° SSW

IMGP1964.JPG

Description: Saturated soils, surface water, sulfur

Attributes	
Title	13 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 3:59:59 PM
Latitude	N 61° 34' 07.49"
Longitude	W 149° 23' 08.14"
Elevation	108 ft
Photo Direction	173° S

IMGP1965.JPG

Description: Saturated soils, surface water, sulfur

Attributes	
Title	13 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 4:00:04 PM
Latitude	N 61° 34' 07.49"
Longitude	W 149° 23' 08.14"
Elevation	108 ft
Photo Direction	286° WNW

IMGP1966.JPG

Description: Saturated soils, surface water, sulfur

Attributes	
Title	13 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 4:00:13 PM
Latitude	N 61° 34' 07.49"
Longitude	W 149° 23' 08.14"
Elevation	108 ft
Photo Direction	15° NNE

IMGP1967.JPG

Description: Saturated soils, surface water, sulfur

Attributes	
Title	13 PP
Subject	Forested Wetland (PF01/4B)
Date Time Stamp	9/30/2014 4:00:20 PM
Latitude	N 61° 34' 07.49"
Longitude	W 149° 23' 08.14"
Elevation	108 ft
Photo Direction	79° E

IMGP1968.JPG

Description: Saturated soils, surface water, sulfur

Attributes	
Title	14 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 4:15:53 PM
Latitude	N 61° 34' 07.13"
Longitude	W 149° 23' 06.26"
Elevation	191 ft
Photo Direction	230° SW

IMGP1970.JPG

Description: Moss covered hummocks over dead wood. Open understory, all birch canopy (no spruce).

Attributes	
Title	14 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 4:16:02 PM
Latitude	N 61° 34' 07.13"
Longitude	W 149° 23' 06.26"
Elevation	191 ft
Photo Direction	123° ESE

IMGP1971.JPG

Description: Moss covered hummocks over dead wood. Open understory, all birch canopy (no spruce).

Attributes	
Title	14 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 4:16:12 PM
Latitude	N 61° 34' 07.13"
Longitude	W 149° 23' 06.26"
Elevation	191 ft
Photo Direction	239° WSW

IMGP1972.JPG

Description: Moss covered hummocks over dead wood. Open understory, all birch canopy (no spruce).

Attributes	
Title	14 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 4:16:19 PM
Latitude	N 61° 34' 07.13"
Longitude	W 149° 23' 06.26"
Elevation	191 ft
Photo Direction	309° NW

IMGP1973.JPG

Description: Moss covered hummocks over dead wood. Open understory, all birch canopy (no spruce).

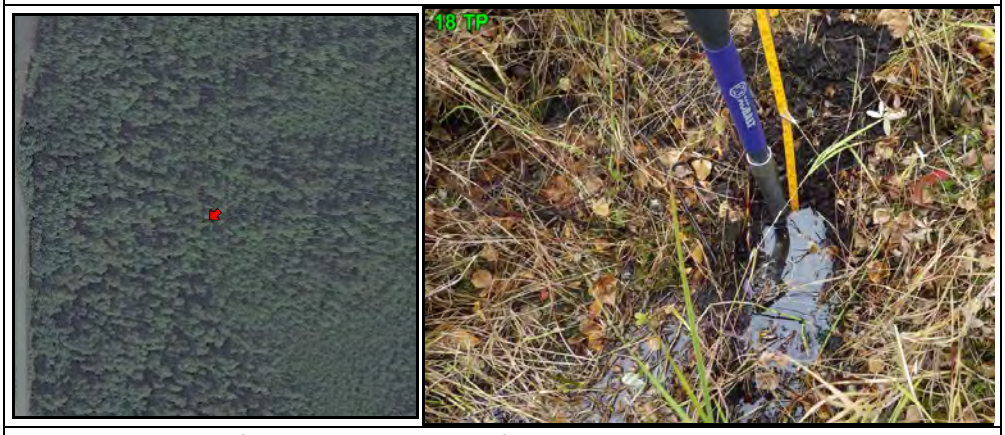
Attributes	
Title	14 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	9/30/2014 4:16:32 PM
Latitude	N 61° 34' 07.57"
Longitude	W 149° 23' 05.65"
Elevation	179 ft
Photo Direction	27° NNE

IMGP1974.JPG

Description: Moss covered hummocks over dead wood. Open understory, all birch canopy (no spruce).

Attributes	
Title	18 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:30:16 AM
Latitude	N 61° 33' 53.70"
Longitude	W 149° 23' 16.94"
Elevation	
Photo Direction	228° SW

IMGP1977.JPG



Description: Edge of wetland at bottom of slope, very wet and hummocky, birch is stressed.

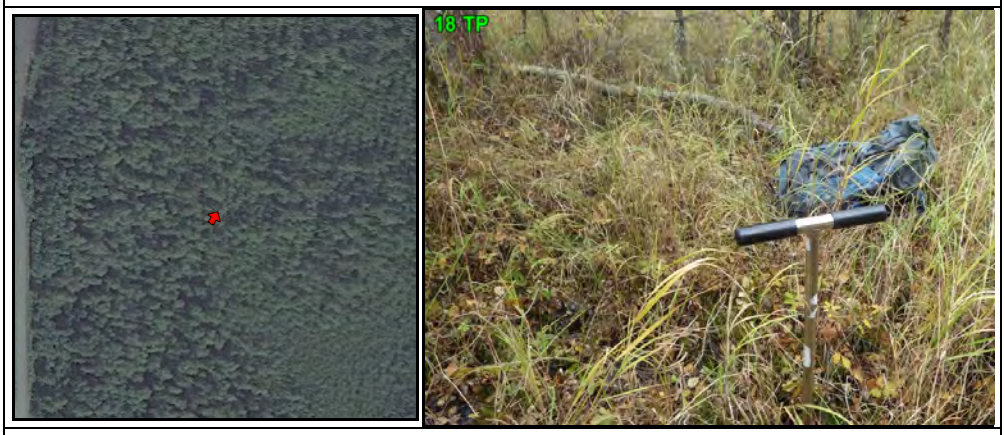
Attributes	
Title	18 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:30:27 AM
Latitude	N 61° 33' 53.70"
Longitude	W 149° 23' 16.94"
Elevation	
Photo Direction	337° NNW

IMGP1978.JPG

Description: Edge of wetland at bottom of slope, very wet and hummocky, birch is stressed.

Attributes	
Title	18 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:30:41 AM
Latitude	N 61° 33' 53.70"
Longitude	W 149° 23' 16.94"
Elevation	
Photo Direction	32° NNE

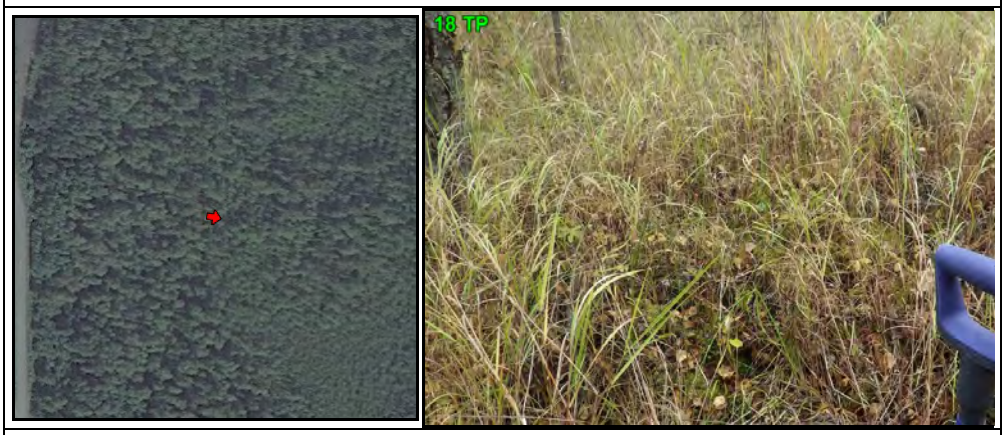
IMGP1979.JPG



Description: Edge of wetland at bottom of slope, very wet and hummocky, birch is stressed.

Attributes	
Title	18 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:30:52 AM
Latitude	N 61° 33' 53.70"
Longitude	W 149° 23' 16.94"
Elevation	
Photo Direction	101° E

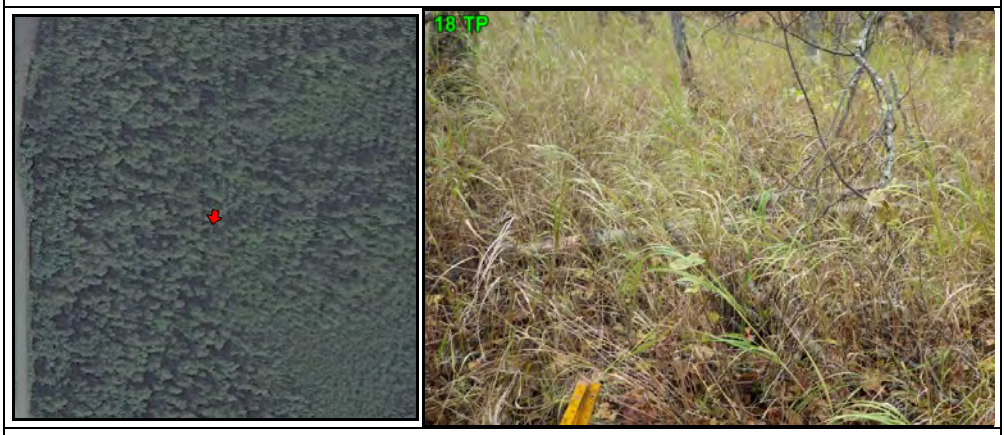
IMGP1980.JPG



Description: Edge of wetland at bottom of slope, very wet and hummocky, birch is stressed.

Attributes	
Title	18 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:30:58 AM
Latitude	N 61° 33' 53.70"
Longitude	W 149° 23' 16.94"
Elevation	
Photo Direction	193° SSW

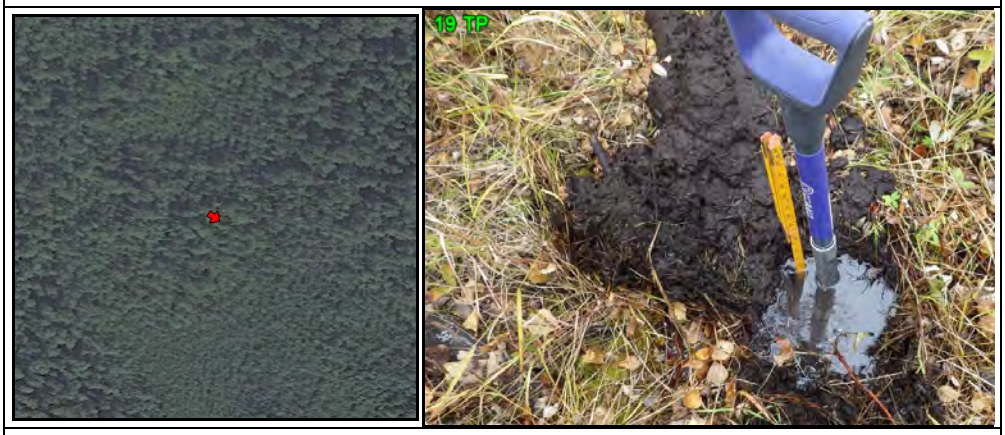
IMGP1981.JPG



Description: Edge of wetland at bottom of slope, very wet and hummocky, birch is stressed.

Attributes	
Title	19 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:52:56 AM
Latitude	N 61° 33' 53.69"
Longitude	W 149° 23' 11.23"
Elevation	290 ft
Photo Direction	125° SE

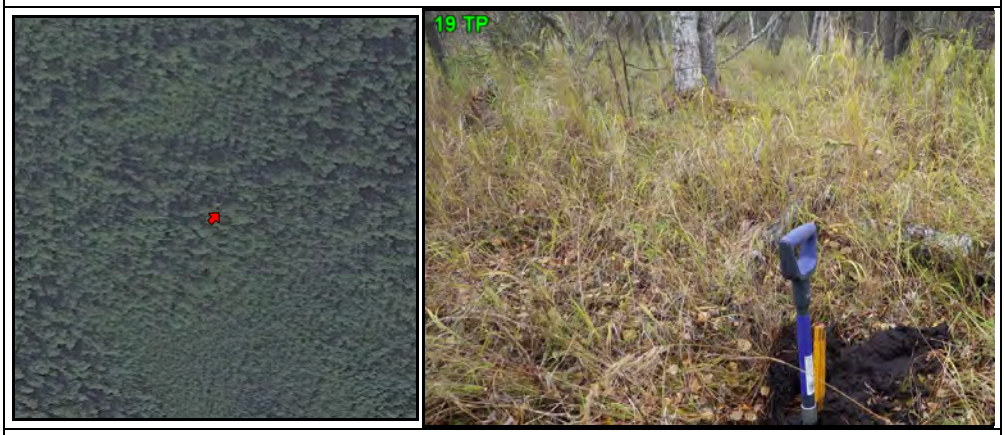
IMGP1983.JPG



Description: Area in previously mapped upland, tall hummocks (3 ft), very wet in between hummocks (20%), downed birch, living birch is stressed.

Attributes	
Title	19 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:53:17 AM
Latitude	N 61° 33' 53.69"
Longitude	W 149° 23' 11.23"
Elevation	290 ft
Photo Direction	42° NE

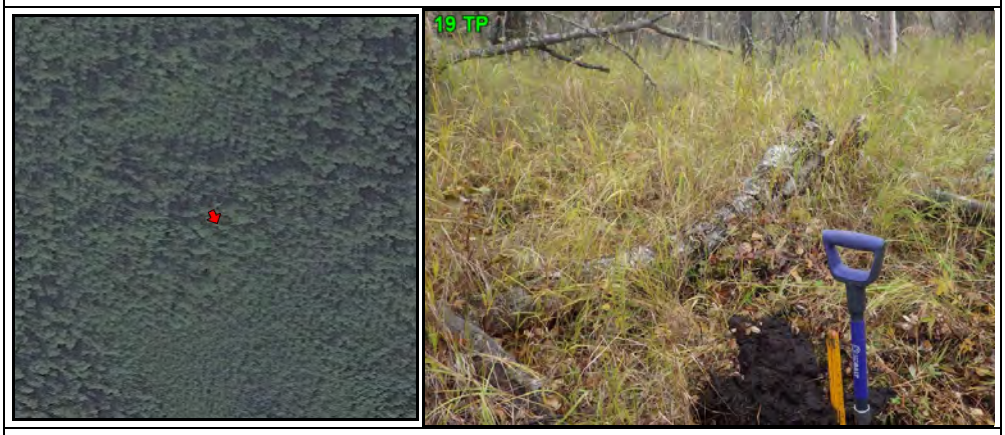
IMGP1984.JPG



Description: Area in previously mapped upland, tall hummocks (3 ft), very wet in between hummocks (20%), downed birch, living birch is stressed.

Attributes	
Title	19 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:53:32 AM
Latitude	N 61° 33' 53.69"
Longitude	W 149° 23' 11.23"
Elevation	290 ft
Photo Direction	153° SSE

IMGP1985.JPG



Description: Area in previously mapped upland, tall hummocks (3 ft), very wet in between hummocks (20%), downed birch, living birch is stressed.

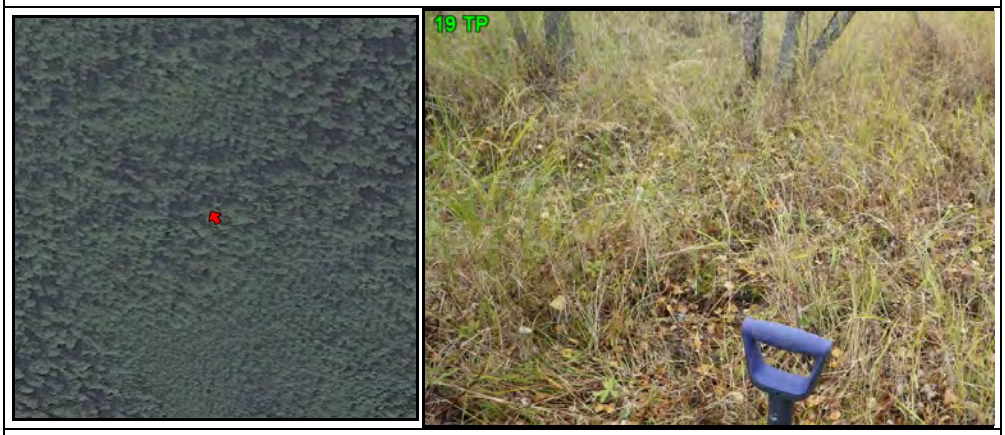
Attributes	
Title	19 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:53:53 AM
Latitude	N 61° 33' 53.69"
Longitude	W 149° 23' 11.23"
Elevation	276 ft
Photo Direction	255° WSW

IMGP1986.JPG

Description: Area in previously mapped upland, tall hummocks (3 ft), very wet in between hummocks (20%), downed birch, living birch is stressed.

Attributes	
Title	19 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 10:54:03 AM
Latitude	N 61° 33' 53.69"
Longitude	W 149° 23' 11.23"
Elevation	276 ft
Photo Direction	327° NNW

IMGP1987.JPG



Description: Area in previously mapped upland, tall hummocks (3 ft), very wet in between hummocks (20%), downed birch, living birch is stressed.

Attributes	
Title	19 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:15:55 AM
Latitude	N 61° 33' 53.69"
Longitude	W 149° 23' 11.23"
Elevation	70 ft
Photo Direction	146° SE

IMGP1988.JPG

Description: Area in previously mapped upland, tall hummocks (3 ft), very wet in between hummocks (20%), downed birch, living birch is stressed.

Attributes	
Title	20 PP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:16:30 AM
Latitude	N 61° 33' 56.15"
Longitude	W 149° 23' 07.93"
Elevation	70 ft
Photo Direction	125° SE

IMGP1990.JPG

Description: At edge of wetland, land formation slopes up to the east, open water, hummocks, lots of dead birch, vegetation growing on hummocks

Attributes	
Title	20 PP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:16:59 AM
Latitude	N 61° 33' 56.15"
Longitude	W 149° 23' 07.93"
Elevation	161 ft
Photo Direction	240° WSW

IMGP1991.JPG

Description: At edge of wetland, land formation slopes up to the east, open water, hummocks, lots of dead birch, vegetation growing on hummocks

Attributes	
Title	20 PP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:17:06 AM
Latitude	N 61° 33' 56.15"
Longitude	W 149° 23' 07.93"
Elevation	161 ft
Photo Direction	305° NW

IMGP1992.JPG

Description: At edge of wetland, land formation slopes up to the east, open water, hummocks, lots of dead birch, vegetation growing on hummocks

Attributes	
Title	20 PP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:17:21 AM
Latitude	N 61° 33' 56.15"
Longitude	W 149° 23' 07.93"
Elevation	161 ft
Photo Direction	9° N

IMGP1993.JPG

Description: At edge of wetland, land formation slopes up to the east, open water, hummocks, lots of dead birch, vegetation growing on hummocks

Attributes	
Title	21 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 11:31:48 AM
Latitude	N 61° 33' 57.69"
Longitude	W 149° 23' 00.91"
Elevation	237 ft
Photo Direction	170° S

IMGP1995.JPG

Description: Upland boundary, ground surface sloping towards wet area, large willow, possibly diamond leaf.

Attributes	
Title	21 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 11:31:55 AM
Latitude	N 61° 33' 57.69"
Longitude	W 149° 23' 00.91"
Elevation	237 ft
Photo Direction	179° S

IMGP1996.JPG

Description: Upland boundary, ground surface sloping towards wet area, large willow, possibly diamond leaf.

Attributes	
Title	21 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 11:32:04 AM
Latitude	N 61° 33' 57.69"
Longitude	W 149° 23' 00.91"
Elevation	237 ft
Photo Direction	288° WNW

IMGP1997.JPG

Description: Upland boundary, ground surface sloping towards wet area, large willow, possibly diamond leaf.

Attributes	
Title	21 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 11:32:19 AM
Latitude	N 61° 33' 57.69"
Longitude	W 149° 23' 00.91"
Elevation	237 ft
Photo Direction	343° NNW

IMGP1998.JPG

Description: Upland boundary, ground surface sloping towards wet area, large willow, possibly diamond leaf.

Attributes	
Title	21 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 11:32:33 AM
Latitude	N 61° 33' 57.69"
Longitude	W 149° 23' 00.91"
Elevation	237 ft
Photo Direction	105° ESE

IMGP1999.JPG

Description: Upland boundary, ground surface sloping towards wet area, large willow, possibly diamond leaf.

Attributes	
Title	22 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:49:27 AM
Latitude	N 61° 33' 51.83"
Longitude	W 149° 23' 01.00"
Elevation	86 ft
Photo Direction	106° ESE

IMGP2001.JPG

Description: Base of slope, flat, hummocks, very wet, downed birch, areas of open water in low spots.

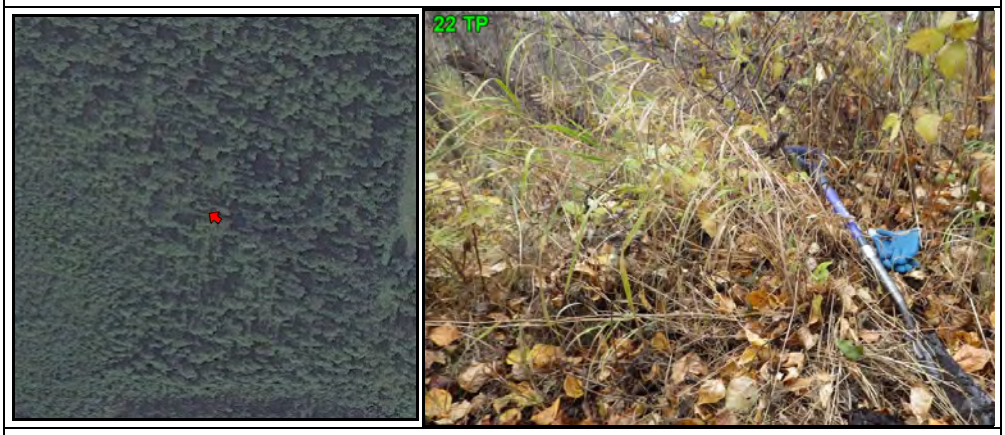
Attributes	
Title	22 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:49:48 AM
Latitude	N 61° 33' 51.83"
Longitude	W 149° 23' 01.00"
Elevation	86 ft
Photo Direction	144° SE

IMGP2002.JPG

Description: Base of slope, flat, hummocks, very wet, downed birch, areas of open water in low spots.

Attributes	
Title	22 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:50:06 AM
Latitude	N 61° 33' 51.83"
Longitude	W 149° 23' 01.00"
Elevation	86 ft
Photo Direction	307° NW

IMGP2003.JPG



Description: Base of slope, flat, hummocks, very wet, downed birch, areas of open water in low spots.

Attributes	
Title	22 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:50:19 AM
Latitude	N 61° 33' 51.67"
Longitude	W 149° 22' 59.89"
Elevation	115 ft
Photo Direction	347° NNW

IMGP2004.JPG

Description: Base of slope, flat, hummocks, very wet, downed birch, areas of open water in low spots.

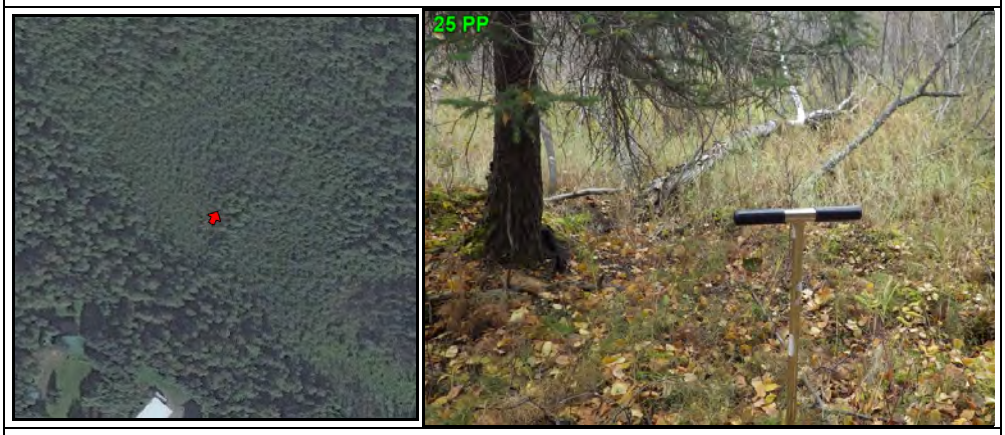
Attributes	
Title	22 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 11:50:29 AM
Latitude	N 61° 33' 51.67"
Longitude	W 149° 22' 59.89"
Elevation	115 ft
Photo Direction	58° ENE

IMGP2005.JPG

Description: Base of slope, flat, hummocks, very wet, downed birch, areas of open water in low spots.

Attributes	
Title	25 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 12:56:49 PM
Latitude	N 61° 33' 49.64"
Longitude	W 149° 23' 10.04"
Elevation	421 ft
Photo Direction	28° NNE

IMGP2007.JPG



Description: Thick moss and hummocks. Upland boundary on slope leading to wetlands which are directly at the toe of slope. Steep slope west of point

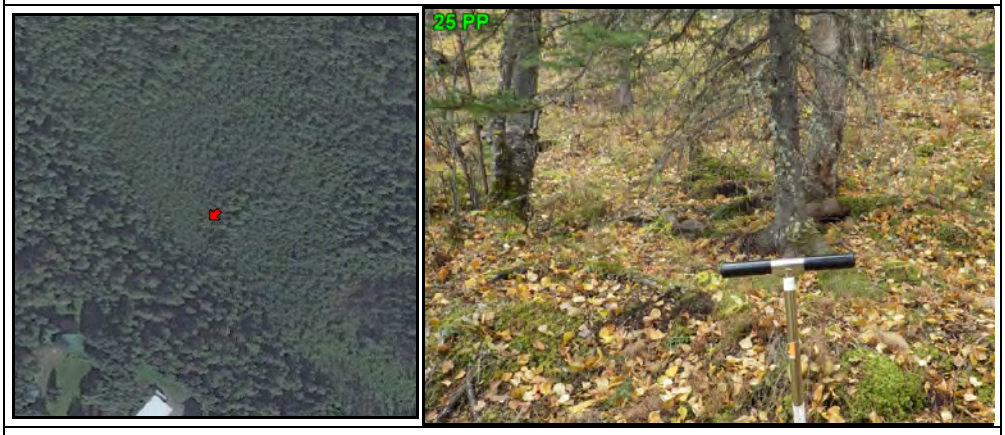
Attributes	
Title	25 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 12:56:57 PM
Latitude	N 61° 33' 49.64"
Longitude	W 149° 23' 10.04"
Elevation	421 ft
Photo Direction	115° ESE

IMGP2008.JPG

Description: Thick moss and hummocks. Upland boundary on slope leading to wetlands which are directly at the toe of slope. Steep slope west of point.

Attributes	
Title	25 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 12:57:10 PM
Latitude	N 61° 33' 49.64"
Longitude	W 149° 23' 10.04"
Elevation	421 ft
Photo Direction	226° SW

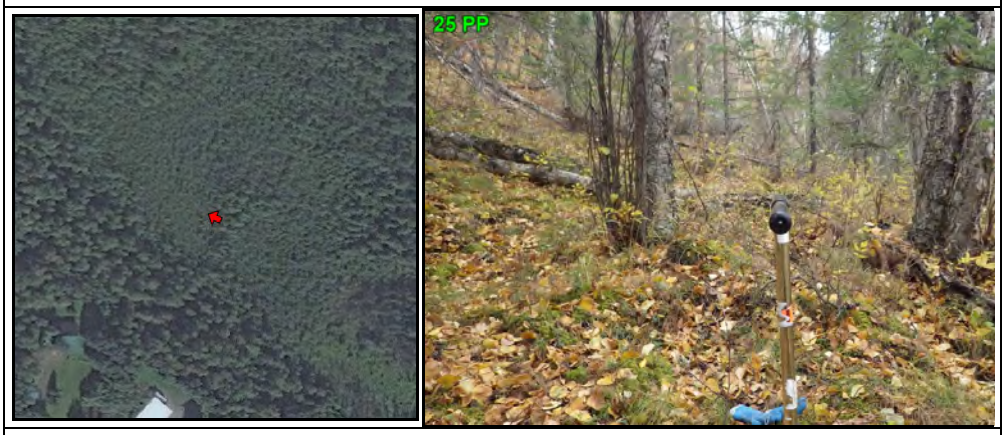
IMGP2009.JPG



Description: Thick moss and hummocks. Upland boundary on slope leading to wetlands which are directly at the toe of slope. Steep slope west of point.

Attributes	
Title	25 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 12:57:19 PM
Latitude	N 61° 33' 49.64"
Longitude	W 149° 23' 10.04"
Elevation	421 ft
Photo Direction	297° WNW

IMGP2010.JPG



Description: Thick moss and hummocks. Upland boundary on slope leading to wetlands which are directly at the toe of slope. Steep slope west of point.

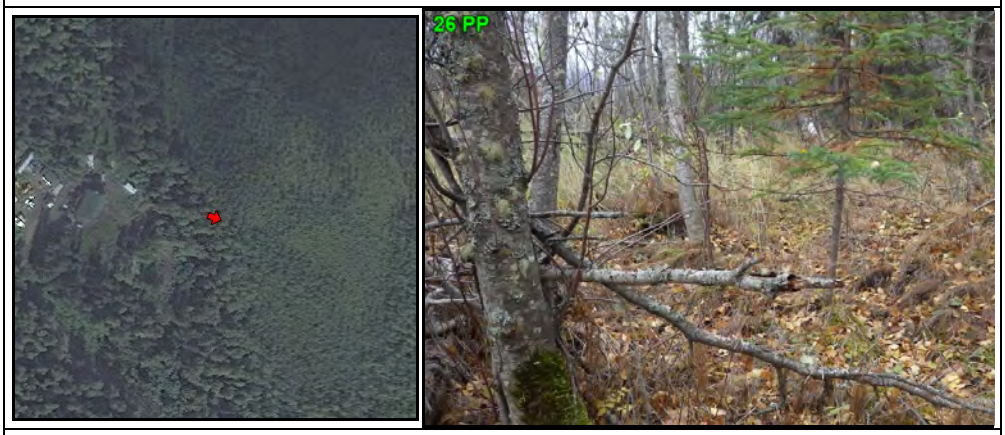
Attributes	
Title	26 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 1:56:14 PM
Latitude	N 61° 34' 03.64"
Longitude	W 149° 23' 23.30"
Elevation	
Photo Direction	27° NNE

IMGP2012.JPG

Description: Base of slope near northwest boundary of study area. Edge of upland/wetland boundary, dead and downed trees, distinct change in vegetation at base of slope.

Attributes	
Title	26 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 1:56:20 PM
Latitude	N 61° 34' 03.64"
Longitude	W 149° 23' 23.30"
Elevation	
Photo Direction	110° ESE

IMGP2013.JPG



Description: Base of slope near northwest boundary of study area. Edge of upland/wetland boundary, dead and downed trees, distinct change in vegetation at base of slope.

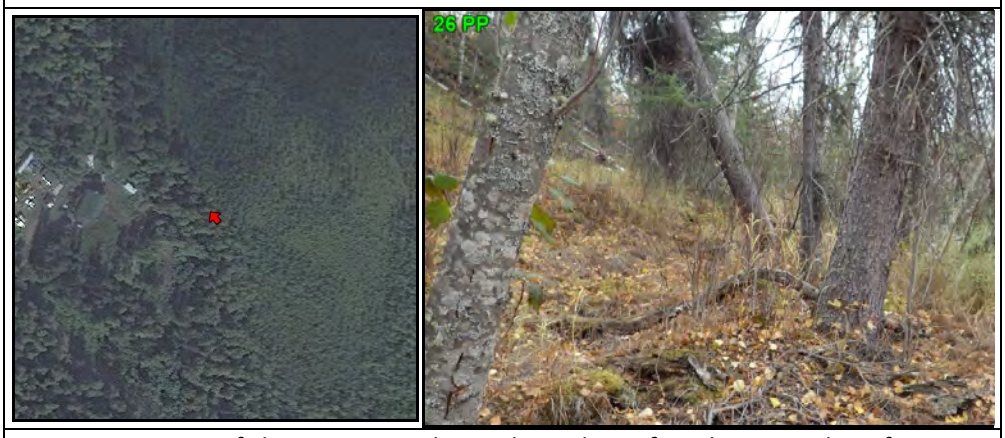
Attributes	
Title	26 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 1:56:24 PM
Latitude	N 61° 34' 03.64"
Longitude	W 149° 23' 23.30"
Elevation	
Photo Direction	231° SW

IMGP2014.JPG

Description: Base of slope near northwest boundary of study area. Edge of upland/wetland boundary, dead and downed trees, distinct change in vegetation at base of slope.

Attributes	
Title	26 PP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 1:56:32 PM
Latitude	N 61° 34' 03.64"
Longitude	W 149° 23' 23.30"
Elevation	
Photo Direction	321° NW

IMGP2015.JPG



Description: Base of slope near northwest boundary of study area. Edge of upland/wetland boundary, dead and downed trees, distinct change in vegetation at base of slope.

Attributes	
Title	27 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 2:41:07 PM
Latitude	N 61° 34' 09.29"
Longitude	W 149° 23' 09.44"
Elevation	
Photo Direction	208° SSW

IMGP2017.JPG

Description: Upland area at edge of wetlands, slight slope at base of RR track embankment, thick duff and upland vegetation, no drainage patterns.

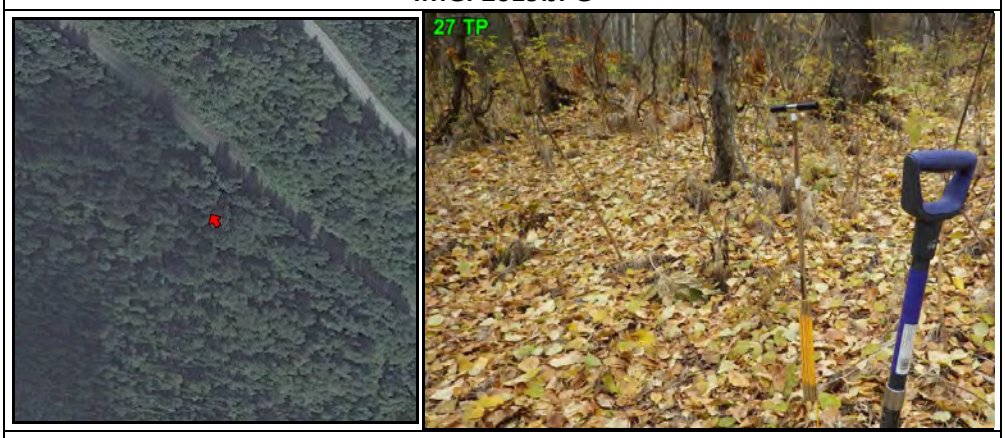
Attributes	
Title	27 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 2:41:11 PM
Latitude	N 61° 34' 09.76"
Longitude	W 149° 23' 08.68"
Elevation	225 ft
Photo Direction	219° SW

IMGP2018.JPG

Description: Upland area at edge of wetlands, slight slope at base of RR track embankment, thick duff and upland vegetation, no drainage patterns.

Attributes	
Title	27 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 2:41:19 PM
Latitude	N 61° 34' 09.70"
Longitude	W 149° 23' 08.74"
Elevation	219 ft
Photo Direction	328° NNW

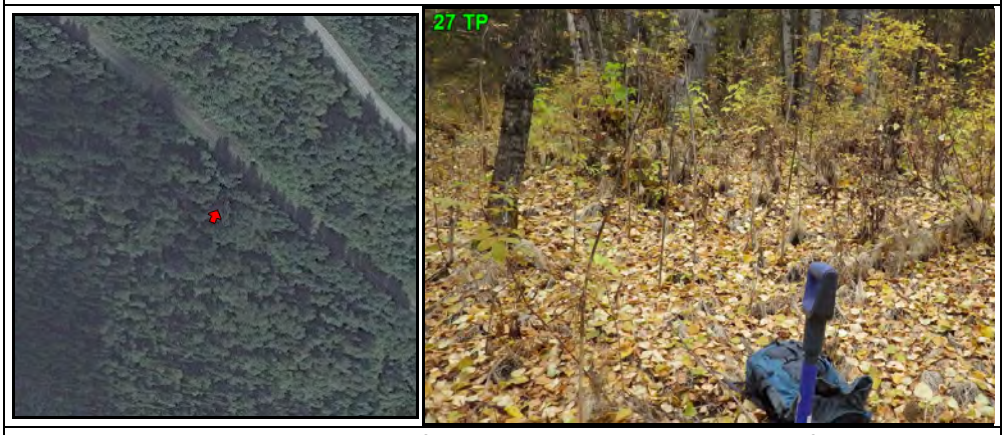
IMGP2019.JPG



Description: Upland area at edge of wetlands, slight slope at base of RR track embankment, thick duff and upland vegetation, no drainage patterns.

Attributes	
Title	27 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 2:41:26 PM
Latitude	N 61° 34' 09.70"
Longitude	W 149° 23' 08.74"
Elevation	219 ft
Photo Direction	23° NNE

IMGP2020.JPG



Description: Upland area at edge of wetlands, slight slope at base of RR track embankment, thick duff and upland vegetation, no drainage patterns.

Attributes	
Title	27 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 2:41:33 PM
Latitude	N 61° 34' 09.70"
Longitude	W 149° 23' 08.74"
Elevation	219 ft
Photo Direction	81° E

IMGP2021.JPG

Description: Upland area at edge of wetlands, slight slope at base of RR track embankment, thick duff and upland vegetation, no drainage patterns.

Attributes	
Title	27 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 2:59:11 PM
Latitude	N 61° 34' 12.33"
Longitude	W 149° 23' 20.02"
Elevation	204 ft
Photo Direction	70° ENE

IMGP2022.JPG

Description: Upland area at edge of wetlands, slight slope at base of RR track embankment, thick duff and upland vegetation, no drainage patterns.

Attributes	
Title	28 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:00:04 PM
Latitude	N 61° 34' 11.75"
Longitude	W 149° 23' 20.87"
Elevation	204 ft
Photo Direction	76° ENE

IMGP2025.JPG

Description: Area flat, bordering wetter area, distinct vegetation change.

Attributes	
Title	28 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:00:14 PM
Latitude	N 61° 34' 11.75"
Longitude	W 149° 23' 20.87"
Elevation	204 ft
Photo Direction	177° S

IMGP2026.JPG

Description: Area flat, bordering wetter area, distinct vegetation change.

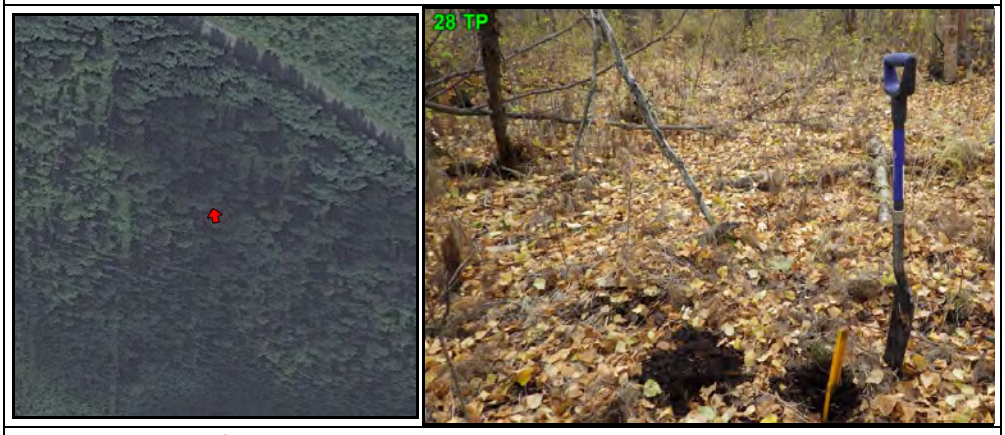
Attributes	
Title	28 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:00:22 PM
Latitude	N 61° 34' 11.75"
Longitude	W 149° 23' 20.87"
Elevation	204 ft
Photo Direction	258° WSW

IMGP2027.JPG

Description: Base of slope near northwest boundary of study area. Edge of upland/wetland boundary, dead and downed trees, distinct change in vegetation at base of slope.

Attributes	
Title	28 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:00:32 PM
Latitude	N 61° 34' 11.75"
Longitude	W 149° 23' 20.87"
Elevation	204 ft
Photo Direction	348° NNW

IMGP2028.JPG



Description: Area flat, bordering wetter area, distinct vegetation change.

Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:09:13 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	191 ft
Photo Direction	279° W

IMGP2030.JPG

Description: Area is flat with more grass and more distinct vegetation changes than previous sample point, saturated with high water table.

Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:09:34 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	191 ft
Photo Direction	289° WNW

IMGP2031.JPG

Description: Area is flat with more grass and more distinct vegetation changes than previous sample point.

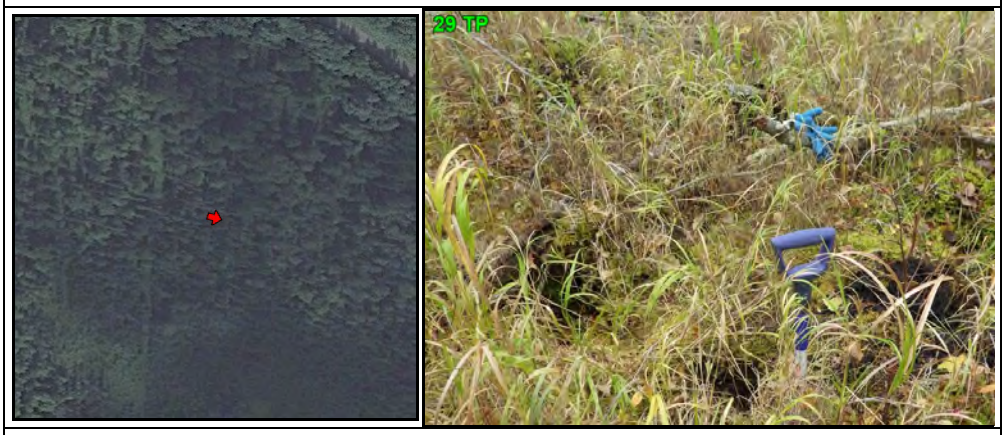
Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:09:49 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	191 ft
Photo Direction	46° NE

IMGP2032.JPG

Description: Area is flat with more grass and more distinct vegetation changes than previous sample point, saturated with high water table.

Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:10:01 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	186 ft
Photo Direction	105° ESE

IMGP2033.JPG



Description: Area is flat with more grass and more distinct vegetation changes than previous sample point, hummocky. Vegetation is stressed, dead birch, lots of downed logs, thick moss.

Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:10:10 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	186 ft
Photo Direction	187° S

IMGP2034.JPG

Description: Area is flat with more grass and more distinct vegetation changes than previous sample point, hummocky. Vegetation is stressed, dead birch, lots of downed logs, thick moss.

Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:11:47 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	
Photo Direction	278° W

IMGP2035.JPG

Description: Area is flat with more grass and more distinct vegetation changes than previous sample point, hummocky. Vegetation is stressed, dead birch, lots of downed logs, thick moss.

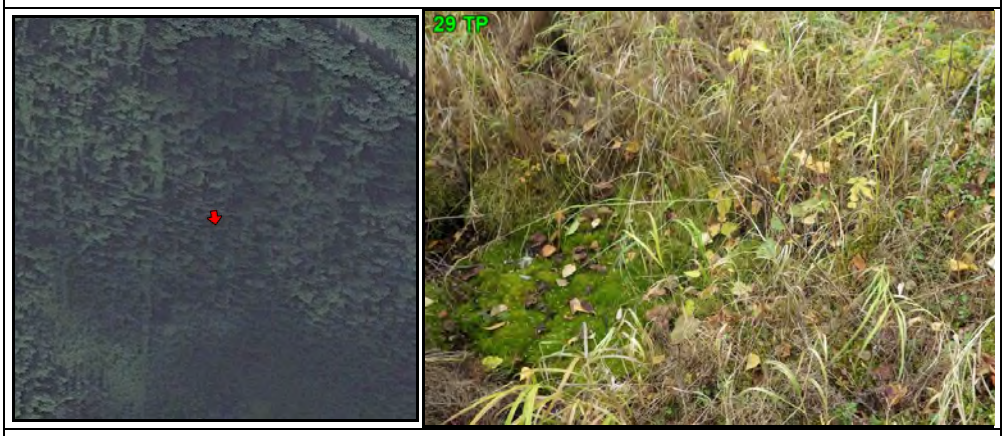
Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:12:05 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	
Photo Direction	128° SE

IMGP2036.JPG

Description: Area is flat with more grass and more distinct vegetation changes than previous sample point, hummocky. Vegetation is stressed, dead birch, lots of downed logs, thick moss.

Attributes	
Title	29 TP
Subject	Forested Wetland (PFO1/4B)
Date Time Stamp	10/3/2014 3:12:14 PM
Latitude	N 61° 34' 10.62"
Longitude	W 149° 23' 22.12"
Elevation	
Photo Direction	171° S

IMGP2037.JPG



Description: Area is flat with more grass and more distinct vegetation changes than previous sample point, hummocky. Vegetation is stressed, dead birch, lots of downed logs, thick moss.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:43:53 PM
Latitude	N 61° 34' 13.08"
Longitude	W 149° 22' 59.04"
Elevation	247 ft
Photo Direction	266° W

IMGP2039.JPG

Description: Upland site, disturbed field/forest, gravel at bottom of test plot from dated fill. Triangle parcel between E Broadview Ave. and Old Matanuska Rd. Vegetation appears to be rebounding from prior disturbance.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:44:16 PM
Latitude	N 61° 34' 13.08"
Longitude	W 149° 22' 59.04"
Elevation	247 ft
Photo Direction	306° NW

IMGP2040.JPG

Description: Upland site, disturbed field/forest.Triangle parcel between E Broadview Ave. and Old Matanuska Rd.Vegetation appears to be rebounding from prior disturbance.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:44:24 PM
Latitude	N 61° 34' 13.08"
Longitude	W 149° 22' 59.04"
Elevation	247 ft
Photo Direction	250° WSW

IMGP2041.JPG

Description: Upland site, disturbed field/forest, gravel at bottom of test plot from dated fill.Triangle parcel between E Broadview Ave. and Old Matanuska Rd.Vegetation appears to be rebounding from prior disturbance.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:44:35 PM
Latitude	N 61° 34' 13.08"
Longitude	W 149° 22' 59.04"
Elevation	247 ft
Photo Direction	100° E

IMGP2042.JPG

Description: Upland site, disturbed field/forest.Triangle parcel between E Broadview Ave. and Old Matanuska Rd.Vegetation appears to be rebounding from prior disturbance.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:45:08 PM
Latitude	N 61° 34' 13.33"
Longitude	W 149° 23' 00.78"
Elevation	302 ft
Photo Direction	29° NNE

IMGP2043.JPG

Description: Upland site, disturbed field/forest.Triangle parcel between E Broadview Ave. and Old Matanuska Rd.Vegetation appears to be rebounding from prior disturbance.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:45:12 PM
Latitude	N 61° 34' 13.33"
Longitude	W 149° 23' 00.78"
Elevation	302 ft
Photo Direction	84° E

IMGP2044.JPG

Description: Upland site, disturbed field/forest.Triangle parcel between E Broadview Ave. and Old Matanuska Rd.Vegetation appears to be rebounding from prior disturbance.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:46:14 PM
Latitude	N 61° 34' 13.09"
Longitude	W 149° 23' 00.68"
Elevation	301 ft
Photo Direction	269° W

IMGP2045.JPG

Description: Upland site, disturbed field/forest.Triangle parcel between E Broadview Ave. and Old Matanuska Rd.Vegetation appears to be rebounding from prior disturbance.

Attributes	
Title	30 TP
Subject	Open Canopy Forested Upland
Date Time Stamp	10/3/2014 3:46:22 PM
Latitude	N 61° 34' 13.09"
Longitude	W 149° 23' 00.68"
Elevation	301 ft
Photo Direction	131° SE

IMGP2046.JPG

Description: Upland site, disturbed field/forest.Triangle parcel between E Broadview Ave. and Old Matanuska Rd.Vegetation appears to be rebounding from prior disturbance.