Elliott Highway Milepost 108 – 120 Reconstruction Project

Project Number 62227

Preliminary Jurisdictional Assessment & Wetland Functional Assessment

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Prepared for:

Alaska Department of
Transportation & Public Facilities
Northern Region
2301 Peger Road
Fairbanks, Alaska 99709

Prepared by:

HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, Alaska 99503

1.0 INTRODUCTION AND PURPOSE

The purpose of this report is to identify and describe wetlands along a 12-mile section of the Elliott Highway (milepost [MP] 108 to 120) and at a proposed material borrow site located near MP 94.5. Wetlands were delineated for an area extending 100 feet from either side (200 feet total corridor width) of the existing highway centerline and along several proposed realignment segments.

The Alaska Department of Transportation and Public Facilities (ADOT&PF), in cooperation with the Federal Highway Administration, seek to make improvements along this 12-mile segment of unpaved highway. The existing Elliott Highway within the project limits is a two-lane gravel facility. Soft sections of the road are impassable at times due to spring run-off or rain events. The project is being developed to improve safety for the traveling public and reduce maintenance costs. Activities associated with the proposed project include raising embankments, improving drainage by replacing damaged or compromised culverts, upgrading substandard curves, and paving a striping the finished surface.

This report describes locations within the project area that are preliminarily determined to be subject to the jurisdiction of the U.S. Army Corps of Engineers (USACOE), under authority of Section 404 of the Clean Water Act or under authority of Section 10 of the Rivers and Harbors Act of 1899. By federal law (Clean Water Act) and associated policy, it is necessary to avoid project impacts to wetlands wherever practicable, minimize impact where impact is not avoidable, and in some cases compensate for the impact. The focus of this document is delineation of wetlands and descriptions of wetland functions; project design, alternatives, and impacts are not discussed in this report. Wetlands and uplands, as referenced in this report, are defined as:

Wetlands. "Those areas that are inundated or saturated by surface or groundwater 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 Part 328.3(b)). Wetlands are a subset of "waters of the U.S." Note that the "wetlands" definition does not include unvegetated areas such as streams and ponds.

As described in the 1987 Wetlands Delineation Manual and in the 2007 Alaska Regional Supplement to the Wetlands Delineation Manual (USACOE 1987, USACOE 2007), wetlands must possess the following three characteristics:

1. *Hydrophytic Vegetation:* Vegetation community dominated by plant species that are typically adapted for life in saturated soils.

2. *Wetland Hydrology:* Inundation or saturation of the soil during the growing season.

3. *Hydric Soils:* Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions.

Uplands. Non-water and non-wetland areas are called uplands.

1.1 Project Location

The Elliott Highway is located in Interior Alaska between the communities of Fox (approximately 10 miles north of Fairbanks) and Manley Hot Springs. The highway consists of mixed paved and unpaved sections along its approximately 150 miles.

The wetland study area is intended to cover all areas that may be affected by proposed improvements to the road between MP 108 and 120. This includes the entire existing ADOT&PF road right-of-way and all locations where new road right-of-way will need to be acquired by the state to construct realignments of the Elliott Highway as identified by project engineers.

The total mapped area encompasses 355 acres. This includes approximately 338 acres within proposed highway improvements between MP 108 and 120 and a 17 acre site near MP 94.5 at a proposed material borrow site. The mapped area is within the following land survey sections:

- Sections 25, 26 and 31-35, Township 05N, Range 10W, Fairbanks Meridian
- Sections 35 and 36, Township 05N, Range 11W, Fairbanks Meridian
- Sections 1-7, Township 04N, Range 11W, Fairbanks Meridian

2.0 METHODS

2.1 Field Survey

HDR wetland scientists conducted the fieldwork for this wetland study between July 24 and 26, 2007. Prior to fieldwork, locations of characteristic plant communities occurring at different landform positions, representative wetland or upland sites (based on aerial photography interpretation), as well as questionable areas were selected using a Geographic Information System (GIS). These selected field sampling locations were uploaded into a handheld global positioning system (GPS) unit. Once in the field, wetland scientists used the waypoints in the GPS unit to navigate to areas needing investigation.

Locations were studied using the USACOE 1987 wetland delineation manual's three-parameter method of determining an area's wetland status and methods described in the Alaska Interim Regional Supplement to the 1987 Wetland Delineation Manual (USACOE 1987, USACOE 2007). Specific data collected included detailed information on soil characteristics, hydrology, and plant community composition. Upon arrival at a waypoint scientists either completed a standard USACOE wetland determination form or took detailed notes. Wherever feasible, wetland/upland boundaries were determined by completing paired data plots. This process involves completing standard wetland determination data forms near observable transition zones between wetter and drier areas. A data form is completed in the wet area to verify its wetland status and then a second plot is completed, usually upslope, in the drier area to verify its status. The wetland/upland boundary between the two data plots is then identified and marked on field maps.

Standard USACOE wetland determination data forms included in the 2006 Alaska Interim Regional Supplement Manual were completed at 20 sites. Additionally, photographs and observational data were collected at an additional 61 locations to document water bodies, culvert crossings, and sites that were similar to those where a data form had already been completed. In total, 81 locations were visited. Each location visited was logged into the GPS unit.

2.2 Mapping and Classification

Upon returning from the field, scientists analyzed field-collected data, color aerial imagery (digital orthorectified image from Aerometric, Inc. taken September 27, 2005), and topographic contours generated from LIDAR in a GIS database. GPS locations of field-visited sites were overlaid on the aerial photography and data forms and photographs completed at each site were reviewed to identify wetlands present within the project area. Findings from sampling sites were then extrapolated to similar locations throughout the project area and wetland/upland and wetland type boundaries were digitized into the GIS database. Delineating wetlands from aerial photography includes using the following methods:

- *Vegetation clues:* On aerial photography, scientists looked for saturation-adapted vegetation communities, open canopy structure, low plant height, and presence of hydrophytic plant species. A common example included stunted spruce trees, which are indicative of a limitation to growth such as excessively wet soils.

- *Evidence of soil saturation:* Visible evidence of wetland hydrology was sought, including surface water and darker areas of photos indicating surface saturation. A site's proximity to streams, open water habitat, and marshes can be indicative of shallow subsurface water.

- *Topography:* Evidence of topographic high points and sloped surfaces that would allow soils to drain was used to support classifying those areas as upland. Topographic depressions, toes of slopes, and flat topography served as indicators of potentially poor soil drainage or a site that collects water.

Field data and aerial photography were used to delineate stream locations. Wetland types were classified based on a review of field notes, data forms, and site photographs. GIS polygons were attributed with National Wetland Inventory mapping codes based on the U.S. Fish and Wildlife Service Classification of Wetlands and Waterbodies (Cowardin et al. 1979).

2.3 Functional Assessment

Wetland functions are defined as the chemical, physical, and biological processes or attributes that contribute to the self-maintenance of a wetland and relate to the ecological significance of wetland properties without regard to subjective human values (American Society for Testing and Materials 1999). Not all wetlands perform all functions, nor do they perform all functions to the same extent. For example, a wetland's geographic location may determine its habitat functions, and the location of a wetland within a watershed may determine it's hydrologic or water quality functions. The principal factors that determine how a wetland performs these functions are climatic conditions, quantity and quality of water entering and leaving the wetland, and disturbances or alteration within the wetland or the surrounding ecosystem (Novitzki et al. 1997).

Wetland scientists identified physical features that contribute to or prevent certain wetland functions from occurring. Examples of such indicators include the wetland's location relative to streams, the wetland's vegetation type, the amount of open water present, and the wetland's topographic position and location in the watershed. For each wetland type, scientists then subjectively considered these indicators and observations in specific wetlands to define what functions project area wetlands may perform.

Wetland data sheets, site photographs, GIS data layers, and other resource study reports for the project were used to identify indicators of wetland function. The following eight functions were evaluated:

- Groundwater Recharge
- Groundwater Discharge
- Stream Flow Moderation
- Shoreline, Stream Bank and Soil Stabilization
- Water Quality Improvement
- Nutrient Cycling and Export
- Wildlife Habitat
- Fish Habitat

3.0 SUMMARY OF WETLAND INDICATORS

Wetlands were identified where field investigators observed indicators of hydrophytic vegetation, wetland hydrology, and hydric soils, and at areas that appear on aerial photographs to be similar to wetlands identified in the field. These areas are subject to the jurisdiction of the USACOE under authority of Section 404 of the Clean Water Act.

The vegetation, hydrology, and soil conditions observed at the 20 sites where determination data forms were completed are summarized below. Wetland determination forms and site photography are included in Appendix A. Detailed field notes and photographs taken at all observation points are available on request.

3.1 Vegetation

Six plant community types were observed in the project area. These types are briefly described below. Table 1 lists plant species identified at each wetland data form location.

Open needleleaf forest
Open needleleaf forest is common throughout the project area, occurring across the low, rolling hills and flatter areas of the eastern part of the project area and along north-facing slopes of the western part of the project area. This forest community is generally dominated by an overstory of black spruce (*Picea mariana* - FACW) with a mixed understory dominated by black crowberry (*Empetrum nigrum* - FAC), Labrador Tea (*Ledum groenlandicum* - FACW), bog blueberry (*Vaccinium uliginosum* - FAC), lingonberry (*Vaccinium vitis-idaea* – FAC), and bluejoint reedgrass (*Calamagrostis canadensis* - FAC). This community type is hydrophytic. Representative photographs of this community type are included with wetland data forms for sites 4, 8, and 12 (Appendix A).

Open broadleaf forest
Open broadleaf forest is common throughout the project area, generally occurring along hilltops, and south-, east-, and west-facing slopes. Mature paper birch trees (*Betula papyrifera* - FACU) dominate the forest overstory, common understory plants include a mix of green alder (*Alnus crispa* - FAC), Bebb willow (*Salix bebbiana* - FAC), white spruce saplings (*Picea glauca* - FACU), Beauverd spirea (*Spiraea beauverdiana* - FAC), Labrador tea (FACW), bog blueberry (FAC), field horsetail (*Equisetum arvense* - FACU), and bluejoint reedgrass (FAC). This community type is not hydrophytic. Representative photographs of open broadleaf forest are included with wetland data forms for sites 2, 7, 16, 19, and 23 (Appendix A).

Open mixed needleleaf/broadleaf forest
This community type has an overstory of white spruce (FACU) and paper birch (FACU). Common understory species include lingonberry (FAC), bog blueberry (FAC), green alder (FAC), and false toadflax (*Geocaulon lividum* – FACU). This community type is not hydrophytic. Representative photographs of open mixed needleleaf/broadleaf forest are included with wetland data forms for sites 17 and 18 (Appendix A).

Stunted needleleaf forest
An open canopy of stunted black spruce (FACW) dominates this community type. Common understory species include bog blueberry (FAC), green alder (FAC), dwarf birch (FAC), Labrador tea (FACW), cloudberry (*Rubus chamaemorus* – FACW), and Bigelow's sedge (*Carex bigelowii* – FAC). In the project area, stunted black spruce forests occur in low, flat areas with saturated soils and across north facing slopes. The small size of spruce trees is a result of suppressed growth in response to the saturated soils (Viereck et al. 1992; Post, 1996). Although not abundant in the project area, stunted black spruce-dominated forests are one of the most common vegetation types found throughout Alaska (Viereck et al. 1992; Post 1996). This community type is hydrophytic. Representative photographs of this community type are included with wetland data forms for sites 1, 26, 33, and 36 (Appendix A).

Closed mixed alder/willow scrub-shrub
A mix of thin-leaf alder (*Alnus tenuiflora* – FAC), felt-leaf willow (*Salix alaxensis* – FAC), little-tree willow (*Salix arbusculoides* – FACW), Bebb's willow (*Salix bebbiana* – FAC), and diamond-leaf willow (*Salix pulchra* – FACW) dominate the dense shrub overstory. Common understory species include meadow horsetail (*Equisetum pratense* – FACW) and bluejoint reedgrass (FAC). This community type is hydrophytic. Representative photographs of closed mixed alder/willow scrub-shrub are included with wetland data forms for sites 20, 28, 30, and 35 (Appendix A).

Wet graminoid meadow
Wet graminoid meadows do not occur in the project area between MP 108-120, however, were observed in the vicinity of the proposed material site located at MP 94.5. This community type had a dense groundcover comprised of tussock cottongrass (*Eriophorum vaginatum* – FACW). Less abundant species include narrow-leaf Labrador tea (*Ledum* decumbens - FACW), bog blueberry (FAC), and dwarf birch (FAC). This community type is hydrophytic. Representative photographs of the wet graminoid meadow community located near MP 94.5 is included with the wetland data form for site 39 (Appendix A).

Table 1. Vegetation at Wetland Data Form Sites

Common Name	*Scientific name*	Indicator status	Site Number																			
			1	2	4	7	8	12	16	17	18	19	20	23	26	28	30	31	33	35	36	39
Siberian yarrow	*Achillea sibirica*	NL													x		x					
Rough bentgrass	*Agrostis scabra*	FAC		x																		
Mountain alder	*Alnus crispa*	FAC	x	x						x	x	x	x						x	x	x	
Sitka alder	*Alnus sinuata*	FAC			x	x			x													
Thinleaf alder	*Alnus tenuifolia*	FAC											x		x	x	x	x				
Yellow thimbleweed	*Anemone richardsonii*	FAC											x			x	x			x		
Wideleaf polargrass	*Arctagrostis latifolia*	FACW		x											x		x		x	x		
Resin birch	*Betula glandulosa*	FAC			x								x		x				x	x	x	
Dwarf birch	*Betula nana*	FAC	x															x	x		x	x
Paper birch	*Betula papyrifera*	FACU		x		x			x	x	x	x		x	x					x		x
Bluejoint reedgrass	*Calamagrostis canadensis*	FAC	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x	x	
Water sedge	*Carex aquatilis*	OBL													x							
Bigelow's sedge	*Carex bigelowii*	FAC	x												x				x		x	
Closedhead sedge	*Carex media*	FACW											x				x					
Sedge species	*Carex species*	n/a																				x
Leatherleaf	*Chamaedaphne calyculata*	FACW	x															x				
Bunchberry	*Cornus canadensis*	FACU				x	x			x			x	x	x		x	x			x	
Tufted hairgrass	*Deschampsia caespitosa*	FAC	x																			
Black crowberry	*Empetrum nigrum*	FAC	x		x		x	x					x		x			x			x	
Fireweed	*Epilobium angustifolium*	FACU		x		x			x			x		x	x	x		x		x		
Field horsetail	*Equisetum arvense*	FACU	x	x													x	x				
Marsh horsetail	*Equisetum palustre*	FACW											x				x					
Meadow horsetail	*Equisetum pratense*	FACW	x										x			x	x					
Dwarf scouringrush	*Equisetum scirpoides*	FACU	x														x					
Woodland horsetail	*Equisetum sylvaticum*	FACU							x	x					x			x			x	
Tussock cottongrass	*Eriophorum vaginatum*	FACW																	x			x
False toadflax	*Geocaulon lividum*	FACU	x		x		x	x		x	x											
Tamarack	*Larix laricina*	FACW													x			x				
Narrow-leaf Labrador tea	*Ledum decumbens*	FACW	x		x										x			x	x		x	x
Labrador tea	*Ledum groenlandicum*	FACW	x	x	x		x	x		x		x		x	x			x			x	
Arctic lupine	*Lupinus arcticus*	NL					x															
Stiff clubmoss	*Lycopodium annotinum*	FAC	x									x							x			
Groundcedar	*Lycopodium complanatum*	UPL					x															
Tree groundpine	*Lycopodium obscurum*	FACU					x															
Tall bluebells	*Mertensia paniculata*	FACU	x	x	x																	
Bluntleaf sandwort	*Moehringia lateriflora*	NI		x													x					
Single delight	*Moneses uniflora*	FAC															x					

Common Name	*Scientific name*	Indicator status	Site Number																		
			1	2	4	7	8	12	16	17	18	19	20	23	26	28	30	31	33	35	36	39
Grass of Parnassus	*Parnassia palustris*	FACW											x		x		x					
Arctic sweet coltsfoot	*Petasites frigidus*	FACW	x	x											x			x	x			
White spruce	*Picea glauca*	FACU				x				x	x	x	x	x			x	x				
Black spruce	*Picea mariana*	FACW	x	x	x		x	x		x	x		x		x			x	x		x	x
Glaucous bluegrass	*Poa glauca*	NL												x								
Alaska wild rhubarb	*Polygonum alaskanum*	FAC	x	x	x	x			x			x		x					x			
Quaking aspen	*Populus tremuloides*	FACU					x															
Black cottonwood	*Populus trichocarpa*	FACU															x					
Shrubby cinquefoil	*Potentilla fruticosa*	FAC											x		x	x	x					
Purple marshlocks	*Potentilla palustris*	OBL											x			x	x			x		
Wintergreen	*Pyrola species*	n/a															x					
Buttercup species	*Ranunculus species*	n/a			x								x							x		
Northern black currant	*Ribes hudsonianum*	FAC		x																		
Red currant	*Ribes triste*	FAC			x																	
Prickly rose	*Rosa acicularis*	FACU			x	x	x		x	x				x	x	x						
Arctic blackberry	*Rubus arcticus*	FAC											x			x	x			x		
Cloudberry	*Rubus chamaemorus*	FACW	x		x										x			x	x		x	x
Red raspberry	*Rubus idaeus*	FAC				x			x													
Arctic dock	*Rumex arcticus*	FACW	x																x	x		
Feltleaf willow	*Salix alaxensis*	FAC											x			x	x					
Littletree willow	*Salix arbusculoides*	FACW			x								x		x	x	x			x		
Bebb's willow	*Salix bebbiana*	FAC		x				x		x		x					x			x		
Grayleaf willow	*Salix glauca*	FAC													x				x		x	
Firmleaf willow	*Salix pseudomyrsinites*	NL															x					
Diamondleaf willow var. *pulchra*	*Salix pulchra*	FACW		x								x	x	x			x	x	x	x		
Willow species	*Salix species*	n/a																				x
Narrowleaf saw-wort	*Saussurea angustifolia*	FAC	x																			
Beauverd spirea	*Spiraea beauverdiana*	FAC	x	x	x	x						x		x	x			x	x	x	x	
Fleshy starwort	*Stellaria crassifolia*	FACW														x				x		
Few-flower meadow rue	*Thalictrum sparsiflorum*	FACU														x	x					
Small cranberry	*Vaccinium oxycoccus*	OBL	x		x										x			x			x	
Bog blueberry	*Vaccinium uliginosum*	FAC	x	x		x	x	x		x	x	x	x	x	x		x	x	x	x	x	x
Lingonberry	*Vaccinium vitis-idaea*	FAC	x		x	x	x	x		x	x	x		x	x			x	x		x	x
Violet species	*Viola species*	n/a											x			x	x					
Prevalence Index			2.7	3.4	2.5	3.4	2.7	2.2	3.2	3.3	2.8	3.4	2.5	3.2	2.5	2.5	2.7	2.7	2.4	2.4	2.8	2.2
50/20 Dominance Test (%)			75	50	100	75	80	100	67	50	40	40	100	67	100	100	75	80	100	100	60	100

3.2 Hydrology

Temperature and precipitation data for the three-month period prior to the field investigation (May to July, 2007) was reviewed to determine the degree to which any recent climatic events (i.e., abnormal wet or dry conditions) may have influenced field hydrology. Climate data for the Fairbanks region was obtained from the Alaska Climate Research Center in Fairbanks (http://climate.gi.alaska.edu/). The average monthly temperatures from the three-month period preceding the field visit were compared to normal average temperatures derived from 1971 to 2000 climate summaries. The total monthly precipitation for May through July 2007 was compared to average totals for those months from the 1971 to 2000 period. These values are shown below (Table 2).

Table 2. 2007 Temperature and Precipitation Compared to 1971-2000 Average

Month	Normal Average Temperature, 1971-2000	2007 Average Temperature	Normal Precipitation, 1971-2000 (in.)	2007 Precipitation (in.)
May	48.8 F	51.0 F	0.60	0.86
June	59.7 F	61.6 F	1.40	1.88
July	62.4 F	64.5 F	1.73	4.60

Air temperatures in 2007 were slightly warmer than the averages recorded between 1971 and 2000. Monthly precipitation for 2007 was higher than averages recorded between 1971 and 2000; May and June were slightly wetter than normal and July was much wetter than normal. These observations indicate that the field investigation took place during an unseasonably wet period, primarily due to high precipitation in July. Observations made in the field generally supported this; small streams and many ephemeral drainages were flowing, depressional areas were often saturated or flooded, and wetland hydrology indicators, where present, were clearly distinguishable.

Wetland hydrology was found at 12 of the 20 sites (Table 3). Commonly observed wetland hydrology indicators included saturated soil, drainage patterns, and positive FAC-neutral test. These indicators are described in Alaska Interim Regional Supplement to the 1987 Wetland Delineation Manual (USACOE 2007).

Table 3. Hydrologic Indicators Observed at Wetland Determination Sites

	Sites with Wetland Hydrology – Total of 12 Sites										
Wetland Hydrology Indicator	**1**	**4**	**7**	**16**	**20**	**26**	**28**	**30**	**33**	**35**	**36**
Surface Water (A1)					x			x		x	
High Water Table (A2)					x					x	
Saturation (A3)	x	x	x		x	x			x	x	
Water Marks (B1)							x	x		x	
Sediment Deposits (B2)					x		x	x		x	
Drift Deposits (B3)							x	x		x	
Mat or Crust of Algae or Marl (B4)								x		x	
Iron Deposits (B5)										x	
Surface Soil Cracks (B6)								x			
Hydrogen Sulfide Odor (C1)					x	x				x	
Water-stained Leaves (B9)					x		x	x		x	
Drainage Patterns (B10)		x			x		x	x		x	
Marl Deposits (B15)								x			
Oxidized Rhizospheres on Living Roots (C3)						x					
Stunted or Stressed Plants (D1)	x					x			x		x
Geomorphic Position (D2)					x		x	x		x	
Shallow Aquitard (D3)					x						
Microtopographic Relief (D4)					x		x	x		x	
FAC-Neutral Test (D5)	x	x	x	x	x	x	x		x	x	x

3.3 Soils

No local soil survey is available for the project area. According to the statewide *Exploratory Soil Survey of Alaska* (1979), the following four soil types may be expected in the project area:

1. *Histic Pergelic Cryaquepts.* This group includes poorly drained soils with shallow permafrost generally found on north-facing slopes, rolling terrain, footslopes, valley bottoms, broad swales, low-lying floodplains, and in depressions. The typical soil profile has a thick, organic surface mat ranging from 8 to 16 inches, underlain by dark colored silt loam. Depth to permafrost is typically less than 20 inches. This soil type is almost always hydric (Rieger et al. 1979).

2. *Aeric Cryaquepts*. This type includes moderately well drained soils found on footslopes, south-facing slopes, and nearly level areas on terraces. The typical soil profile is a thin mat of partially decomposed organic material, underlain by silt loam. This soil type is generally permafrost free in the upper 40 inches but may contain isolated masses of ice-rich frozen material. Depending on site characteristics and landform position, this soil type may be either hydric or non-hydric (Rieger et al. 1979).

3. *Typic Cryofluvents*. This type includes well drained soils found on natural levees, slightly higher than the lower flood plain areas, along existing and former river channels. Many areas with this soil type are occasionally flooded. The typical soil profile is stratified silt loam and fine sand, although some have uniform texture to great depth; thin seams or lenses of organic material may occur throughout. Permafrost is deep or absent. This soil type may have indicators of hydric soil (Rieger et al. 1979).

4. *Typic Cryochrepts*. This type includes well drained soils found on terraces, low hills, and along south-facing slopes. The typical soil profile is a deep gravelly silt loam underlain by weathered bedrock. Permafrost is generally absent, however, if present is found at depths of greater than 40 inches. This soil type is generally not hydric (Rieger et al. 1979).

Field observations appear to be consistent with these soil types. Hydric soil conditions were observed in 9 out of 20 soil pits examined during the field visit (Table 4). Histic Epipedon (A2) was the most commonly seen indicator, occurring at 6 of the 8 sites with hydric soils. Two of the sites displayed characteristics of seasonally flooded alluvial soils. Due to the landform position of these two sites (within seasonally active floodplain positions) and based on other strong indicators of vegetation and hydrology, the soils were determined to be hydric. Specific characteristics of the sampled soils, including depth and texture, are included on the wetland data forms (Appendix A).

Table 4. Hydric Soil Indicators Observed at Wetland Determination Sites

	Sites with Hydric Soils – Total of 9 Sites								
Hydric Soil Indicator	**1**	**4**	**20**	**26**	**28**	**30**	**33**	**35**	**36**
Histic Epipedon (A2)	x	x	x				x	x	x
Hydrogen Sulfide (A4)			x	x				x	
Alaska Redox (A14)				x					
Alaska Gleyed Pores (A15)									
Alaska Redox with 2.5Y Hue									
Alaska Gleyed without Hue 5Y				x					
Seasonally flooded alluvial soils					x	x			

4.0 MAPPING AND CLASSIFICATION RESULTS

The attached maps (Figures 1 through 21) delineate wetland/upland boundaries, the boundaries between wetland types, and other "waters of the U.S." in the project area. The maps also show where wetland determination data forms were completed as well as areas where photos, notes, or both, were taken.

Approximately 8 percent (27.6 acres) of the 355-acre mapped area is wetland (Table 5) which is being treated as jurisdictional under Section 404. The acreage of each wetland type, classified according to the NWI system, is included on Table 4.

In addition to wetlands, the USACOE has Section 404 jurisdiction over project area streams. Streams cover approximately 0.3 acres of the mapped area (Table 5).

The remainder of the project area, approximately 92 percent (327.4 acres) of the mapped area, lacks one or more of the required three parameters to support classifying an area as wetland (Table 5). These areas would not be subject to jurisdiction under Section 404.

Table 5. Wetland and Upland Area Summary

Mapping Code	Description	Approximate area (acres)
PEM1C	Seasonally flooded persistent emergent wetland	1.9
PEM1F	Semi-permanently flooded persistent emergent wetland	1.7
PSS1/3/4B	Saturated needle-leaved/broad-leaved evergreen / broad-leaved deciduous scrub-shrub wetland	4.4
PSS1/3B	Saturated broad-leaved deciduous/evergreen deciduous scrub-shrub wetland	0.1
PSS1A	Temporarily flooded broad-leaved deciduous scrub-shrub wetland	1.1
PSS1C	Seasonally flooded broad-leaved deciduous scrub-shrub wetland	1.4
PSS1/4B	Saturated broad-leaved deciduous/needle-leaved evergreen scrub-shrub wetland	8.7
PSS1/4C	Seasonally flooded broad-leaved deciduous/needle-leaved evergreen scrub-shrub wetland	0.1
PSS1/EM1B	Saturated broad-leaved deciduous scrub-shrub/persistent emergent wetland	0.1
PSS1/EM1C	Seasonally flooded broad-leaved deciduous scrub-shrub/persistent emergent wetland	6.2
PSS1/EM1F	Semi-permanently flooded broad-leaved deciduous scrub-shrub/persistent emergent wetland	0.6
PSS3/4B	Saturated broad-leaved/needle-leaved evergreen scrub-shrub wetland	0.2
PSS4B	Saturated needle-leaved evergreen scrub-shrub wetland	0.6
PFO4B	Saturated needle-leaved evergreen forested wetland	0.2
R3UBH	Permanently flooded unconsolidated bottom upper perennial riverine wetland	0.3
	Total Regulated Waters	**27.6**
U	Upland (non-wetland)	327.4
	Total Mapped Area	**355.0**

5.0 SUMMARY OF WETLAND FUNCTIONS

Vegetation type, hydrological input and output, wildlife information, and topographic setting were used to assess wetland functions of mapped wetlands. To discuss and assess wetland functions potentially impacted by the project, the estimated functional capacity for each mapped wetland type was divided into three capacity categories: low (L), moderate (M), and high (H). A comparison of wetland types and their average capacity to perform the evaluated functions are included on Table 6.

In the project area, the location of the existing roadbed has the opportunity to modify some nearby wetlands ability of perform different functions. Indicators such as, but not limited to, outlet restriction, wetland juxtaposition, water level fluctuation (resulting from impounded water), and wetland land use all may be influenced by the existing road.

Table 6. Wetland Functions in the Project Area

Mapped Wetland Type	Wetland Functions							
	Hydrology				Water Quality	Ecology		
	Ground Water Recharge	Ground Water Discharge	Stream Flow Moderation	Shoreline, Streambank, & Soil Stabilization	Water Quality Improvement	Nutrient Cycling & Export	Wildlife Habitat	Fish Habitat
PEM1C	H	L	H	L	M	M	M	L
PEM1F	H	L	H	L	M	M	H	M
PSS1/3/4B	L	L	M	M	M	M	M	L
PSS1/3B	L	M	M	M	M	M	M	L
PSS1A	L	M	H	H	M	H	H	L
PSS1C	L	M	H	H	M	H	H	M
PSS1/4B	L	L	L	M	M	M	L	L
PSS1/4C	L	L	L	M	M	M	M	L
PSS1/EM1B	M	M	M	L	M	H	H	L
PSS1/EM1C	M	M	M	L	M	H	H	L
PSS1/EM1F	M	M	M	L	M	H	H	M
PSS3/4B	L	L	L	M	M	L	L	L
PSS4B	L	L	L	M	M	L	L	L
PFO4B	L	L	L	M	M	L	L	L

5.1 Groundwater Interchange

Wetlands are often located near groundwater recharge or discharge areas (Adamus Resource Assessment 1987). Groundwater recharge is the infiltration of groundwater from a wetland into the underlying aquifer. Groundwater discharge is the net upward vertical movement of water from an aquifer to the surface (Mitsch and Gosselink 1993). In general, seasonally flooded wetlands, wetlands with vegetation tolerant of low nutrient status, wetlands with permeable soils, wetlands higher in a watershed, and wetlands with inlets but no outlets are more likely to recharge aquifers. Wetlands typically recharge less to groundwater and base flows than do most undeveloped upland areas (National Wetland Technical Council (NWTC) 1978). Wetlands near toes of slopes that are perennially wet, with vegetation known to thrive in nutrient-rich areas, and with an outlet but no inlet are often groundwater discharge sites, as are sites where springs and seeps are observed directly.

Many Interior Alaska wetlands underlain by permafrost are ombrotrophic, meaning the water that wets them is derived primarily from precipitation, generally not from inflowing surface water or groundwater. Ombrotrophic wetlands generally do not perform the groundwater discharge function (Post, 1996). In regions of widespread discontinuous permafrost, wetlands over permafrost, only suprapermafrost groundwater is recharged. Where permafrost is absent, ombrotrophic wetlands recharge either shallow, perched water tables or deeper regional aquifers. In either case, vertical flow is small (Post, 1996).

The section of Elliott Highway in the project area is situated along hilltops, ridges, and footslopes, therefore mapped wetlands included in this assessment are generally located at the upper extent of their watersheds. Upper watershed wetlands typically recharge groundwater at a greater capacity than they would discharge it. Wetlands located lower in the watershed (i.e. those located outside of the project area) and those located along toeslopes likely perform discharge functions at a greater capacity. Within the project area, emergent type wetlands generally occur across flatter slopes, resulting in slower runoff and more opportunity to recharge groundwater, whereas scrub-shrub and forested wetlands are generally found along moderate to steep slopes where runoff is greater and the capacity to recharge groundwater is lower (Table 6).

5.2 Stream Flow Moderation

By holding water within its soils or on its surface, a wetland may delay the release of water downslope and downstream during and after rain storms. This delayed release may reduce the magnitude of peak stream flows and associated flood stages and reduce bank erosion and channel bed scour. Slow release of water from wetlands may sustain stream flows during dry seasons and may help provide a continuous source of outflow for exported freshwater and organic matter into downslope waters (Adamus Resource Assessment, Inc. 1987). Wetlands with a surface outlet and wetlands along streams are presumed to moderate surface flows to varying degrees. Wetlands without continually saturated soils are presumed to perform this function more effectively as their capacity to store water during storm events is higher. Additionally, wetlands with dense vegetation and those situated across flatter slopes can slow water more than other wetland types (Sather et al. 1984, Thompson 1998).

It is possible for an individual wetland to be singularly effective in flood control, but more often moderation of stream flow is the result of the interrelated functioning of a series of wetlands and water bodies within a watershed (NWTC 1978). Floodplain wetlands along project area streams often serve as temporary storage areas for overbank flows. The temporary storage of surface water, combined with the retardation of floodwater velocities by floodplain vegetation, serves to reduce flood peaks and increase duration of flow (Novitzki 1978). Many project area wetlands may perform the flow regulation function simply by providing subsurface water storage.

In the project area, emergent wetlands located on flatter slopes and broadleaved scrub-shrub wetlands situated alongside streams likely perform this function at a higher capacity than do other wetland types (Table 6).

5.3 Shoreline, Stream Bank, and Soil Stabilization

Wetland vegetation can stabilize stream banks, pond and lake fringes against erosion in various ways. Vegetation can bind and stabilize substrates, it can dissipate wave and current action, and it can trap sediments during periods of inundation. The effectiveness of shoreline vegetation in controlling erosion depends on the plant types present, the width of the vegetated bank, the efficiency of the vegetation in trapping sediments, the soil composition of the bank or shore, the height and slope of the bank or shore, and the elevation of the toe of the bank relative to mean high water (Sather et al. 1984). In some streams, erosion and collapse of stream banks can reduce the availability of cover, degrade water quality, and reduce the suitability of coarse sediment important for salmon spawning, at least temporarily (Adamus Resource Assessment 1987). The vegetation in wetlands also stabilizes the wetland soils against erosion by water that may pass through the wetland by sheetflow and shallow flow through the soils. Where plant cover exists along shorelines, the principal factors determining the degree of shoreline protection are the ability of the plants to survive prolonged flooding and their resistance to underminings (NWTC 1978).

Interior Alaska wetlands perform the erosion-control function by insulating permafrost soils so that the bulk of the soil profile is immobilized in a frozen state, and by mantling erodible mineral soils with a layer of peat resistant to erosion, whether frozen or thawed. Non-permafrost soils can also protect against erosive forces on mineral soils if covered by a thick organic mat (Post, 1996).

In the project area, broadleaved scrub-shrub wetlands adjacent to drainages likely stabilize streambanks and needleleaved scrub-shrub and forested wetlands situated on steep north facing

slopes are likely effective in stabilizing soils and preventing hillside erosion (Table 6). Since project area emergent wetlands are generally located within flat, low-lying areas and are within the upper extents of their watersheds, they would have a low capacity to perform this function.

5.4 Water Quality Improvement

The slow movement of sediment-laden water through wetland vegetation and across uneven ground surfaces results in retention of the sediments. This process can provide water quality functions to downstream aquatic systems. Project area wetlands may receive pollutants such as sand, metals, and petroleum products in runoff from the highway and immobilize them in their soils. Wetlands may perform contaminant removal functions by receiving and storing other toxins and immobilizing them by accumulation in organic soil layers. Where nutrient concentrations are high in aquatic systems, the nutrient uptake function can remove a pollutant from the system. While retention of pollutants may degrade the wetland itself, that retention would protect the quality of downstream waterways for organisms such as salmon. Most of the surrounding areas along the Elliott Highway have few chemical pollutants because of limited development and access.

Wetlands with flatter gradients have a higher potential for sediment retention than ones with steep gradients because flows are slower and retention time is longer (Magee and Hollands 1998). Possible indicators of the sediment-retention function in project area wetlands include features that slow water movement, such as permeable moss surfaces, *Sphagnum* moss hummocks, tussocks, low inundated areas, and visible sediment deposits on the soil surface (Post, 1996).

Road runoff and eroded sediments from the unpaved portions of the Elliott Highway may heighten the importance of water quality functions performed by wetlands directly adjacent to the road. Region-wide, wetlands situated throughout undeveloped areas where access is limited, this function likely has a lesser importance due to the lack of human-induced pollutants and contaminants.

5.5 Nutrient Cycling and Food Chain Support

Wetlands may retain nutrients from water entering a site, incorporating them into plant tissue and sometimes into the peat soil. Nutrients can enter wetlands in one form and leave in another. Wetland productivity depends heavily on inputs of organic matter and nutrients; wetland systems in turn export organic matter and nutrients to downstream aquatic systems (NWTC 1978). Most wetlands seem to act as nutrient traps, at least during the growing season. Black spruce wetlands perform this function due to their large moss component (Post, 1996). *Sphagnum* and feather moss groundcover both provide excellent nutrient uptake capabilities.

Wetlands have varying levels of primary productivity; that is, capture of the sun's energy and conversion to plant material. This plant material may be consumed directly by vertebrates and invertebrates or chemically and physically altered through decomposition before use by other consumers. Decomposition and the rate at which nutrients are transformed to forms usable by plants influence plant productivity and, ultimately, food chain dynamics. The rate of decomposition and the degree to which nutrients and organic carbon are transported out of the wetland affect the wetland's role in the aquatic food chain.

Wetlands with surface flow outlets, wetlands that flood, and wetlands used by highly mobile fish and wildlife species have mechanisms for exporting organic matter and nutrients. Wetlands with a

high proportion of palatable plant species are presumed to support food webs to a higher degree. Wetland systems that have lower levels of nutrients, lower pH, peat soils, and evergreen vegetation are presumed to have lower plant productivity that is less able to support food webs.

Food chain value depends not only on the amount and type of organic material produced by wetland plants, but also on the availability of this plant material to detrital and herbivore-based food webs. Needleleaved scrub-shrub and forested wetlands cycle nutrients but at a much lower rate compared to other wetland and upland habitats, mostly because decomposition of organic matter is limited (Post, 1996).

5.6 Fish and Wildlife Habitat

Fish and wildlife species are likely dependent on wetland habitat factors such as the availability of cover, freedom from disturbance, availability of food, availability of specialized habitat features, water regime (especially fluctuations in water level), and interspersion of different vegetation forms and water. The fish and wildlife habitat function considers the effectiveness of the wetland in providing habitat for various types of resident and migratory species typically associated with wetlands and the wetland edge (USACOE 1995).

Wetland habitat values are not constant over time. Habitat conditions change daily, with the seasons, over periods of several years, and with long-term succession (NWTC 1978). The level of interspersion of different vegetation types in a wetland can influence the quality of wildlife habitat. When vegetation types are highly interspersed, more edge between communities exists. Edge communities are important to many wildlife species, and generally the more edge within a wetland, the greater diversity of wildlife (Thompson 1998). Interspersion of vegetation types indicates a more diverse canopy structure, and typically the greater structure in canopy results in a greater diversity of wildlife. Similar to the level of interspersion among vegetation, interspersion of open water habitat and vegetation communities can directly influence the quality of wildlife habitat. Typically, the greater interspersion of open water and plant communities, the greater the diversity of wildlife.

Nearly all of the bird species that may use ponds along the highway are migratory and present only from April to November. Open water often provides habitat for waterfowl, possible habitat for fish, and habitat for wetland-dependent mammals (beaver, otter, and muskrat) and amphibians. Streams and their adjacent riparian communities can support a variety of wildlife. Many different food sources including fish, aquatic insects, and plants are available within the streams themselves. Stream banks often provide protected sites for dens and nests, easy access to drinking water, and are often used as travel corridors by larger mammals (Thompson 1998).

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

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- Data Form (Upland)
- Photo Point (Wetland)
- Photo Point (Upland)
- Photo Point (Wetland/Upland Boundary)
- Mapping Limits
- Wetland, Upland, or Wetland Type Boundary

Mapping Classification (NWI Types)

Emergent Wetlands
PEM1C, PEM1F

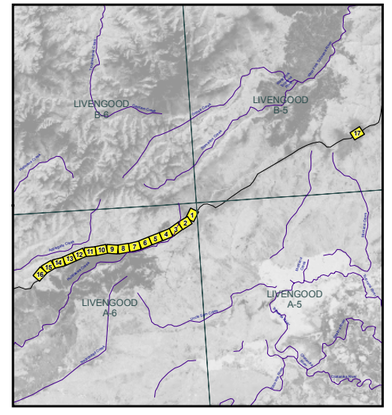
Scrub-Shrub Wetlands
PSS1/3B, PSS1/4B, PSS1/4C, PSS3/4B, PSS1A, PSS1C, PSS4B, PSS1/EM1B, PSS1/EM1C, PSS1/EM1F, PSS1/3/EM1B

Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 1 of 17



MAP NOTES:
1. Wetland mapping produced by HDR Alaska, Inc.
2. Wetland mapping based on July 2007 field survey and aerial photograph interpretation.

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Datum: NAD 83
Sources: HDR Alaska, AKDOT&PF
Imagery: Aerometric 2006

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

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Forested Wetlands
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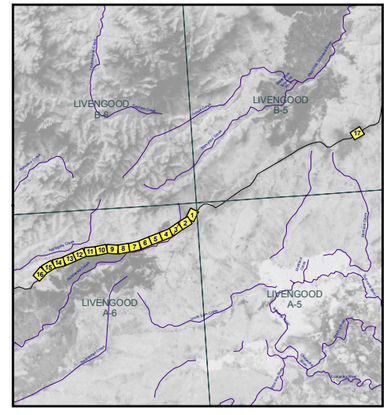
Streams
R3UBH

Upland
U

Figure 2 of 17



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MILEPOST 109

PSS3/4B
PSS1/4B
PSS1/4B
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PSS1/EM1C
PSS1/3/4B
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34

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

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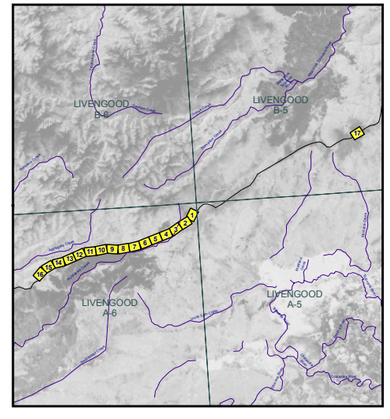
Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 3 of 17



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Wetland Mapping

Elliott Highway
Milepost 108 to 120

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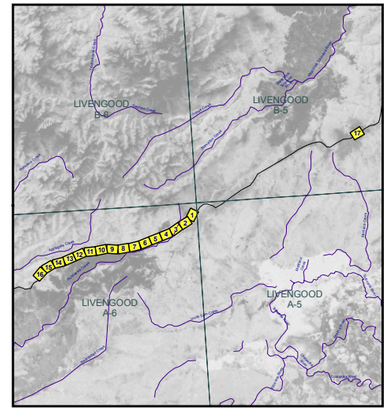
Streams
R3UBH

Upland
U

Figure 4 of 17



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Wetland Mapping

Elliott Highway
Milepost 108 to 120

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Forested Wetlands
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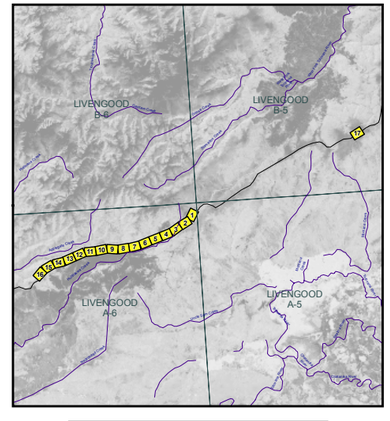
Streams
R3UBH

Upland
U

Figure 5 of 17



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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

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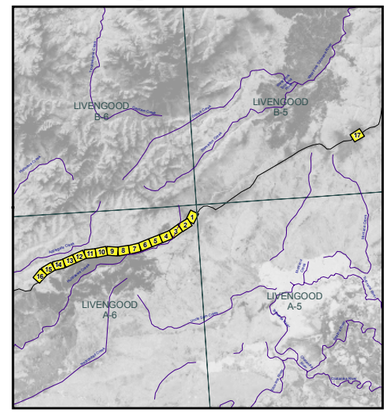
Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 6 of 17



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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

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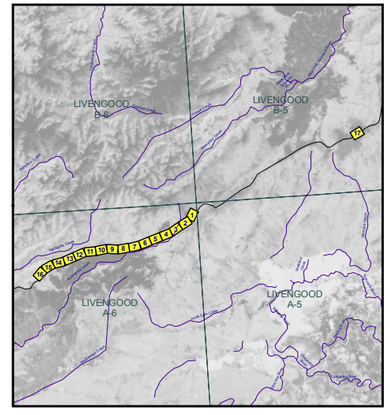
Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 7 of 17



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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

- Data Form (Wetland)
- Data Form (Upland)
- Photo Point (Wetland)
- Photo Point (Upland)
- Photo Point (Wetland/Upland Boundary)
- Mapping Limits
- Wetland, Upland, or Wetland Type Boundary

Mapping Classification (NWI Types)

Emergent Wetlands
PEM1C, PEM1F

Scrub-Shrub Wetlands
PSS1/3B, PSS1/4B, PSS1/4C, PSS3/4B, PSS1A, PSS1C, PSS4B, PSS1/EM1B, PSS1/EM1C, PSS1/EM1F, PSS1/3/EM1B

Forested Wetlands
PFO4B

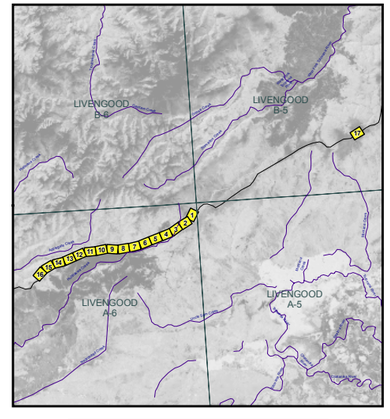
Streams
R3UBH

Upland
U

MILEPOST 113

0 125 250 375 500 Feet

Figure 8 of 17



MAP NOTES:
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Printing Date: May 2008
Projection: Alaska State Plane Zone 4
Datum: NAD 83
Sources: HDR Alaska, AKDOT&PF
Imagery: Aerometric 2006

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

- Data Form (Wetland)
- Data Form (Upland)
- Photo Point (Wetland)
- Photo Point (Upland)
- Photo Point (Wetland/Upland Boundary)
- Mapping Limits
- Wetland, Upland, or Wetland Type Boundary

Mapping Classification (NWI Types)

Emergent Wetlands
PEM1C, PEM1F

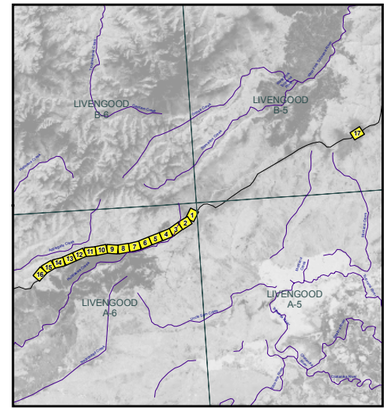
Scrub-Shrub Wetlands
PSS1/3B, PSS1/4B, PSS1/4C, PSS3/4B, PSS1A, PSS1C, PSS4B, PSS1/EM1B, PSS1/EM1C, PSS1/EM1F, PSS1/3/EM1B

Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 9 of 17



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Datum: NAD 83
Sources: HDR Alaska, AKDOT&PF
Imagery: Aerometric 2006

PSS1/EM1C
PEM1C
PSS1/EM1C
22
21
PSS1/EM1C
U
PSS1/EM1C
20
19
23
25
24
U
MILEPOST
114
0 125 250 375 500
Feet

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

- Data Form (Wetland)
- Data Form (Upland)
- Photo Point (Wetland)
- Photo Point (Upland)
- Photo Point (Wetland/Upland Boundary)
- Mapping Limits
- Wetland, Upland, or Wetland Type Boundary

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PEM1C, PEM1F

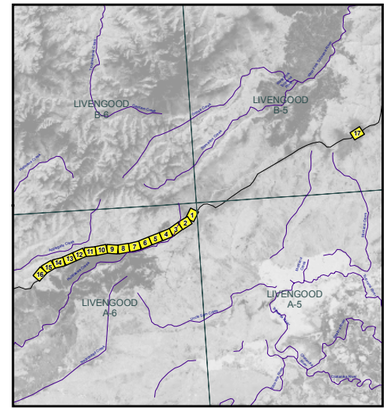
Scrub-Shrub Wetlands
PSS1/3B, PSS1/4B, PSS1/4C, PSS3/4B, PSS1A, PSS1C, PSS4B, PSS1/EM1B, PSS1/EM1C, PSS1/EM1F, PSS1/3/EM1B

Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 10 of 17



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Printing Date: May 2008
Projection: Alaska State Plane Zone 4
Datum: NAD 83
Sources: HDR Alaska, AKDOT&PF
Imagery: Aerometric 2006

MILEPOST 115

16 14 15 U 17 18

0 125 250 375 500 Feet

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

MILEPOST
116

11
12
13
U

0 125 250 375 500
Feet

LEGEND

2007 Field Points

- Data Form (Wetland)
- Data Form (Upland)
- Photo Point (Wetland)
- Photo Point (Upland)
- Photo Point (Wetland/Upland Boundary)
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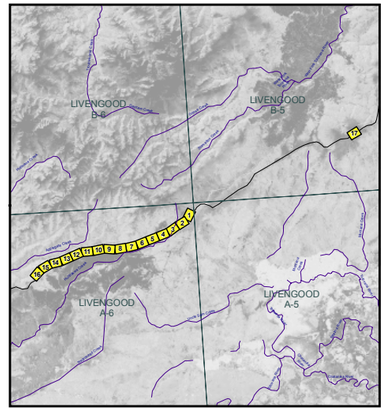
Scrub-Shrub Wetlands
PSS1/3B, PSS1/4B, PSS1/4C, PSS3/4B, PSS1A, PSS1C, PSS4B, PSS1/EM1B, PSS1/EM1C, PSS1/EM1F, PSS1/3/EM1B

Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 11 of 17



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Sources: HDR Alaska, AKDOT&PF
Imagery: Aerometric 2006

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

- Data Form (Wetland)
- Data Form (Upland)
- Photo Point (Wetland)
- Photo Point (Upland)
- Photo Point (Wetland/Upland Boundary)
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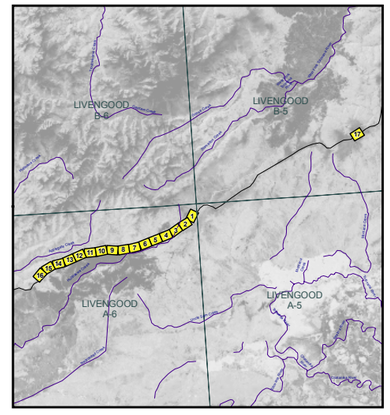
Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 12 of 17



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Sources: HDR Alaska, AKDOT&PF
Imagery: Aerometric 2006

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

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- Data Form (Upland)
- Photo Point (Wetland)
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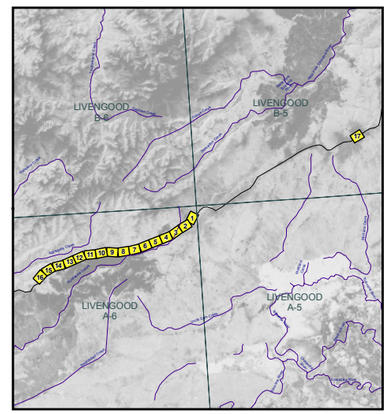
Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 13 of 17



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Imagery: Aerometric 2006

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

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- Data Form (Upland)
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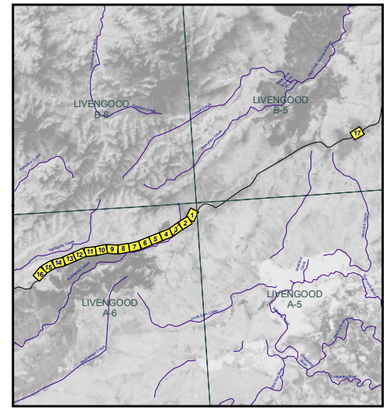
Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 14 of 17



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Imagery: Aerometric 2006

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

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- Data Form (Upland)
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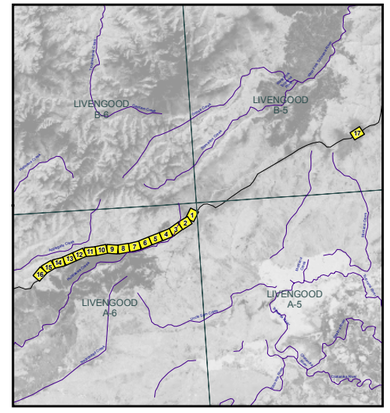
Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 15 of 17



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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

- Data Form (Wetland)
- Data Form (Upland)
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Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

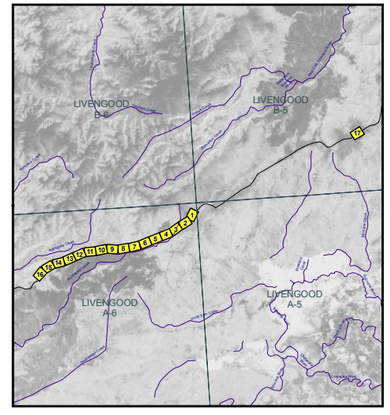
MILEPOST 120

PSS1/4B

PSS4B

0 125 250 375 500 Feet

Figure 16 of 17



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Imagery: Aerometric 2006

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Wetland Mapping

Elliott Highway
Milepost 108 to 120

LEGEND

2007 Field Points

- Data Form (Wetland)
- Data Form (Upland)
- Photo Point (Wetland)
- Photo Point (Upland)
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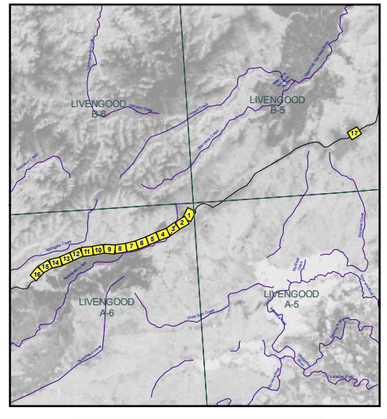
PSS1/3B, PSS1/4B, PSS1/4C, PSS3/4B, PSS1A, PSS1C, PSS4B, PSS1/EM1B, PSS1/EM1C, PSS1/EM1F, PSS1/3/EM1B

Forested Wetlands
PFO4B

Streams
R3UBH

Upland
U

Figure 17 of 17



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Sources: HDR Alaska, AKDOT&PF
Imagery: Aerometric 2006

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Appendix A

Proposed Realignment – MP 108-120
Elliott Highway, Alaska

Preliminary Jurisdictional Determination

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: ~~FNSB~~ unorganized borough Date: 7-24-07
Applicant/Owner: ADOT&PF Plot: 1
Investigator(s): Anna Kohl, Jeff Schively Target:
Lat. 65.19444 Long. -149.86604 Datum: WGS84 Recorded on GPS #:
Landform: hillslope Feature: Slope (%): 39% Aspect: 350°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: ~~PSS4B~~ ~~PEM4B~~ PSS1/4B
Photo nos./descriptions: 6, 7 - soil 8, 9 - veg. Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N), Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N), Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

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:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic. mar.	35	✓	FACW	5.			
2.				6.			
3.				7.			
4.				8.			

Avg. 12'

Total Cover: 35
50% of total cover: 17.5 20% of total cover: 7

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Aln. cri.	10	✓	FAC	7. Rub. cha.	T		
2. Vac. vit.	4		FAC	8. Spi. bea.	3		~~FAC~~
3. Vac. uli.	20	✓	FAC	9. Led. gro.	T		
4. Led. dec.	5		FACW	10. Vac. oxy	T		
5. Bet. nan.	4		FAC	11. Emp. ni.	T		
6. Cha. cal.	T		FACW	12.			

Total Cover: 46
50% of total cover: 23 20% of total cover: 9.2

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Sau. ang.	T			12. Equ. pra.	T		
2. Cal. can.	4		FAC	13. Des. cae	T		
3. Lyc. ann.	3		FAC	14.			
4. Car. big	4		FAC	15.			
5. Equ. arv.	12	✓	FACW	16.			
6. Pot. Fri.	T			17.			
7. Rum. arc.	T			18.			
8. Mer. pan.	T			19.			
9. Geo. lin.	T			20.			
10. Pol. ala.	T			21.			
11. Equ. sci.	T			22.			

Total Cover: 23
50% of total cover: 11.5 20% of total cover: 4.6
Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) 40 Total Cover of Bryophytes 85
Sphagnum

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 13 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	X1=	0
FACW species	40	X2=	80
FAC species	49	X3=	147
FACU species	12	X4=	48
UPL species	0	X5=	0
Column Totals:	101	(A)	275 (B)

Prevalence Index = B/A = 2.72
<3.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
✓ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hyrophytic Vegetation Present? Yes ✓ No

Remarks: T = <3%

SOIL

Sampling Point: 1

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
13-1	Oi									
1-0	Oe									
0-8	C	2.5Y 3/1	10					Gravel	Neg.	660, 530

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- Y Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)	Drainage Class:	Hydric Soil Present?
Type: N/A	SWPD	Yes X No ____
Depth (inches) N/A		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- Y Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ____ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

- N Water Stained Leaves (B9)
- N Drainage Patterns (B10) ____
- N Oxidized Rhizospheres on Living Roots (C3)
- N Presence of Reduced Iron (C4)
- N Salt Deposits (C5)
- Y Stunted or Stressed Plants (D1) – Pic mar.
- N Geomorphic Position (D2)
- N Shallow Aquitard (D3)
- N Microtopographic Relief (D4)
- Y FAC Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (Includes capillary fringe) Yes X No ____ Depth (inches) 5"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland Data Form Site 1 July 24, 2007 Photograph 1- Soil

Wetland Data Form Site 1 July 24, 2007 Photograph 2- Soil

Wetland Data Form Site 1 July 24, 2007 Photograph 3- Vegetation

Wetland Data Form Site 1 July 24, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: FNSB? unorganized borough Date: 7-24-07
Applicant/Owner: DOT Plot: 2
Investigator(s): Jeff Schively, Hannah Kohl Target:
Lat. 65.19420 Long. -149.86644 Datum: WGS 84 Recorded on GPS #:
Landform: slope (hill) Feature: Slope (%): 42 Aspect: 355°
Shape across slope: linear / convex (concave) Shape up/downslope: linear / (convex) / concave NWI classification: U
Photo nos./descriptions: 10,11 = soil 12,13 = veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (If no, explain in Remarks)
Are Vegetation Y / (N), Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y (N), Soil Y (N), or Hydrology Y (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes	No ✓	Is the sampled Area within a Wetland?	Yes No ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet. pap	35	✓	FACW	5.			
2. Pic mari	5		FACW	6.			
3.				7.			
4.				8.			

Total Cover: 40
50% of total cover: 20 20% of total cover: 8

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Aln. eri	50	✓	FAC	7. Sal. beb	7		
2. Salix pul.	T			8.			
3. Spiraea 'Bra	T			9.			
4. Vac. uli	4		FAC	10.			
5. Rib hud	4		FAC	11.			
6. Led. gro	T			12.			

Total Cover: 65
50% of total cover: 32.5 20% of total cover: 13

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Arc. lat	4		FACW	12.			
2. Equ arv	15	✓	FAC	13.			
3. Mer pan	4		FACW	14.			
4. Pol bis	5	✓	FAC	15.			
5. Epi ang	T			16.			
6. Pet fri	T			17.			
7. Mon lat	T			18.			
8. Cal can	3		FAC	19.			
9. Agr sca	T			20.			
10.				21.			
11.				22.			

Total Cover: 31
50% of total cover: 15.5 20% of total cover: 6.2
Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) 0 Total Cover of Bryophytes 7

Remarks:

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	0	X1=	0
FACW species	9	X2=	18
FAC species	65	X3=	195
FACU species	54	X4=	216
UPL species		X5=	
Column Totals:	128	(A)	429 (B)

Prevalence Index = B/A = 3.35

128 / 3 / 384 >384

Hydrophytic Vegetation Indicators:

N Dominance Test is>50%
N Prevalence Index is ≤3.0
N Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
N Problematic Hydrophytic Vegetation[1] (Explain)

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

Hyrophytic Vegetation Present? Yes No ✓

pendent stem

SOIL

Sampling Point: 2

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
0-6	B1	2.5Y 3/2	100					VFSL		
6-12	B2	10YR 4/2	80					SiL		G20
12-20+	C	2.5Y 3/1	30							G30 S40

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- n Histosol of Histel (A1)
- n Histic Epipedon (A2)
- n Hydrogen Sulfide (A4) ____" from top
- n Thick Dark Surface (A12)
- n Alaska Gleyed (A13)
- n Alaska Redox (A14)
- n Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- n Alaska Color Change (TA4)
- n Alaska Alpine Swales (TA5)
- n Alaska Redox with 2.5Y Hue
- n 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: WD

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- n Surface Water (A1)
- n High Water Table (A2)
- n Saturation (A3)
- n Water Marks (B1)
- n Sediment Deposits (B2)
- n Drift Deposits (B3)
- n Algal Mat or Crust (B4)
- n Iron Deposits (B5)
- n Surface Soil Cracks (B6)
- n Inundation Visible on Aerial Image (B7)
- n Marl Deposits (B15)
- n Hydrogen Sulfide Odor (C1) ____" from top
- n Dry-Season Water Table (C2)
- ___ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches) ____

Water Table Present? Yes ____ No ✓ Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches) ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Wetland Data Form Site 2 July 24, 2007 Photograph 1- Soil

Wetland Data Form Site 2 July 24, 2007 Photograph 2- Soil

Wetland Data Form Site 2 July 24, 2007 Photograph 3- Vegetation

Wetland Data Form Site 2 July 24, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-24-07
Applicant/Owner: DOT&PF Plot: 4
Investigator(s): Anna Kohl Jeff Schively Target: FT42
Lat. 65.19535 Long. -149.85545 Datum: WGS84 Recorded on GPS #:
Landform: Hillslope Feature: Slope (%): 26 Aspect: 300°
Shape across slope: linear / convex / (concave) Shape up/downslope: linear / convex / (concave) NWI classification: PF04B
Photo nos./descriptions: 27, 28 – Soil 29, 30 – Veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks) F

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:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic. mar.	40	✓	FACW	5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover: 40
50% of total cover: 20 20% of total cover: 8

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Spi. bea.	5		FAC	7. Led. Dec.	T		
2. Led. gro.	3		FACW	8. Sal. arb.	T		
3. Vac. vit.	10	✓	FAC	9. Aln. sin.	3		FAC
4. Vac. uli.	10	✓	FAC	10. Bet. gla.	T		
5. Rib. tri.	3		FACW	11. Emp. nig.	T		
6. Rub. cha.	T	✓	FACW	12. Vac. oxy. / Ros. acic.	T / T		

Total Cover: 41
50% of total cover: 20.5 20% of total cover: 8.2

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Geo. lin.	3		FACU	12.			
2. Mer. pen.	T		FACU	13.			
3. Cal. can.	20	✓	FAC	14.			
4. Pol. ala.	T			15.			
5. Ran. sp.	T			16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 23
50% of total cover: 11.5 20% of total cover: 4.6
Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) 30 (Sphagnum) Total Cover of Bryophytes 80

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	X1=	0
FACW species	53	X2=	106
FAC species	45	X3=	135
FACU species	3	X4=	12
UPL species		X5=	
Column Totals:	101	(A)	253 (B)

Prevalence Index = B/A = 2.50
< 303

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.

Hyrophytic Vegetation Present? Yes ✓ No

Remarks: Bordered to west by Alnus band. – some Pic. mar has been cut ~3%

SOIL

Sampling Point: 4

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
6-1"	Oi									
1-0"	Oe									
0-14"	Br	7.5Y 3/2	75					SIL	Neg	GIS SID – see remarks

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- Y Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- ____ Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Y Other (explain in Remarks)

[3]One indicator of Hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: N/A
Depth (inches) N/A

Drainage Class: SW PD

Hydric Soil Present? Yes X No ____

Remarks:
- Seasonal frost through-out B horizon
- Embedded organics in B horizon

Additional soil pits dug – > 8" saturated organics – site has histic epipedon characteristics – 1st pit (abnormally) had only 6"

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- Y Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ____ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

- N Water Stained Leaves (B9)
- Y Drainage Patterns (B10) Seasonal frost in soil horizon
- N Oxidized Rhizospheres on Living Roots (C3)
- N Presence of Reduced Iron (C4)
- N Salt Deposits (C5)
- N Stunted or Stressed Plants (D1)
- N Geomorphic Position (D2)
- N Shallow Aquitard (D3)
- N Microtopographic Relief (D4)
- Y FAC Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches) 6"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland Data Form Site 4 July 24, 2007 Photograph 1- Soil

Wetland Data Form Site 4 July 24, 2007 Photograph 2- Soil

Wetland Data Form Site 4 July 24, 2007 Photograph 3- Vegetation

Wetland Data Form Site 4 July 24, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-24-07
Applicant/Owner: DOT NRO Plot: 7
Investigator(s): TS AJK Target:
Lat. 65.19936 Long. -149.83951 Datum: WGS 84 Recorded on GPS #: 007
Landform: Slope Feature: Slope (%): 22 Aspect: 175°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
Photo nos./descriptions: SOIL: 37, 38 VEG 39, 40 Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (If no, explain in Remarks)
Are Vegetation Y / (N), Soil Y / (N), or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N), Soil Y / (N), or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes X	No	Is the sampled Area within a Wetland?	Yes No X
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet pap	25	✓	FACW	5.			
2. ~~Pic mar~~				6.			
3.				7.			
4.				8.			

Total Cover: 25
50% of total cover: 12.5 20% of total cover: 5

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Alnsin	40	✓	FAC	7. Rub ide	T		
2. Vac uli	15	✓	FAC	8.			
3. Vac vit	T			9.			
4. Ros nut	5		FACU	10.			
5. Spi lea	4		FAC	11.			
6. Pic gla	6		FACU	12.			

Total Cover: 70
50% of total cover: 35 20% of total cover: 14

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Cal can	50	✓	FAC	12.			
2. Cor can	3		FACU	13.			
3. Epi ang	T			14.			
4. Pol alp	8		FAC	15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 61
50% of total cover: 30.5 20% of total cover: 12.2

Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) Total Cover of Bryophytes

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	X1=	0
FACW species	0	X2=	0
FAC species	117	X3=	381
FACU species	39	X4=	156
UPL species	0	X5=	0
Column Totals:	156	(A)	537 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

Y Dominance Test is>50%
N 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.

Hyrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 7

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
1-0	Oi									charcoal 10%
0-2	A1	7.5YR 3/1	60%					SiL		30% organics
2-3	A2	10YR 3/3	100%					vfSaL		
3-16+	B	2.5Y 4/3	90					vfSaL	Neg	G10

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: MWD

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- Y Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- N Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches) 8"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland Data Form Site 7 July 24, 2007 Photograph 1- Soil

Wetland Data Form Site 7 July 24, 2007 Photograph 2- Soil

Wetland Data Form Site 7 July 24, 2007 Photograph 3- Vegetation

Wetland Data Form Site 7 July 24, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-24-07
Applicant/Owner: DOT&PF Plot: 8
Investigator(s): Anna Kohl Jeff Schively Target: PT36
Lat. 65.19908 Long. -149.82895 Datum: WGS84 Recorded on GPS #:
Landform: hilltop Feature: Slope (%): 13% Aspect: 150°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
Photo nos./descriptions: 41, 42 - soil 43, 44 - veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes X	No	Is the sampled Area within a Wetland?	Yes No X
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic. mar.	30	✓	FACW	5.			
2. Pop. tre.	5		FAC	6.			
3.				7.			
4.				8.			

Total Cover: 35
50% of total cover: 17.5 20% of total cover: 7

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Vac. uli.	20	✓	FAC	7.			
2. Vac. vit.	15	✓	FAC	8.			
3. Led. gro.	7		FACW	9.			
4. Emp. nig.	7		FAC	10.			
5. Ros. aci.	T			11.			
6. Pop. trem	T			12.			

Total Cover: 49
50% of total cover: 24.5 20% of total cover: 9.8

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Lup. arc.	T			12.			
2. Geo. liv.	3	✓	FACU	13.			
3. Lyc. con.	3	✓	FAC	14.			
4. Lyc. obs.	T		FACU	15.			
5. Car. con.	T			16.			
6. Cal. can.	T			17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 6
50% of total cover: 3 20% of total cover: 1.2
Plot size (radius, or length x width) 20% of total cover:
% Cover of Wetland Bryophytes ✓ Total Cover of Bryophytes 40
(Where applicable)

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 —	X1= —
FACW species 37	X2= 74
FAC species 45	X3= 135
FACU species 8	X4= 32
UPL species —	X5= —
Column Totals: 90	(A) 241 (B)

Prevalence Index = B/A = 2.68

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.

Hyrophytic Vegetation Present? Yes ✓ No

Remarks: Most mature aspen are dead. ~ 50% fruticose (caribou) lichen cover.

SOIL

Sampling Point: 9

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
4.5-1	Oi									
1-0"	Oe									
0-16+	B	2.5Y 4/4						FSAL		G5

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: N/A
Depth (inches) N/A

Drainage Class: MWD

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ___ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

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:

Wetland Data Form Site 8 July 24, 2007 Photograph 1- Soil

Wetland Data Form Site 8 July 24, 2007 Photograph 2- Soil

Wetland Data Form Site 8 July 24, 2007 Photograph 3- Vegetation

Wetland Data Form Site 8 July 24, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-24-07
Applicant/Owner: DOT NRO Plot: 12
Investigator(s): JS AJK Target:
Lat. 65.21072 Long. -149.74348 Datum: WGS84 Recorded on GPS #:
Landform: Feature: Slope (%): 10% Aspect: 170°
Shape across slope: linear / (convex) / concave Shape up/downslope: linear / (convex) / concave NWI classification: U
Photo nos./descriptions: 52, 53 = soil 54, 55 = veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (If no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N), or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes X	No	Is the sampled Area within a Wetland?	Yes No X
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic mar	35	✓	FACW	5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover: 35
50% of total cover: 17.5 20% of total cover: 7

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Sal beb	T			7.			
2. Vac uli	10	✓	FAC	8.			
3. Emp mig	T			9.			
4. Vac vit	T			10.			
5. Ledpal	7	✓	FACW	11.			
6.				12.			

Total Cover: 17
50% of total cover: 8.5 20% of total cover: 3.4

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Geo liv	T			12.			
2.				13.			
3.				14.			
4.				15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 0
50% of total cover: ✓ 20% of total cover: ✓

Plot size (radius, or length x width) 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) Total Cover of Bryophytes

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species —	X1= —
FACW species 42	X2= 84
FAC species 10	X3= 30
FACU species —	X4= —
UPL species —	X5= —
Column Totals: 52	(A) 114 (B)

Prevalence Index = B/A = 2.19

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.

Hyrophytic Vegetation Present? Yes X No

Remarks: Cariboo lichen

SOIL

Sampling Point: 12

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
6-2	Oi									
2-0	Oe									
0-14+	B	10YR 4/4						VFSAL		

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: N/A
Depth (inches) N/A

Drainage Class: MWD

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- — Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

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:

Wetland Data Form Site 12 July 24, 2007 Photograph 1- Soil

Wetland Data Form Site 12 July 24, 2007 Photograph 2- Soil

Wetland Data Form Site 12 July 24, 2007 Photograph 3- Vegetation

Wetland Data Form Site 12 July 24, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-24-07
Applicant/Owner: DOT & PD Plot: 16
Investigator(s): JS, AJK Target:
Lat. 65.21051 Long. -149.73749 Datum: WGS84 Recorded on GPS #:
Landform: slope off rd (bowl-slope) Feature: Slope (%): 11 Aspect: 195°
Shape across slope: linear / convex / (concave) Shape up/downslope: linear / convex / (concave) NWI classification: U
Photo nos./descriptions: 64, 65 = soil 66, 67 = veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes X	No	Is the sampled Area within a Wetland?	Yes No X
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet pap	20	✓	FACU	5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover: 20
50% of total cover: 10 20% of total cover: 4

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Aln sin	10	✓	FAC	7.			
2. Sal ala	T			8.			
3. Ros acc	T			9.			
4.				10.			
5.				11.			
6.				12.			

Total Cover: 10
50% of total cover: 5 20% of total cover: 2

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Cal can	90	✓	FAC	12.			
2. Epi ang	T			13.			
3. Pot pal	T			14.			
4. Equ syl	T			15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 90
50% of total cover: 45 20% of total cover: 18

Plot size (radius, or length x width) 20% of total cover:
% 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: 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	X1=
FACW species	X2=
FAC species 100	X3= 300
FACU species 20	X4= 80
UPL species	X5=
Column Totals: 120	(A) 380 (B)

Prevalence Index = B/A = 3.17

> 3.0

Hydrophytic Vegetation Indicators:

Y Dominance Test is>50%
N 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.

Hyrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: 16

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
0-20+	B	10YR 3/3	65					sil	Neg	charcoal embedded throughout
		Charcoal	5							
		10YR 4/1	20	10YR 4/6	<5	C	M	sil	Neg	SS

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: MWD

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- — Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches) ____

Water Table Present? Yes ____ No ✓ Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches) ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Wetland Data Form Site 16 July 24, 2007 Photograph 1- Soil

Wetland Data Form Site 16 July 24, 2007 Photograph 2- Soil

Wetland Data Form Site 16 July 24, 2007 Photograph 3- Vegetation

Wetland Data Form Site 16 July 24, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-25-07
Applicant/Owner: ADOT & PF Plot: 17
Investigator(s): Anna Kohl Jeff Schively Target: FT22
Lat. 65.20942 Long. -149.72202 Datum: WGS84 Recorded on GPS #:
Landform: hillside Feature: Slope (%): 7-8 Aspect: 190°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
Photo nos./descriptions: 68, 69 - Soil 70, 71 - Veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / N Soil Y / N or Hydrology Y / N significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / N, Soil Y / N or Hydrology Y / N naturally problematic? (If needed, explain answers in Remarks)

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: Inclinometer broken - slope is estimate

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet. pap.	17	X	FACU	5.			
2. Pic. gl.	20	X	FACW	6.			
3. Pic. mar.	3		FACW	7.			
4.				8.			

Total Cover: 40
50% of total cover: 20 20% of total cover: 8

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Ros. aci.	4		FACU	7.			
2. Vac. vit.	13	X	FAC	8.			
3. Vac. uli.	25	X	FAC	9.			
4. Sal. beb.	3		FACW	10.			
5. Aln. cri.	15	X	FAC	11.			
6. Led. gro.	4		FACW	12.			

Total Cover: 64
50% of total cover: 32 20% of total cover: 12.8

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Cor. can.	T		FACU	12.			
2. Geo liv.	4	X	FACU	13.			
3. Cal. can	T		FAC	14.			
4. Equ sylv	T			15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 4
50% of total cover: 2 20% of total cover: —
Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% Cover of Wetland Bryophytes — (Where applicable) Total Cover of Bryophytes 50

Dominance Test worksheet:
Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species —	X1= —
FACW species 7	X2= 14
FAC species 56	X3= 168
FACU species 45	X4= 180
UPL species —	X5= —
Column Totals: 108	(A) 362 (B)

Prevalence Index = B/A = 3.26

Hydrophytic Vegetation Indicators:
N Dominance Test is>50%
N 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.

Hyrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: 17

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
3-1"	Oi									
1-0"	Oe									
0-16+"	B	2.5Y 4/4						FSAL		65

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: N/A
Depth (inches) N/A

Drainage Class: WD

Hydric Soil Present? Yes ____ No X

Remarks:
Charcoal embedded in B horizon - in upper 12"

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Mari Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ___ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:
Surface Water Present? Yes ____ No X Depth (inches) ____
Water Table Present? Yes ____ No X Depth (inches) ____
Seeping in at that depth but not yet filled: Y / N
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:

Wetland Data Form Site 17 July 25, 2007 Photograph 1- Soil

Wetland Data Form Site 17 July 25, 2007 Photograph 2- Soil

Wetland Data Form Site 17 July 25, 2007 Photograph 3- Vegetation

Wetland Data Form Site 17 July 25, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-25-07
Applicant/Owner: DOT NRO Plot: 18
Investigator(s): Jeff Schively, Anna Kohl Target: FT21
Lat. N65.20944° Long. W149.72014° Datum: Recorded on GPS #:
Landform: Feature: Slope (%): 18 Aspect: 195°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
Photo nos./descriptions: 72,73 (SOIL) 74,75 (veg) Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes X	No	Is the sampled Area within a Wetland?	Yes No X
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet pap	10	✓	FACW	5.			
2. Pic mar	35	✓	FACW	6.			
3.				7.			
4.				8.			

Total Cover: 45
50% of total cover: 22.5 20% of total cover: 9

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Vac vit	10	✓	FAC	7.			
2. Pic gla	3	✓	FACW	8.			
3. Vac uli	T			9.			
4. Aln cri	T		FAC	10.			
5.				11.			
6.				12.			

Total Cover: 13
50% of total cover: 6.5 20% of total cover: 2.6

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Geo liv	8	✓	FACW	12.			
2.				13.			
3.				14.			
4.				15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 8
50% of total cover: 4 20% of total cover: 1.6

Plot size (radius, or length x width) 20% of total cover:
% 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: 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	X1=
FACW species 35	X2= 70
FAC species 10	X3= 30
FACU species 21	X4= 84
UPL species	X5=
Column Totals: 66	(A) 184 (B)

66
3
198 Prevalence Index = B/A = 2.79
< 198

Hydrophytic Vegetation Indicators:

N 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.

Hyrophytic Vegetation Present? Yes X No

Remarks: Tall Pic mar only have new growth at tops

SOIL

Sampling Point: 18

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
5-0	Oi									
0-2	A/Ash	10YR 3/1	80					vfSL		
		2.5Y 4/2	20					vfSL		
2-9	B1	10YR 4/6	100					fSL		
9-15+	B2	10YR 4/4	80					fSL		G20

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- ___ Hydrogen Sulfide (A4) ___" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue

- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: WD

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1) ___" from top
- N Dry-Season Water Table (C2)
- — Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches) ___

Water Table Present? Yes ___ No ✓ Depth (inches) ___

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches) ___

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

Wetland Data Form Site 18 July 25, 2007 Photograph 1- Soil

Wetland Data Form Site 18 July 25, 2007 Photograph 2- Soil

Wetland Data Form Site 18 July 25, 2007 Photograph 3- Vegetation

Wetland Data Form Site 18 July 25, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-25-07
Applicant/Owner: ADOT&PF Plot: 19
Investigator(s): Anna Kohl Jeff Schively Target:
Lat. 65.21043 Long. -149.71205 Datum: WGS84 Recorded on GPS #:
Landform: hillslope Feature: Slope (%): 7-8% Aspect: 190°
Shape across slope: linear / convex / (concave) Shape up/downslope: (linear) / convex / concave NWI classification: U
Photo nos./descriptions: 76, 77 - Soil 78, 79 - Veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (If no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

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: Appears to be an old burned area – fire scars on wood & soil – >10 yrs ago.

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet. pap.	15	✓	FACU	5.			
2.				6.			
3.				7.			
4.				8.			

Avg. 18'

Total Cover: 15
50% of total cover: 7.5 20% of total cover: 3

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Vac. uli.	5		FAC	7. Aln. cri.	15	✓	FAC
2. Vac. vit.	10		FAC	8. Sal. beb.	3		FAC
3. Pic. gla.	20	✓	FACU	9. Bet pap	15	✓	FACU
4. Spi. bea.	T			10.			
5. Hed. gre.	12		FACW	11.			
6. Sal. pol.	T			12.			

Avg. 8' Avg. 8'

Total Cover: 80
50% of total cover: 40 20% of total cover: 16

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Epi. ang.	T			12.			
2. Cal. can.	3	✓	FAC	13.			
3. Lyc. ann.	T			14.			
4. Pol. ala.	T			15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 3
50% of total cover: 1.5 20% of total cover: 16

Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% Cover of Wetland Bryophytes — (Where applicable) 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	X1=
FACW species 12	X2= 24
FAC species 36	X3= 108
FACU species 50	X4= 200
UPL species	X5=
Column Totals: 98	(A) 332 (B)

Prevalence Index = B/A = 3.39

1 36 3 108

Hydrophytic Vegetation Indicators:

N Dominance Test is>50%
N 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.

Hyrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL

Sampling Point: 19

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
3-1	Oi									
1-0	Oe									
0-16+"	B	10YR 3/2	5	→ upper 8"				FSAL		GIO
		2.5Y 4/4	85							

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)	Drainage Class:	Hydric Soil Present?
Type: N/A	WD	Yes ____ No X
Depth (inches) N/A		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ___ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

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:

Wetland Data Form Site 19 July 25, 2007 Photograph 1- Soil

Wetland Data Form Site 19 July 25, 2007 Photograph 2- Soil

Wetland Data Form Site 19 July 25, 2007 Photograph 3- Vegetation

Wetland Data Form Site 19 July 25, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-25-07
Applicant/Owner: DOT NRO Plot: 20
Investigator(s): Jeff Schively Anna Kohl Target: FT18
Lat. 65.21029 Long. 149.71338 Datum: Recorded on GPS #:
Landform: Drainage Swale Feature: Slope (%): 4-5 Aspect:
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSSIC/PEMIC
Photo nos./descriptions: 80,81 = soil 82,83 = veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y (N) naturally problematic? (If needed, explain answers in Remarks) T

Hydrophytic Vegetation Present?	Yes ✓	No	Is the sampled Area within a Wetland?	Yes ✓ No
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic mar	5	✓	FACW	5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover: 5
50% of total cover: 2.5 20% of total cover: 1

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic gla	5		FACU	7. Bet gla	T		
2. Sal. dry	25	✓	FACW	8. Sal pul	4		FACW
3. Pot fru.	7		FAC	9. Sal ala	3		FAC
4. Vac uli	5		FAC	10. Aln cri	T		FAC
5. Aln sin	45	✓	FAC	11. Empnig	T		FAC
6. Rubcam	3		FAC	12.			

Total Cover: 92
50% of total cover: 46 20% of total cover: 18.4

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Calcan	3		FAC	12.			
2. Corcan	3		FACU	13.			
3. Pot pal	4		OBL	14.			
4. Viola sp.	5			15.			
5. Par pal	3		FACW	16.			
6. Amer ic	10		FAC	17.			
7. Equ pra	55	✓	FACW	18.			
8. Calla media	T			19.			
9. Equ pal	T			20.			
10. Ranunculus T				21.			
11.				22.			

Total Cover: 108
50% of total cover: 54 20% of total cover: 21.6
Plot size (radius, or length x width) 30' x 150' 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) Total Cover of Bryophytes

Remarks: sphagnum (arnias, growing in tussocks/higher spots
alnus,
linear picea

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	4	X1=	4
FACW species	92	X2=	184
FAC species	76	X3=	228
FACU species	8	X4=	32
UPL species		X5=	
Column Totals:	180	(A)	448 (B)

3
540
Prevalence Index = B/A = 2.49
<540

Hydrophytic Vegetation Indicators:

X 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.

Hyrophytic Vegetation Present?	Yes ✓ No

SOIL Sampling Point: 20

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
11-4	Oi									
4-0	Oe									
0-10+	A/Oe	7.5YR 3/1	50/50					SiL		mixed

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- Y Histic Epipedon (A2)
- X Hydrogen Sulfide (A4) 9" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N/A 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: VPD

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- Y Surface Water (A1)
- Y High Water Table (A2)
- Y Saturation (A3)
- N Water Marks (B1)
- Y Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- Y Hydrogen Sulfide Odor (C1) 7" from top
- ___ Dry-Season Water Table (C2)
- ___ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches) 0-5"

Water Table Present? Yes X No ___ Depth (inches) 5

Seeping in at that depth but not yet filled: Y / N

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 Data Form Site 20 July 25, 2007 Photograph 1- Soil

Wetland Data Form Site 20 July 25, 2007 Photograph 2- Soil

Wetland Data Form Site 20 July 25, 2007 Photograph 3- Vegetation

Wetland Data Form Site 20 July 25, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-25-07
Applicant/Owner: DOT NRO Plot: 23
Investigator(s): Jeff Schively Anna Kohl Target: ET 16
Lat. 65.21119 Long. 149.69122 Datum: Recorded on GPS #:
Landform: hillside/top Feature: Slope (%): 5 Aspect:
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
Photo nos./descriptions: 92,93 soil 94,95 veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (if no, explain in Remarks)
Are Vegetation Y (N) Soil Y (N) or Hydrology Y (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y (N) Soil Y (N) or Hydrology Y (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes ✓	No	Is the sampled Area within a Wetland?	Yes	No ✓
Hydric Soil Present?	Yes	No ✓			
Wetland Hydrology Present?	Yes	No ✓			

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet pap	35	✓	FACU	5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover: 35
50% of total cover: 17.5 20% of total cover: 7

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic gla (2-3" diam.)	5		FACU	7. Ros acl	T		
2. led gro	20	✓	FACW	8. Sal. pul	T		
3. Pot fru	5			9.			
4. Spi bea	10	✓	FAC	10.			
5. Vac vit	8		FAC	11.			
6. Vac uli	10	✓	FAC	12.			

Total Cover: 53
50% of total cover: 26.5 20% of total cover: 10.6

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Epi ang	T			12.			
2. Cor can	3	✓	FACU	13.			
3. Cal can	T			14.			
4. Poa glauca	T			15.			
5. Pol ala	3	✓	FAC	16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 6
50% of total cover: 1.3 20% of total cover: 1.2

Plot size (radius, or length x width) 0.1 20% of total cover:
% 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: 6 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		X1=	
FACW species	20	X2=	40
FAC species	31	X3=	93
FACU species	43	X4=	172
UPL species		X5=	
Column Totals:	94	(A)	305 (B)

Prevalence Index = B/A = 3.24 (>282)

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
N 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.

Hyrophytic Vegetation Present? Yes ✓ No

Remarks: Evidence of past burn - many standing burned + burned deadfall.

SOIL Sampling Point: 23

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
2-0	Oi									
0-1	A	10YR 3/1	100					vfsL		
1-16+	B	2.5Y 4/3	70					sL		g30

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: WD

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Mari Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ✓ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches) ____

Water Table Present? Yes ____ No ✓ Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches) ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Wetland Data Form Site 23 July 25, 2007 Photograph 1- Soil

Wetland Data Form Site 23 July 25, 2007 Photograph 2- Soil

Wetland Data Form Site 23 July 25, 2007 Photograph 3- Vegetation

Wetland Data Form Site 23 July 25, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-25-07
Applicant/Owner: ADOT&PF Plot: 26
Investigator(s): Anna Kohl Jeff Schively Target: FT8
Lat. 65.21130 Long. -149.68054 Datum: WGS84 Recorded on GPS #:
Landform: Flat Feature: Slope (%): ~2% Aspect: 180°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: ~~PSS4/3B~~ ~~PSS1/3B~~ PSS4/3B
Photo nos./descriptions: 104, 105 - soil 106, 107 veg. Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

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:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic. mar.	5	✓	FACW	5.			
2. Lar. lar.	4	✓	FACW	6.			
3. Bet. pap.	T		FACU	7.			
4.				8.			

Total Cover: 9
50% of total cover: 4.5 20% of total cover: 1.8

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
PSS4 1. Pic. mar.	20	X	FACW	7. Emp. nig.	3		FAC
2. Lar. lar.	5		FACW	8. Sal. gla.	5		FAC
PSS1 3. Vac. uli.	25	X	FAC	9. Aln. ten.	10		FAC
4. Ros. aci.	T		FACU	10. Bet. gla.	5		FAC
5. Rub cha.	6		FACW	11. Sal. arb.	T		FACW
PSS3 6. Led. gro.	30	X	FACW	12. Vac. vit.	T		FAC

Total Cover: 112
50% of total cover: 56 20% of total cover: 22.4

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pet. fri.	3		FACW	12. Vac. oxy.	T		
2. Cal. can.	12	X	FAC	13. Spi. bea	T		
3. Epi. ang.	T			14. Led. dec.	3		FACW
4. Cor. can.	T			15. Pot. fru.	T		
5. Car. big.	10	X	FAC	16.			
6. Ach. sib.	T			17.			
7. Arc. lat.	T			18.			
8. Par. pal.	T			19.			
9. Car. aqu.	T			20.			
10. Equ. syl.	T			21.			
11.				22.			

Total Cover: 25
50% of total cover: 12.5 20% of total cover: 5
Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) 15 Total Cover of Bryophytes 50

Remarks: → Sphagnum

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	X1=
FACW species 76	X2= 152
FAC species 70	X3= 210
FACU species	X4=
UPL species	X5=
Column Totals: 146	(A) 362 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:
4 Dominance Test is>50%
4 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.

Hyrophytic Vegetation Present? Yes X No

SOIL

Sampling Point: Z6

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
6-1	Oi									
1-0	Oe									
0-15+	B	Gley 1 4/N	30	5YR 4/6	10	C	RC	SIL	Neg	
		10YR 4/2	30	7.5YR 4/4	30	C	M	SIL	Neg	

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- Y Hydrogen Sulfide (A4) 6" from top
- N Thick Dark Surface (A12)
- * Alaska Gleyed (A13)
- Y Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- Y 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)	Drainage Class:	Hydric Soil Present?
Type: N/A	PD	Yes X No ____
Depth (inches) N/A		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- Y Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- Y Hydrogen Sulfide Odor (C1) 6" from top
- N Dry-Season Water Table (C2)
- — Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

- N Water Stained Leaves (B9)
- N Drainage Patterns (B10) ____
- Y Oxidized Rhizospheres on Living Roots (C3)
- N Presence of Reduced Iron (C4)
- N Salt Deposits (C5)
- Y Stunted or Stressed Plants (D1) - Pic mar, Lar. lar
- N Geomorphic Position (D2)
- N Shallow Aquitard (D3)
- N Microtopographic Relief (D4)
- Y FAC Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches) ____
Water Table Present?	Yes ____	No X	Depth (inches) ____
	Seeping in at that depth but not yet filled: Y / N		
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches) 5"

Wetland Hydrology Present? Yes Y No ____

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

Remarks:

Wetland Data Form Site 26 July 25, 2007 Photograph 1- Soil

Wetland Data Form Site 26 July 25, 2007 Photograph 2- Soil

Wetland Data Form Site 26 July 25, 2007 Photograph 3- Vegetation

Wetland Data Form Site 26 July 25, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-25-07
Applicant/Owner: DOT NRO Plot: 28
Investigator(s): Jeff Schively Ann Kohl Target:
Lat. 65.21111 Long. 149.68137 Datum: Recorded on GPS #:
Landform: Floodplain Feature: Slope (%): 0 Aspect:
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS 1A
Photo nos./descriptions: 112, 113 soil 114, veg 115 hydro Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

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: Remnant channel to W of plot. Seasonally Flooded/ Floodplain community

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1.				5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover:
50% of total cover: 20% of total cover:

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Aln ten	20	X	FAC	7.			
2. Sal ala	45	X	FAC	8.			
3. Sal arb	30	X	FACW	9.			
4. Ros aci	T			10.			
5. Rub arc	T			11.			
6. Pot fru	T			12.			

Total Cover: 95
50% of total cover: 47.5 20% of total cover: 19

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Equ pra	40	X	FACW	12.			
2. Cal can	15	X	FAC	13.			
3. Tha spa	T			14.			
4. Ane vir	T			15.			
5. Ste cra	T			16.			
6. Viola sp	T			17.			
7. Pot pal	T			18.			
8. Epi ang	T			19.			
9.				20.			
10.				21.			
11.				22.			

Anna look @ ID

Total Cover: 55
50% of total cover: 27.5 20% of total cover: 11
Plot size (radius, or length x width) 40' x 40' 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) Total Cover of Bryophytes

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	X1=
FACW species 70	X2= 140
FAC species 80	X3= 240
FACU species	X4=
UPL species	X5=
Column Totals: 150	(A) 380 (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
✓ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hyrophytic Vegetation Present? Yes ✓ No

Remarks: Galls on alnus trunks

SOIL Sampling Point: 28

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
0-11	B1	10YR 3/2	100					vfSL		organics embedded throughout
11-19+	B2	7.5YR 3/2	70					SL		G30

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Y Other (explain in Remarks)

[3]One indicator of Hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: Seasonally flooded / WD

Hydric Soil Present? Yes ✓ No ____

Remarks:
old alluvium
Alluvially deposited soils; seasonally flooded.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- Y Water Marks (B1)
- Y Sediment Deposits (B2)
- Y Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- Dry-Season Water Table (C2)
- Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches) ____

Water Table Present? Yes ____ No ✓ Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches) ____

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:
Stream along Eastern edge of plot, through community.

Wetland Data Form Site 28 July 25, 2007 Photograph 1- Soil

Wetland Data Form Site 28 July 25, 2007 Photograph 2- Soil

Wetland Data Form Site 28 July 25, 2007 Photograph 3- Vegetation

Wetland Data Form Site 28 July 25, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-26-07
Applicant/Owner: ADOT&PF Plot: 30
Investigator(s): Anne Kohl, Jeff Selinsky Target: FT11
Lat. 65.21137 Long. 149.68379 Datum: WGS84 Recorded on GPS #:
Landform: Seasonally flooded swale Feature: Slope (%): ~3% Aspect: 165°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSSIC
Photo nos./descriptions: 120, 121 - soil 122, 123 - veg 124, 125 - hydro Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N), or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

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: Alluvial deposits, scour marks — seasonally flooded drainage (subject to large flows >1cfs Est.)

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pop. bal. (tri.)	5	X	FACU	5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover: 5
50% of total cover: 20% of total cover:

Sapling/Shrub Stratum (Sal. myr. pse. ↑)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Aln. ten.	60	X	FAC	7. Sal. pul.	4		FACW
2. Sal. pse.	5		FACW	8. Rub. arc.	T		FAC
3. Sal. beb.	15		FAC	9. Vac. uli.	3		FAC
4. Sal. arb.	15		FACW	10. Thu. spp.	T		
5. Pot. fru.	3		FAC	11. Sal. ala.	10		FAC
6. Pic. glau.	T		FACU	12.			

Total Cover: 115
50% of total cover: 57.5 20% of total cover: 23

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Equ. pra.	25	X	FACW	12. Equ. sci.	T		
2. Ane. ric.	4		FAC	13. Arc. lat.	3		FAC
3. (globe)	3			14. Equ. arv.	3		FACW
4. Car. med.	T			15. Pyr. sp.	T		
5. Cal. can.	12	X	FAC	16. Unk. forb (yellow 12cm)	T		
6. Pot. pal.	3		OBL	17. Mon. uni.	T		
7. Par. pal.	T			18. Equ. pal.	T		
8. Vio. sp.	T			19.			
9. Ach. sib.	T			20.			
10. Cor. can.	T		FACU	21.			
11. Moh. lat.	T			22.			

Total Cover: 53
50% of total cover: 26.5 20% of total cover: 10.6
Plot size (radius, or length x width) 150' X 20' 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) ~ Total Cover of Bryophytes 60

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 3	X1= 3
FACW species 49	X2= 98
FAC species 110	X3= 330
FACU species 8	X4= 32
UPL species /	X5= /
Column Totals: 173	(A) 463 (B)

Prevalence Index = B/A = 2.68

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.

Hyrophytic Vegetation Present? Yes X No

Remarks: Veg community differs depending on location → at high level (0-4') of topographic relief throughout site (scoured areas, drier hummocks, streambanks, etc)

SOIL Sampling Point: 30

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
6-1	Oi									
1-0	Oe									
0-14+	B	2.5Y 3/2	60					SAL		C10, G30 - Alluvial

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):
- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:
- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Y Other (explain in Remarks)

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

Restrictive Layer (if present)
Type: N/A
Depth (inches) N/A

Drainage Class: MWD

Hydric Soil Present? Yes X No ____

Remarks:
Soil pit dug on alluvial deposit layer higher than swale bottom - many area of swale bottom is scoured and lacks any soil over large cobbles.
- Floodplain soil → seasonally flooded

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)
- Y Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- Y Water Marks (B1)
- Y Sediment Deposits (B2)
- Y Drift Deposits (B3)
- Y Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- Y Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- Y Mari Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ____ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)
- Y Water Stained Leaves (B9)
- Y Drainage Patterns (B10) Bent veg, scour marks
- N Oxidized Rhizospheres on Living Roots (C3)
- N Presence of Reduced Iron (C4)
- N Salt Deposits (C5)
- N Stunted or Stressed Plants (D1)
- Y Geomorphic Position (D2)
- N Shallow Aquitard (D3)
- Y Microtopographic Relief (D4)
- Y FAC Neutral Test (D5)

Field Observations:
Surface Water Present? Yes X No ____ Depth (inches) 0-2"
Water Table Present? Yes ____ No X Depth (inches) ____
Seeping in at that depth but not yet filled: Y / N
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches) ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland Data Form Site 30 July 26, 2007 Photograph 1- Soil

Wetland Data Form Site 30 July 26, 2007 Photograph 2- Soil

Wetland Data Form Site 30 July 26, 2007 Photograph 3- Vegetation

Wetland Data Form Site 30 July 26, 2007 Photograph 4- Vegetation

Wetland Data Form Site 30 July 26, 2007 Photograph 5- Hydrology

Wetland Data Form Site 30 July 26, 2007 Photograph 6- Hydrology

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-26-07
Applicant/Owner: DOT NRO Plot: 31
Investigator(s): Jeff Schively Annakoni Target: FT 12
Lat. 65.21126 Long. 149.68512 Datum: Recorded on GPS #:
Landform: Footslope Feature: Slope (%): 2 Aspect: 170°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
Photo nos./descriptions: 301L 126,127 veg 128,129 Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (If no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks) T

Hydrophytic Vegetation Present?	Yes X	No	Is the sampled Area within a Wetland?	Yes No ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks: Evidence of burn (burned standing deadfall)

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1.				5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover:
50% of total cover: 20% of total cover:

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic gla	12	X	FACW	7. Vac vit	T		
2. Sal pul	10	X	FACW	8. Emp nig	T		
3. Bet nan	5		FAC	9. Spi bea	T		
4. Aln vir	8		FAC	10. Pic mar	5		FACW
5. Vac uli	10	X	FAC	11. Cha cal	T		
6. Led pal	20	X	FACW	12. Led dec	T		
Vac oxy	T						
Lar lar	T						

Total Cover: 70
50% of total cover: 35 20% of total cover: 14

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Cal can	10	X	FAC	12.			
2. Equ arv	T			13.			
3. Epi ang	T			14.			
4. Cor can	T			15.			
5. Pet fri	T			16.			
6. Rubcha	T			17.			
7. Equ sil	T			18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 10
50% of total cover: 5 20% of total cover: 2
Plot size (radius, or length x width) 0.1 acre 20% of total cover:
% 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	✓	X1=	✓
FACW species	35	X2=	70
FAC species	33	X3=	99
FACU species	12	X4=	48
UPL species	✓	X5=	✓
Column Totals:	81	(A)	217 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

✓ Dominance Test is>50%
✓ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hyrophytic Vegetation Present? Yes X No

Remarks: sphagnum Pic mar = 10-15' tall; Pic gla = 1-3' tall (new growth)

SOIL Sampling Point: 31

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

Depth (Inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
0-5	A	10YR4/2						sil		
5-9	Oc									Charcoal throughout
9-21+	B	2.5Y3/2	95					granular		95

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: n/a
Depth (inches) n/a

Drainage Class: MWD

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- N Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- — Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches) _____

Water Table Present? Yes ____ No ✓ Depth (inches) _____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches) _____

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

Wetland Data Form Site 31 July 26, 2007 Photograph 1- Soil

Wetland Data Form Site 31 July 26, 2007 Photograph 2- Soil

Wetland Data Form Site 31 July 26, 2007 Photograph 3- Vegetation

Wetland Data Form Site 31 July 26, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-26-07
Applicant/Owner: ADOT&PF Plot: 33
Investigator(s): Anna Kohl Jeff Schively Target: FT4
Lat. 65.23378 Long. -149.52176 Datum: WGS84 Recorded on GPS #:
Landform: footslope Feature: Slope (%): ~15% Aspect: 330°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS3/4B/B
Photo nos./descriptions: 134, 135 – Soil 136, 137 – Veg, 138, 139 – hydro / seasonal frost Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

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:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1.				5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover:
50% of total cover: 20% of total cover:

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic mar	30	X	FACW	7. Vac. vit.	5		FAC
2. Sal. pul.	8		FACW	8. Bet. gla.	3		FAC
3. Bet. nan.	20	X	FAC	9. Aln. cri	4		FAC
4. Led. dec.	40	X	FACW	10. Sal. gla.	6		FAC
5. Rub. cha.	17		FACW	11. Spi. bea.	T		
6. Vac. uli.	20	X	FAC	12.			

Avg ht 5'

Total Cover: 153
50% of total cover: 76.5 20% of total cover: 30.6

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pet. fri.	4	X	FACW	12.			
2. Rum. arc.	3	X	FACW	13.			
3. Car. bgg.	3	X	FAC	14.			
4. Cal. can.	T			15.			
5. Eri. vag.	T			16.			
6. Pol. ala.	T			17.			
7. Lyc. ann	T			18.			
8. Arc. lat.	T			19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 10
50% of total cover: 5 20% of total cover: 2
Plot size (radius, or length x width) 0.1 acre. 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) 15 Total Cover of Bryophytes 60

Remarks: → Sphagnum

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	X1=
FACW species 102	X2= 204
FAC species 61	X3= 183
FACU species	X4=
UPL species	X5=
Column Totals: 113	(A) 387 (B)

Prevalence Index = B/A = 2.37

Hydrophytic Vegetation Indicators:

X Dominance Test is>50%
X 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.

Hyrophytic Vegetation Present? Yes X No

SOIL Sampling Point: 33

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
6-0	Oi									
0-14+"	Br	10YR 3/2	50							540, 610

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- N Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- N Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Y Other (explain in Remarks) – see below

[3]One indicator of Hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: N/A
Depth (inches) N/A

Drainage Class: MWD

Hydric Soil Present? Yes X No ____

Remarks:
- Organics embedded in Br Horizon
- Several soil pits dug throughout area — seasonal frost found @ ~8" approximately 15' from sampled pit. This site site on a north facing slope — likely has seasonal frost for most of the summer (not seen today 7/26) and is saturated. Depth of Organics is variable and very micro-site specific. Many areas may qualify as a Histic Epipedon — our pit did not. Overall, we believe the site as a whole would qualify as hydric.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- Y Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- = Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

- N Water Stained Leaves (B9)
- N Drainage Patterns (B10) ____
- N Oxidized Rhizospheres on Living Roots (C3)
- N Presence of Reduced Iron (C4)
- N Salt Deposits (C5)
- Y Stunted or Stressed Plants (D1) – Pic mar
- N Geomorphic Position (D2)
- N Shallow Aquitard (D3)
- N Microtopographic Relief (D4)
- Y FAC Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches) 10"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland Data Form Site 33 July 26, 2007 Photograph 1- Soil

Wetland Data Form Site 33 July 26, 2007 Photograph 2- Soil

Wetland Data Form Site 33 July 26, 2007 Photograph 3- Seasonal Frost

Wetland Data Form Site 33 July 26, 2007 Photograph 4- Seasonal Frost

Wetland Data Form Site 33 July 26, 2007 Photograph 5- Vegetation

Wetland Data Form Site 33 July 26, 2007 Photograph 6- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7-26-07
Applicant/Owner: ADOT&PF Plot: 35
Investigator(s): Anna Kohl Jeff Schively Target: FT3
Lat. 65.23415 Long. -149.52087 Datum: WGS84 Recorded on GPS #:
Landform: Swale feature Feature: Slope (%): 6% Aspect: 290°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSSIC / PEMIC
Photo nos./descriptions: 145, 146 - soil 147, 148 - veg. 149, 150 - hydro Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes X No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks)

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:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Bet pap.	T			5.			
2.				6.			
3.				7.			
4.				8.			

one tree ~22' tall

Total Cover: T
50% of total cover: / 20% of total cover: /

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Sal. pul.	55	X	FACW	7. Sal. beb.	3		FAC
2. Aln. crs.	15		FAC	8. Bet. gla.	T		FAC
3. Spi. bea.	4		FAC	9.			
4. Sal. alb.	15		FACW	10.			
5. Vac. uli.	5		FAC	11.			
6. Rub. arc.	T		FAC	12.			

Total Cover: 97
50% of total cover: 48.5 20% of total cover: 19.4

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pot. pal.	15		OBL	12.			
2. Cal. can.	65	X	FAC	13.			
3. Ane. ric.	T			14.			
4. Ran.	T			15.			
5. Arc. lat.	3		FACW	16.			
6. Rum arc.	T			17.			
7. Epi. arv.	T			18.			
8. Ste. cra.	T			19.			
9.				20.			
10.				21.			
11. 1				22.			

Total Cover: 83
50% of total cover: 41.5 20% of total cover: 16.6

Plot size (radius, or length x width) 0.1 acre. 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) 20 Total Cover of Bryophytes 40 → Sphagnum

Remarks:

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 15	X1= 15
FACW species 73	X2= 146
FAC species 92	X3= 276
FACU species /	X4= /
UPL species /	X5= /
Column Totals: 180	(A) 437 (B)

Prevalence Index = B/A = 2.43

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.

Hyrophytic Vegetation Present? Yes X No

SOIL

Sampling Point: 35

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
13-0"	Oi									
0-7+"	B	2.5Y 3/2				C	M			

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- Y Histic Epipedon (A2)
- Y Hydrogen Sulfide (A4) 5" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- N Alaska Redox with 2.5Y Hue
- NN 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: N/A
Depth (inches) N/A

Drainage Class: VPD

Hydric Soil Present? Yes X No ____

Remarks:
Organics mixed throughout B horizon

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- Y Surface Water (A1)
- Y High Water Table (A2)
- Y Saturation (A3)
- Y Water Marks (B1)
- Y Sediment Deposits (B2)
- Y Drift Deposits (B3)
- Y Algal Mat or Crust (B4)
- Y Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- Y Hydrogen Sulfide Odor (C1) 5" from top
- N Dry-Season Water Table (C2)
- ___ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

- Y Water Stained Leaves (B9)
- Y Drainage Patterns (B10) Beat veg., Channels
- N Oxidized Rhizospheres on Living Roots (C3)
- N Presence of Reduced Iron (C4)
- N Salt Deposits (C5)
- N Stunted or Stressed Plants (D1)
- Y Geomorphic Position (D2)
- N Shallow Aquitard (D3)
- Y Microtopographic Relief (D4)
- Y FAC Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches) 0-7"

Water Table Present? Yes X No ____ Depth (inches) 0"

Seeping in at that depth but not yet filled: Y / N

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:
Surface water throughout site.

Wetland Data Form Site 35 July 26, 2007 Photograph 1- Soil

Wetland Data Form Site 35 July 26, 2007 Photograph 2- Soil

Wetland Data Form Site 35 July 26, 2007 Photograph 3- Vegetation

Wetland Data Form Site 35 July 26, 2007 Photograph 4- Vegetation

Wetland Data Form Site 35 July 26, 2007 Photograph 5- Hydrology

Wetland Data Form Site 35 July 26, 2007 Photograph 6- Hydrology

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7/26/07
Applicant/Owner: DOT NRO Plot: 36
Investigator(s): Jeff Schively Annakoh Target: FT2
Lat. 65,23470 Long. 149,52005 Datum: Recorded on GPS #:
Landform: hillslope Feature: Slope (%): Aspect: 195°
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSSL/4B
Photo nos./descriptions: 151, 152 soil 153, 154 veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y / (N) naturally problematic? (If needed, explain answers in Remarks) T

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 X	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic mar	5	X	FACW	5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover: 5
50% of total cover: 20% of total cover:

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Pic mar	15	X	FACW	7. Spi bea	T		
2. Bet nan	25	X	FAC	8. Sal gla	8		FAC
3. led gro	10		FACW	9. Amp nig	T		
4. Vac uli	5		FAC	10. led dec	T		
5. Vac vit	T			11. Bet gla	T		
6. Ain cri	5		FAC	12. Rib cha	T		
Vac oxy	T						

Total Cover: 68
50% of total cover: 34 20% of total cover: 13.6

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Equ syl	5	X	FACW	12.			
2. Cir can	5	X	FACW	13.			
3. Car can	T			14.			
4. Carex big	T			15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 10
50% of total cover: 5 20% of total cover: 2
Plot size (radius, or length x width) 20% of total cover:
% Cover of Wetland Bryophytes (Where applicable) Total Cover of Bryophytes

Remarks: Sphagnum

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 ✓	X1= ✓
FACW species 30	X2= 60
FAC species 43	X3= 129
FACU species 10	X4= 40
UPL species ✓	X5= ✓
Column Totals: 83	(A) 229 (B)

Prevalence Index = B/A = 2.76

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.

Hyrophytic Vegetation Present? Yes X No

SOIL Sampling Point: 36

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
0-4	Oi									
4-5	B_1	10YR5/3						SiL		
5-8	Oi									buried
8-10	Oe									buried
10-20+	B_2	7.5YR4/2						SiL		

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- Y Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- N Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ____ Alaska Color Change (TA4)
- ____ 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: ____
Depth (inches) ____

Drainage Class:

Hydric Soil Present? Yes ____ No ____

Remarks:
suspended B_1 horizon – very dense
Discontinuous seasonal frost ~18"

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- Y Saturation (A3) -15" *
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- — Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

- N Water Stained Leaves (B9)
- N Drainage Patterns (B10) ____
- N Oxidized Rhizospheres on Living Roots (C3)
- N Presence of Reduced Iron (C4)
- N Salt Deposits (C5)
- ~~N~~ Y Stunted or Stressed Plants (D1) * Primarily in shrub horizon
- N Geomorphic Position (D2)
- N Shallow Aquitard (D3)
- N Microtopographic Relief (D4)
- Y FAC Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches) ____

Water Table Present? Yes ____ No ✓ Depth (inches) ____

Seeping in at that depth but not yet filled: Y / N

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches) 15

Wetland Hydrology Present? Yes ____ No ____

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

Remarks:
* probably much wetter at other times of year

Wetland Data Form Site 36 July 26, 2007 Photograph 1- Soil

Wetland Data Form Site 36 July 26, 2007 Photograph 2- Soil

Wetland Data Form Site 36 July 26, 2007 Photograph 3- Vegetation

Wetland Data Form Site 36 July 26, 2007 Photograph 4- Vegetation

WETLAND DETERMINATION FORM – Alaska Region

Project: Elliott Hwy Borough/City: Date: 7/26/07
Applicant/Owner: DOT NRO Plot: 39
Investigator(s): Jeff Schively Annakoni Target:
Lat. 65.30382 Long. 149.12212 Datum: Recorded on GPS #:
Landform: Hill top Feature: Slope (%): Aspect:
Shape across slope: (linear) convex / concave Shape up/downslope: linear (convex) concave NWI classification: PSS1/3B / PEMIB
Photo nos./descriptions: (Disc 2) 1,2 soil 3,4 veg Recorded on which camera:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: (if no, explain in Remarks)
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y (N) significantly disturbed? Are normal circumstances present? Yes ✓ No
Are Vegetation Y / (N) Soil Y / (N) or Hydrology Y (N) naturally problematic? (If needed, explain answers in Remarks)

Hydrophytic Vegetation Present?	Yes ✓	No	Is the sampled Area within a Wetland?	Yes ✓ No
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks: Tussock field sloping gently to bend in Rd

VEGETATION

Tree Stratum (Use scientific names.)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1.				5.			
2.				6.			
3.				7.			
4.				8.			

Total Cover:
50% of total cover: 20% of total cover:

Sapling/Shrub Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Led dec	10	X	FACW	7. Pic mar	T		
2. Val vit	5		FAC	8. Bet pap	T		
3. Vac uli	15	X	FAC	9.			
4. Bet nan	10	X	FAC	10.			
5. Sal.	T			11.			
6. Rub cha	T			12.			

Total Cover: 40
50% of total cover: 20 20% of total cover: 8

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. Evi vag	75	✓	FACW	12.			
2. Bet fol				13.			
3. Car.	T			14.			
4. Car	T			15.			
5.				16.			
6.				17.			
7.				18.			
8.				19.			
9.				20.			
10.				21.			
11.				22.			

Total Cover: 75
50% of total cover: 37.5 20% of total cover: 15

Plot size (radius, or length x width) 20% of total cover:
% 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: 4 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	X1=
FACW species 85	X2= 170
FAC species 30	X3= 90
FACU species	X4=
UPL species	X5=
Column Totals: 115	(A) 260 (B)

Prevalence Index = B/A = 2.26

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.

Hyrophytic Vegetation Present? Yes ✓ No

Remarks: shrub-sized trees stop abruptly to E/SE of meadow

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* this data form is outside the project area

SOIL

Sampling Point: 39

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

Depth (inches)	Horizon Name	Soil Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Alpha (pos/neg)	Remarks
9-5	Oi									
5-0	Oe									
0-12	B	2.5Y 4/1	50	5YR 3/4	20	C	RC	sil		
				7.5Y 3/3	20	C	M	↓		
		GLEY1 4/N	10					↓		
12+	Bf									frozen

[1]Type: C = Concentration, D = Depletions, RM = Reduced Matrix. [2]Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply):

- N Histosol of Histel (A1)
- Y Histic Epipedon (A2)
- N Hydrogen Sulfide (A4) ____" from top
- N Thick Dark Surface (A12)
- N Alaska Gleyed (A13)
- N Alaska Redox (A14)
- Y Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- N Alaska Color Change (TA4)
- N Alaska Alpine Swales (TA5)
- Y Alaska Redox with 2.5Y Hue
- N 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.

[4]Give details of color change in Remarks.

Restrictive Layer (if present)
Type: Permafrost
Depth (inches) 21

Drainage Class: SWPD

Hydric Soil Present? Yes ✓ No ____

Remarks:
Many Redox in a 2.5Y hue matrix

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply):

Primary Indicators (any one indicator is sufficient)

- N Surface Water (A1)
- N High Water Table (A2)
- Y Saturation (A3)
- N Water Marks (B1)
- N Sediment Deposits (B2)
- N Drift Deposits (B3)
- N Algal Mat or Crust (B4)
- N Iron Deposits (B5)
- N Surface Soil Cracks (B6)
- N Inundation Visible on Aerial Image (B7)
- N Marl Deposits (B15)
- N Hydrogen Sulfide Odor (C1) ____" from top
- N Dry-Season Water Table (C2)
- ✓ Other (explain in Remarks)

Secondary Indicators (at least 2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches) ____

Water Table Present? Yes ✓ No ____ Depth (inches) 15"
seeping in at 15"

Saturation Present? Yes ✓ No ____ Depth (inches) 7
(includes capillary fringe)

Seeping in at that depth but not yet filled: Y / N

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:
permafrost at 21"

Wetland Data Form Site 39 July 26, 2007 Photograph 1- Soil

Wetland Data Form Site 39 July 26, 2007 Photograph 2- Soil

Wetland Data Form Site 39 July 26, 2007 Photograph 3- Vegetation

Wetland Data Form Site 39 July 26, 2007 Photograph 4- Vegetation