

**WETLAND DELINEATION REPORT**  
**WETLAND DELINEATION**  
**AND**  
**WETLAND FUNCTIONAL ASSESSMENT,**  
**VEGETATION CLASSIFICATION,**  
**WILDLIFE HABITAT ASSESSMENT**

**DOT&PF Project No. 68606**

**HAINES HIGHWAY – MP 3.5 TO MP 25.3**  
**HAINES, ALASKA**

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**LIST OF ACRONYMS**

DF&G .....State of Alaska Department of Fish and Game  
DOT&PF.....State of Alaska Department of Transportation and Public Facilities  
DOWL..... DOWL Engineering  
FAA..... Federal Aviation Administration  
LIDAR ..... Light Detection and Ranging  
MP.....milepost  
NWI..... National Wetland Inventory  
USACE ..... U.S. Army Corps of Engineers  
USFWS ..... U.S. Fish and Wildlife Service  
USGS ..... U.S. Geological Survey

## **1.0 INTRODUCTION**

### **1.1 Assessment Location**

Haines is located on the western shore of Lynn Canal between the Chilkoot and Chilkat Rivers. It is 80 air miles northwest of Juneau, just south of the Canadian border at British Columbia, and 600 air miles southeast of Anchorage and Fairbanks. By road, it is 775 miles from Anchorage. The community lies at approximately 59.23° North Latitude and 135.44° West Longitude. The project area is a short distance past the airport and the end of the project is just beyond the Chilkat River Bridge. The project is encompassed within Township 30 South Range 59 East Section 19; Township 30 South Range 58 East Sections 6, 7, 8, 14, 15, 16, 17, 23, 24; Township 29 South Range 58 East Section 31; Township 29 South Range 57 East Sections 5, 6, 8, 9, 14, 15, 16, 23, 26, 25, 36; and Township 28 South Range 56 East Sections 29, 32, 33, 34 (Cooper River Meridian), U.S. Geological Survey (USGS) Map Skagway A-2, B-2, and B-3 (Figure 1).

### **1.2 Assessment Description**

As part of the improvements to the Haines Highway, between Milepost (MP) 3.5 and MP 25.3, the State of Alaska Department of Transportation and Public Facilities (DOT&PF) has contracted DOWL Engineers (DOWL) to conduct wetland, habitat, and vegetation delineations within an approximate 898-acre area that encompasses the proposed project area. The study area is offset 150 feet from the centerline of the Haines Highway from MP 3.5 to MP 25.3 with the exception near proposed realignments, including near the Chilkat River Bridge, where the study area is wider (of varying width) on the south side of the highway. This report describes the classification and mapping of wetlands using aerial photography, a field survey verifying wetland and upland boundaries, functional assessments of each wetland type, mapping vegetation and habitats, and an evaluation of values for selected wildlife species of the study area.

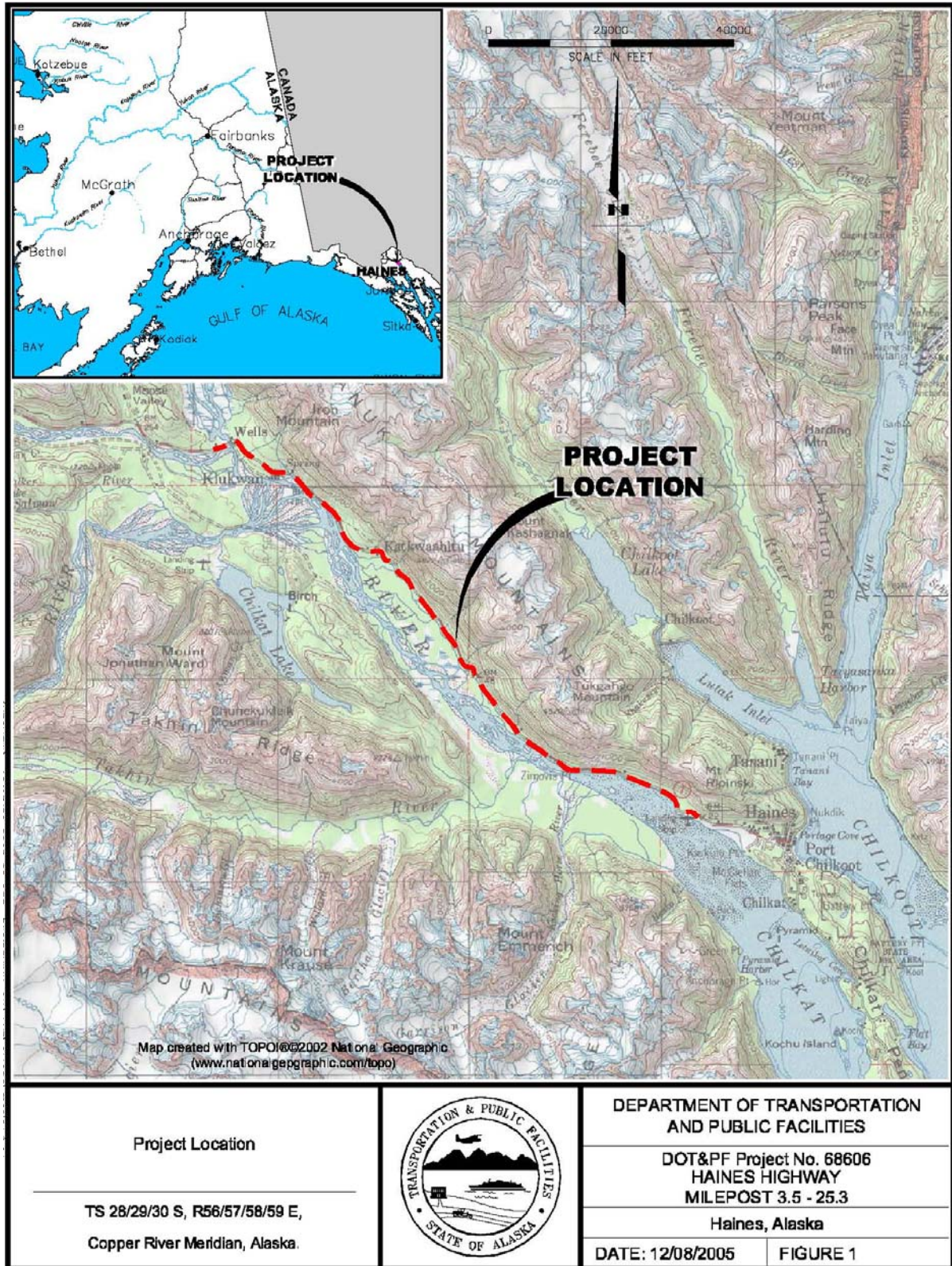


Figure 1: Project Location

## 2.0 BACKGROUND INFORMATION

### 2.1 General Overview

Haines has a maritime climate, with average summer temperatures of 46 to 66 degrees Fahrenheit (°F) and the average winter temperature of 17 to 36°F. Haines receives an average precipitation of 60 inches a year, with 133 inches of snow.

The following is a summary of the vegetation, mammal, bird, fish, and reptile and amphibian species that have the potential to be encountered in the assessment area.

#### 2.1.1 Vegetation

Plant communities within the project area vary from forests and shrubs to herbaceous communities. Black cottonwood (*Populus balsamifera*), Sitka spruce (*Picea sitchensis*), and paper birch (*Betula papyrifera*) dominate the different forest habitats. Common forest understory vegetation includes alder (*Alnus* sp.), willow (*Salix* sp.), red osier dogwood (*Cornus stolonifera*), highbush cranberry (*Viburnum edule*), nootka rose (*Rosa nutkana*), and meadow horsetail (*Equisetum pratense*).

The shrub habitats vary from shrub swamps to upland shrub habitats that are dominated by alder and variety of willow species. Common understory vegetation within the shrub swamp community includes skunk cabbage (*Lysichiton americanum*), swamp horsetail (*Equisetum fluviatile*), and marsh violet (*Viola palustris*). The upland shrub habitat consists of nootka rose, willow species, black cottonwood shrubs, and meadow horsetail.

The herbaceous communities consist of fresh sedge meadow, bluejoint meadow, and fireweed bluejoint meadow. Common vegetation found in these communities includes swamp horsetail, yellow pond lily (*Nuphar luteum*), sedges (*Carex* sp.), bluejoint (*Calamagrostis canadensis*), and fireweed (*Epilobium angustifolium*).

A complete list of the vegetation that may be encountered in the study area is located in Appendix D.

### 2.1.2 Mammals

The Haines area provides habitat to large populations of moose (*Alces alces*), mountain goat (*Oreamnus americanus*), brown (*Ursus arctos*) and black bears (*Ursus Euarctos americanus*), and other furbearers. Mink (*Mustela vison*), beaver (*Castor canadensis*), river otter (*Lontra canadensis*), and muskrat (*Ondatra zibethicus*) are known use wetland habitats, while marten (*Martes americana*), red (*Tamiasciurus hudsonicus*) and flying (*Glaucomys sabrinus*) squirrels, lynx (*Lynx canadensis*), red fox (*Vulpes vulpes*), Sitka deer (*Odocoileus hemionus sitchensis*), and ermine (*Mustela erminea*) inhabit forested and shrubby habitat. Wolves (*Canis Lupis*), coyotes (*Canis latran*), and wolverines (*Gulo gulo*) range throughout the area, and use many diverse habitats.

During the winter, moose (*Alces alces*) are present in major river valleys and in lower elevations. Important moose (*Alces alces*) winter range habitat is the riparian willow communities and mixed deciduous-coniferous forests that are found along the Chilkat River. Prime black bear (*Ursus Euarctos americanus*) habitat consists of dense and semi-open mature forest with an understory that produces many berries. Seasonal concentrations of black bear (*Ursus Euarctos americanus*) occur on beaches and tidal areas during the spring and along salmon streams in the fall. Over 17,000 black bears (*Ursus Euarctos americanus*) are estimated to live in the Southeast (O'Clair et al., 1992). Brown bear (*Ursus arctos*) prefer more open grassland or tundra habitats. They concentrate in beach and sedge flats in the spring, while in the late summer and fall they concentrate along salmon streams. Brown bears (*Ursus arctos*) consume a wide variety of berry producing plants, insect larvae, mammals, and carrion (Federal Aviation Administration [FAA], 2002).

A complete list of the mammals that may be encountered in the study area is located in Appendix F.

### 2.1.3 Birds

The Lynn Canal and the Chilkat and Klehine valleys are a major waterfowl migration route to and from the interior of Alaska and Canada. Major nesting and molting areas are in the Chilkat River basin. The estuaries and wetlands are critical resting and feeding areas for whistling swans (*Olor columbianus*), pintails (*Anas acuta*), green-winged teal (*Anas crecca*),



sandhill cranes (*Grus canadensis*), lesser yellowlegs (*Tringa flavipes*), northern phalaropes (*Tringa flavipes*), sandpipers (*Scolopacidae*), common mergansers (*Mergus merganser*), Canada geese (*Branta canadensis*), trumpeter swans (*Cygnus buccinator*), and mallards (*Anas platyrhynchos*). Willow ptarmigan (*Lagopus lagopus*), blue and ruffed grouse (*Dendragapus obscurus* and *Bonasa umbellus*), ravens (*Corvus corax*), magpies (*Pica pica*), jays, crossbills, chickadees (*Parus* sp.), juncos (*Junco* sp.), and numerous other songbirds either nest or migrate through the Haines area (FAA, 2002).

The project corridor is adjacent to the Alaska Chilkat Bald Eagle Preserve, which was created by the State of Alaska in 1982 to protect and perpetuate Chilkat bald eagles (*Haliaeetus leucocephalus*) and their essential habitats within the preserve. Each fall the largest concentration of bald eagles roosts along the lower Klehini River and the Chilkat River near its confluence with the Tsirku River (about 20 miles northwest of Haines near the village of Klukwan). This area has been designated as State critical habitat. The late chum and silver salmon runs in the rivers attract the eagles. Bald eagles nest and roost in large, old trees, usually Sitka spruce and cottonwood, near the shoreline in the summer (FAA, 2002).

A complete list of the birds that may be encountered in the study area is located in Appendix F.

#### 2.1.4 Fish

The Haines Highway is adjacent to the Chilkat River (Stream #115-32-10250), which is catalogued as an anadromous fish stream. The State of Alaska Department of Fish and Game (DF&G) Catalog of Waters Important For Spawning, Rearing or Migration of Anadromous Fishes states that king (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), sockeye (*O. nerka*), and pink salmon (*O. gorbuscha*), steelhead trout (*O. mykiss*), Dolly Varden (*Salvelinus malma walbaum*), whitefish (*Stenodus* sp.), and cutthroat trout (*O. clarkii*) are present.

The Chilkat River adjacent to the Haines Highway provides the diverse aquatic habitat necessary for the sustainable production of many species of fish. Juvenile salmon, trout, and char rear in the river, dependent on the complex shoreline environment created by large woody debris and rocky outcroppings. The overhanging vegetation common along the

shoreline provides cover for the fish, slows the flow of the water, and contributes woody debris. Many species of juvenile fish migrate along the shoreline of the river on their way to the open ocean. For adult fish, the river provides migration, spawning, and holding areas. The river is constantly changing, providing ideal spawning habitat in some areas, creating and then abandoning side channels that become spring-fed clear-water streams utilized for rearing and spawning, or flooding, and excavating deep pools that serve as essential holding areas for migrating fish. The river level fluctuates widely, and this fluctuation often influences the lower sections of many of the small tributaries that cross or flow along the Haines Highway.

These streams are usually mountain or spring fed, often a combination of both. When the river is high, some of the streams become backwatered sloughs of the Chilkat River, and the flooded margins of the stream channels become prime rearing habitat for juvenile fish. While some streams cross the highway and immediately flow into the river, other streams meander parallel with the river, providing both spawning and rearing habitat. It is common for the streams banks to be densely vegetated, and many of the streams are almost as deep as they are wide, flow slowly, and function primarily as rearing areas. Other streams transport gravels or clear river deposits of silt to create spawning habitat for salmon, trout, and char. The spring fed systems often originate in the swamps found along the valley wall, and these warm-water upwellings provide over-wintering habitat for juvenile fish.

A complete list of the fish that may be encountered in the study area is located in Appendix F.

#### 2.1.5 Reptiles and Amphibians

Most amphibians found in the southeast occur within or near the major river valleys and include the spotted frog (*Rana pretiosa*), the wood frog (*Rana sylvatica*), and the long-toed salamander (*Ambystoma macrodactylum*). Alaska's only reptile, the garter snake (*Thamnophis sirtalis*), has been sighted only along the banks of the Taku and Stikine rivers.

A complete list of the reptiles and amphibians that may be encountered in the study area is located in Appendix E.



## 2.2 Wetland Functions and Values

The Southeast Alaska Freshwater Wetland Assessment Method (USACE, 1998) was used to evaluate the functions and values of the wetlands encountered within the study area. The following seven descriptions of wetland functions, taken directly from the aforementioned document, were considered during the determination of the function and value assessment for each wetland habitat type.

**Floodflow Alteration (storage and desynchronization):** Evaluation of the effectiveness of a wetland in reducing flood damages and retaining water over prolonged periods, thereby adding to the stability of the wetland ecological system or buffering features of social or economic value situated in flood prone areas. The source of the water is usually over-bank flow from stream channels in the wetland, but may also be from tributary or overland flow from uplands. Duration of dynamic surface water storage extends from the time over-bank flow begins until the floodwaters have retreated back to the channel (Brinson, 1995b, as cited in USACE, 1998). Considering the generally small size of most watersheds within southeast Alaskan communities (due to abruptly steep topography and limited waterway lengths), floodflow alteration may not be an appreciable wetland function. In developed areas where floodflow alteration does occur, benefits include safe dry sites for homes and commercial development, recreation/open space, and savings in flood insurance and damage costs.

**Groundwater Interchange (discharge/recharge):** Evaluation of the potential for a wetland to serve as a groundwater recharge/discharge area. In southeast Alaska, groundwater discharge occurs as instream upwellings or springs, and at the base of slopes because of steep topography, saturated shallow soils, and the abundant precipitation (including snow melt). Groundwater recharge typically occurs higher in the watershed, and is generally associated with wetlands near topographic divides, such as bogs and fens located at upper elevations (Adamus, 1987, as cited in USACE, 1998). Benefits include providing dependable water supplies, savings on wells and transportation of water and maintenance of stream flows.

**Sediment/Toxicant Retention:** Evaluation of the effectiveness of a wetland to act as a trap for sediment in runoff water from surrounding uplands, or upstream eroding wetland areas. Sediment retention is more likely to occur in flat vegetated terrain, and can be an important

function in wetlands associated down slope of forestry-related or other landscape-disturbing activities. Toxicant retention (removal of potentially toxic metals or hydrocarbons from solution) in southeast Alaska wetlands may be low due to limited import opportunity; however, diagnosis of the potential of this function would follow the sediment retention predictive criteria. Benefits include maintenance of stable fish habitat and other aquatic resources.

**Sediment/Shoreline Stabilization:** Evaluation of the potential and the effectiveness of a wetland in preventing stream bank or shoreline erosion. In southeast Alaska, heavy precipitation during October, November, and early December causes numerous floods that produce a highly fluctuating discharge hydrograph (USDA Forest Service, 1974(a), as cited in USACE, 1998). In coastal areas, storm events coupled with high tidal stages can result in shoreline erosion in erosion prone areas. Dense vegetation associated with wetland fringes provide benefits including avoidance of high cost of hard erosion control structures and the prevention of property damage.

**Nutrient Removal/Retention/Transformation:** Wetlands have been shown to trap, store, transform, and release nutrients that enter the system through runoff water from surrounding uplands or contiguous wetlands. Nitrogen and phosphorous are the most crucial nutrients in this respect because they can have strongly negative impacts on water quality and may limit plant growth in wetland ecosystems (Verhoevan and Whigham, 1994, as cited in USACE, 1998). Benefits of this function include the purification of polluted water, less expensive treatment of pollutants, energy cycling and increased primary productivity. One study of Juneau wetlands states that in southeast Alaska, no adverse economic effects of over-enrichment have been documented, and some of the highest densities of wintering coho reported from southeast Alaska occurred in the Juneau study area's most nitrogen-enriched and phosphorous-retentive stream. Also, that nutrient removal per se is not viewed as a necessarily positive function for southeast Alaska wetlands, based on fisheries support (Adamus, 1987, as cited in USACE, 1998). However, a number of streams in southeast Alaska have been placed on the list of Alaskan Waterbodies Suspected of Being Affected by Point and Nonpoint Sources.

**Production Export:** Evaluation of the suitability of ability of a wetland to flush relatively large amounts of organic material (specifically carbon from net annual primary and secondary productivity) to downstream or adjacent deeper water for use by other living organisms. In southeast Alaska, salmon may be the major nutrient linkage between freshwater and saltwater wetlands (Adamus, 1987, as cited in USACE, 1998). Benefits include input of aquatic food chains and resultant support for aquatic and terrestrial species.

**Wildlife Habitat:** Evaluation of the suitability of a wetland as habitat for those animals typically associated with wetlands and the wetland edge. Also, the use of the wetland as habitat for migrating species and species dependent on the wetland as some time in their life style. Common species of wildlife using southeast Alaska wetlands include Sitka black-tailed deer, brown bears, and furbearers such as minks, martens, and land otters (USDA Forest Service, L-159, as cited in USACE, 1998). Wildlife-related benefits include hunting for food and recreation, trapping, wildlife photography, wildlife viewing/enjoyment, scientific study, guiding industry support, tourism, and recreational equipment industry support.

**Fish Habitat:** Evaluation of the suitability of watercourses associated with a wetland for fish habitat. In southeast Alaska, the importance of wetlands for fish is well established for coastal wetlands and along rivers and streams. Many fish species feed in wetlands or on food produced by wetlands. Wetlands and streamside marshes are used as nursery grounds, and other wetland types adjacent to rivers maintain and regulate stream flow in channels used by fish. Species (e.g., salmon) that move between fresh and saltwater are dependent on both coastal and riparian wetlands. Benefits include food, recreation, scientific study, guiding industry support, commercial fishing industry, tourism, and recreational equipment industry support.

**Rare, Threatened, Species of Concern or Endangered Species Habitat:** Evaluation of the suitability of the wetland to support threatened or species of concern because of specialized habitat requirements. The primary benefit associated with wetlands critical to sensitive species is the maintenance of threatened plant/animal populations and habitats, which are in jeopardy for future generations.

### **3.0 METHODOLOGY**

#### **3.1 Mapping and Classification**

##### **3.1.1 Field Survey**

Initially, aerial photograph contact prints (September 2004, color) were studied to classify and map the various plant community types within the study area. Next, field reconnaissance was conducted on September 12-16, 2005, to verify the preliminary maps, and to identify and characterize all major plant community types within the study area.

The entire study area was surveyed to determine which general community types occurred. These general community types, such as mixed forest and shrub and sedge dominated wet areas, were identified on the aerial photo. Each area observed for that type was then labeled on the aerial photo. The initial survey resulted in 15 different communities, which were described by their general characteristics. After resurveying the study area based on these communities, the 15 communities were re-grouped into 11 communities and tallied based on their occurrence.

**Table 1: Sampling Methodology Based On Community Groups**

Aerial Photo Identified Communities	Field Sampling Communities	Occurrence (number of observed areas)	Assigned Percentage (to determine the frequency of sampling points)*	Range of Sample Points Required
Tall Willow Shrub	Tall Shrub	6	30%	2
Wet Sedge	Wet Sedge	24	20%	5
Fern areas in footprint				
Cottonwood Forest	Cottonwood Forest	29	20%	6
Complex Bog	Complex Bog	40	20%	8
Wet Sedge/Scrub				
Open Water/Sedge				
Fireweed/Alder Scrub	Road Shoulder	2	50%	1
Shrub/Dead Trees	Shrub/Dead Trees, Sedge/Dead Trees	15	20%	3
Sedge/Dead Trees				
Alder Thicket	Alder Thicket	3	50%	2
Open Water/Pond Lily	Open Water/Pond-Lily	1	50%	1
Stagnant Water	Stagnant Water	1	50%	1
True Mixed Forest	True Mixed Forest	4	50%	2
Creek in Disturbed Areas	Creek in Disturbed Area	3	50%	2

\* For communities observed in 1-5 locations, a sample point was assigned to 50% of these locations. For communities observed in 5-10 locations, a sample point was assigned to 30% of these locations. For communities observed in 10-25 areas, a sample point was assigned to 20% of these locations.

An initial plan for 33 sample locations was determined. After reviewing the aerials once more, areas that would be sampled were identified, based on their representativeness and to ensure a large spatial scale.

Field delineation of wetlands was performed according to the three-parameter approach using vegetative, pedologic, and hydrologic characteristics, as described in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE, 1987). The wetland scientists conducting the wetland delineation completed the USACE wetland delineation course. Additionally, at each location where standing water or complete saturation of the ground was not observed, a soil pit was excavated to a depth of at least 18 inches to determine soil saturation and to describe soil characteristics. Soil color was determined using Munsell Soil Color Charts (2000) and soil composition was determined using a field determination of soil texture chart. Photos were taken at each sampling site to document vegetation and soil profiles (where applicable).

In addition to the wetland determination plots, field verification plots were used to improve the accuracy of the overall mapping effort. The dominant plant species were recorded, and the National Wetland Inventory (NWI) code and Level III of the Alaska Vegetation Classification Code (Vioreck code) were determined. These field verification plots were done in areas where wetland or upland status was already determined at a plot elsewhere in the study area. These plots provided additional field data to assist in the habitat classifications and overall vegetation mapping.

For the wetlands delineation, a USACE routine wetland delineation data sheet was completed to document observed vegetation, soil, and hydrology characteristics at each sample site (Appendix A). Percent aerial cover for each species was estimated, and dominant plant species were recorded for each vegetation layer (tree, shrub, and herbaceous layers). In upland areas, sample points were established in a similar manner to the wetland areas for each different plant community that was encountered. Dominant plant species were recorded for each vegetation layer (tree, shrub, and herbaceous layers), and percent cover for each dominant species was estimated. Photos were taken at each sampling site to document the vegetation (Appendix B).

After data from the initial 26 sample locations were taken, communities were reviewed to determine whether the original 11 communities were the same. Generally, the communities remained the same, but as more of the study area was documented, communities were refined resulting in a total of 37 points necessary to adequately quantify the study area. After the 37 points were completed, nearly all the areas that weren't visited during sampling were walked to verify correct correlation between sampled sites and non-sampled sites.

Using the "50/20 rule," absolute percent cover for each dominant species was estimated. The "50/20 rule" is the recommended method for selecting dominant species from a plant community when quantitative data are not available. The rule states that for each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species that individually comprise 20 percent or more of the total dominance measure for the stratum. The list of

dominant species is then combined across strata. Vegetation within an approximately 30-foot radius was included in the estimations.

Taxonomic nomenclature for plant species followed Hultén (1968). Due to the season that the fieldwork was completed, willow and sedge species that were keyed out depended heavily on known habitats and other indicators rather than inflorescence and flowering parts. Some plants were only keyed out to the genus level (because of a lack of species-defining characteristics) and not to the species level. However, for the majority of these plants, a genus-level identification was sufficient to assign a wetland indicator status (i.e., facultative [fac], facultative upland [facu], facultative wetland [facw], etc.). When there were two different indicators for a species, the indicator assigned erred on being conservative with regards to wetland status. Essentially, the indicator that suggested the plant was more likely to exist in drier areas (i.e., fac vs. facw) was chosen. For example, the *Juncus* plant in point 1 was identified to the genus level. *Juncus* are either facw or obligate (obl). Erring on the side of the plant occurring in drier areas, the *Juncus* that was not keyed out to species was assigned the facw wetland indicator status. Sedge species that were not keyed out to the species were assigned the fac wetland indicator status (after the upland sedge species were eliminated). All species of alder (*Alnus* sp.) are fac; therefore a species of alder that was not keyed to species was assigned the fac wetland indicator status. Genera that have multiple wetland indicator statuses (e.g., grass) were not given a wetland indicator status.

Eleven communities (five wetland communities and six upland communities) were ultimately identified. For a comparison of the first 11 communities and the final 11 communities, see Section 4.0.

### 3.1.2 Final Mapping

Both wetland and upland plant communities were classified using Level III of the Alaska Vegetation Classification system (Vioreck et al., 1992), which is a hierarchical system based on dominant growth forms (tree, shrub, herb), canopy height and closure, general soil moisture and salinity, and dominant plant species. Classification to Level III of the Vioreck system provides the detail necessary to characterize the plant communities for the purpose of

assessing the habitat in the study area. The Viereck classifications were then used to produce a vegetation map (Figures 2a-2m).

Wetlands were classified according to the system guidelines outlined in the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). The mapping codes for each wetland type follow the U.S. Fish and Wildlife Service (USFWS) NWI mapping convention, which is a modified version of the Cowardin System for use in producing a wetland map (Figures 3a-3m). In addition, the vegetation types were classified into habitat based on landscape position, (e.g., upland, lowland, riparian), plant community structure cohesion, and characteristics that form habitat functional units. The habitat types were then used to produce a habitat map (Figures 4a-4m).

### **3.2 Wetland Function and Values Assessment**

The functional importance of wetlands at each site was evaluated using criteria outlined in the Southeast Alaska Freshwater Wetland Assessment Method, USACE Alaska District (USACE, 1998). The field data were recorded on forms from the aforementioned wetland assessment method. The relative importance of 10 processes or attributes that encompass hydrological, water quality, ecological, and social functions was evaluated for each wetland type (Table 5).

### **3.3 Habitat Evaluation**

Existing literature was evaluated prior to the field investigation to identify wildlife-habitat relationships in the region of Haines, Alaska. During the field study, evidence of animal activity (i.e., animal dens, birds' nest, animal tracks, droppings/scat) and species observed in the field was correlated with information from the office-based research. Wildlife values that were considered in this assessment include important foraging habitats, nesting or denning areas, escape cover from predators, and seasonal food sources, such as berry patches.

## **4.0 RESULTS AND DISCUSSION**

### **4.1 Mapping and Classifications**

The Haines Highway study area includes approximately 898 acres. Wetlands and riverine habitat comprise 248 acres (27 percent) of the study area. A total of seven NWI wetland



classifications were documented in the study area. To simplify the number of wetland types evaluated, these classifications were grouped into six wetland habitat types based on similar function and vegetation composition. Riverine was the most common wetland type, comprising approximately 11.0 percent of the study area.

## **4.2 Palustrine Wetland Habitat Types**

The Palustrine System includes all wetland dominated by trees, shrubs, persistent emergent, emergent mosses, and lichens that are not influenced by ocean-derived salinity. Wetland types commonly referred to as bogs, muskegs, fens, marshes, and swamps are grouped in the Palustrine System. Lakes and ponds less than 20 acres in size are also a part of the Palustrine System (NWI, no date).

### **4.2.1 Herbaceous Swamp**

#### *4.2.1.1 Mapping Classification and Description*

The Herbaceous Swamp wetland habitat comprises 40.6 acres (4.5 percent) of the study area. The NWI classification for the Herbaceous Swamp is PEM1H (Palustrine, Emergent, Persistent, Permanently Inundated) and the Alaska Vegetation code is Haf (Herbaceous, aquatic, freshwater). Vegetation in this wetland habitat type is characterized by swamp horsetail (*Equisetum fluviatile*), yellow pond lily (*Nuphar luteum*), beaked sedge (*Carex rostrata*), and marsh cinquefoil (*Potentilla palustris*). Areas of open water (including ponds and sloughs), with herbaceous species growing on the edge, are common in this wetland habitat. Black cottonwood (*Populus balsamifera*) is typically growing around the outskirts of the Herbaceous Swamp wetland habitat. This wetland habitat type was frequently encountered near culverts or in ditches along the roadside; however, the scale of these wetlands is too small to map. Sample Sites 17, 20, 21, 23, and 27 are located within this wetland community type.

#### *4.2.1.2 Wetland Functional Assessment*

The Herbaceous Swamp wetland provides good floodflow alteration, sediment/toxicant retention, nutrient cycling, and wildlife habitat. The ability of the wetland to store runoff from the mountainside allows it to provide floodflow alteration during high periods of precipitation. Because the wetland retains water for prolonged periods of time, and contains

herbaceous vegetation, the wetland has the ability to retain sediments and toxicants from the adjacent roadway and provide nutrient cycling. The herbaceous vegetation along the edge of the watercourse also provides bank stabilization. Culverts that are placed near the Herbaceous Swamp wetland may allow for production export into the Chilkat River. The wetland also provides habitat for a variety of species, which is described below.

#### 4.2.1.3 *Wildlife Habitat Evaluation*

The Herbaceous Swamp wetland habitat provides excellent habitat for waterfowl for foraging, nesting, and rearing. In the Southeast, mallards, green-winged teal, and other dabbling ducks that stay to breed, prefer to nest in freshwater wetlands where high tides can't reach their eggs. The birds with strong ties to this wetland habitat type include great blue heron, belted kingfisher, common snipe, and several small breeding songbirds such as the common yellowthroat, northern waterthrush, and alder flycatcher. Other birds from adjacent forests and shrub habitats come to feed in this habitat type; these include insect-eating swallows, warblers, thrushes, and flycatchers (O'Clair et al., 1992).

Freshwater wetlands bordering the Chilkat River host mouser birds such as northern harriers, American kestrels, northern shrikes, and short-eared owls that use this habitat type to hunt prey such as the meadow vole or muskrat. Other small mammals that inhabit the Herbaceous Swamp include bog lemmings, and meadow, tundra, and long-tailed voles. Large mammals such as moose use this habitat to graze on the floating and submerged vegetation. They may also use this habitat to seek refuge from biting insects. Freshwater marshes are also the breeding grounds of the boreal toad, spotted frog, and wood frog (O'Clair et al., 1992).

Wildlife observations during the delineation include a sandhill crane (*Grus canadensis*) that appeared to be swimming and feeding.

#### 4.2.2 Fresh Sedge Meadow

##### 4.2.2.1 *Mapping Classification and Description*

The Fresh Sedge Meadow wetland habitat comprises 8.9 acres (0.9 percent) of the study area. The NWI classification for the Fresh Sedge Meadow is PEM1B (Palustrine, Emergent, Persistent, Saturated) and the Alaska Vegetation code is Hgm (Herbaceous, graminoid,

moist). Dominant vegetation in the Fresh Sedge Meadow habitat includes a variety of sedges such as beaked sedge, Sitka sedge (*Carex sitchensis*), and two other sedge species that could not be identified at the time of year the sampling was conducted. This habitat lacked hydrology during the site visit; however, the presence of hydrophytic vegetation and hydric soils indicate that this habitat is likely saturated for at least two weeks during the growing season (April 1 - October 30). Sites 1, 2, 36, and 37 were sampled within this wetland habitat type.

#### 4.2.2.2 *Wetland Functional Assessment*

The Fresh Sedge Meadow wetland has the ability to retain water in high precipitation periods and thus provide floodflow alteration, and possibly provide sediment/toxicant retention as well. The Fresh Sedge Meadow wetlands that are located adjacent to culverts may also provide production export.

#### 4.2.2.3 *Wildlife Habitat Evaluation*

With the species richness of sedges in this wetland habitat, many small mammals such as voles and shrews likely inhabit the area, taking advantage of the abundance of seeds. Voles and shrews may also feed on the many small black snails that were observed on stems of the sedges and grasses at Site 1. Hawks and other mouser birds likely visit this habitat to hunt the small mammals. Brown and black bear may use the Fresh Sedge Habitat during spring months for nutrients from the newly emerged sedges. Moose may also frequent this habitat to feed on the tall sedges.

### 4.2.3 Bluejoint Meadow

#### 4.2.3.1 *Mapping Classification and Description*

The Bluejoint Meadow wetland habitat comprises 15.4 acre (1.7 percent) of the study area. The NWI classification for the Bluejoint Meadow is PEM1B (Palustrine, Emergent, Persistent, Saturated) and the Alaska Vegetation Classification code Hgm. Dominant vegetation in this habitat includes bluejoint and common horsetail (*Equisetum arvense*). Sample Site 14 is located within this wetland habitat. This site was saturated at a depth of 10 inches and the soils were low in chroma.

#### 4.2.3.2 *Wetland Functional Assessment*

Relative to other wetlands within the study area, the Bluejoint Meadow has the lowest value for wetland functions. This wetland habitat was encountered within a ditch and therefore it may provide some sediment/toxicant retention.

#### 4.2.3.3 *Wildlife Habitat Evaluation*

The Bluejoint Meadow wetland provides lower quality habitat relative to adjacent communities. Due to the low species richness, this habitat provides limited food availability and shelter. Small mammals such as meadow jumping mouse (*Zapus hudsonius*), long-tailed vole (*Microtus longicaudus*), tundra vole (*M. oeconomus*), meadow vole (*M. pennsylvanicus*), and muskrat (*Ondatra zibethicus*) use grassy wetlands for foraging and breeding habitat (Post, 1996).

#### 4.2.4 Shrub Swamp

##### 4.2.4.1 *Mapping Classification and Description*

The Shrub Swamp wetland habitat comprises 72.5 acres (8.0 percent) of the study area. The NWI classifications for Shrub Swamp are PSS1H (Palustrine, Scrub-shrub, Broadleaved Deciduous, Permanently Inundated) and PSS1E (Palustrine, Scrub-shrub, Broadleaved Deciduous, Seasonally Flooded/Saturated). The Alaska Vegetation Classification code for Shrub Swamp is Sto (Shrub, tall, open) and Slo (Shrub, low, open). Dominant vegetation in this wetland habitat includes alder, mountain willow (*Salix monticola*), and swamp horsetail. Other species that are present include skunk cabbage and marsh violet. The depth of inundation varies in this habitat, from extreme saturation to approximately five inches. Areas that were very saturated, and not inundated, were associated with a nearby stream. The streams appeared to drain from the mountainside and meander through the Shrub Swamp wetland habitat, and possibly run through culverts under the Haines Highway and drain into the Chilkat River. Sample Sites 8, 11, 13, 18, 31, 34, and 35 are located within this habitat type.

##### 4.2.4.2 *Wetland Functional Assessment*

The Shrub Swamp wetland provides floodflow alteration, sediment/toxicant retention, nutrient cycling, shoreline stabilization, production export, wildlife habitat, and potential fish

habitat. This wetland habitat collects runoff from the mountainside and stream overflow. The long water retention time may allow this wetland to provide water quality treatment. During periods of stream overflow, fish may use this wetland habitat if there is connectivity from the Chilkat River via culverts. Areas that do connect to the Chilkat River via culverts may also transport of organics. The woody vegetation also provides some degree of stream bank stabilization in areas where streams are present.

#### *4.2.4.3 Wildlife Habitat Evaluation*

Early vegetational succession communities such as the Shrub Swamp wetland habitat provide good habitat mainly because they green up quickly in the spring and die back fast in the fall. This dramatic flux of the deciduous trees' leaves corresponds to an increase in insects, and therefore many songbirds such as warblers, flycatchers, and swallows inhabit this wetland habitat (O'Clair et al., 1992).

Moose also likely inhabit this habitat due to the high forage biomass available from the willows and the security of the dense shrubs (Peek, 1998 as cited in USFWS no date). Sitka black-tailed deer (*Odocoileus hemionus sitchensis*) may frequent this habitat in mid summer to consume the leaves of the skunk cabbage. Bear likely frequent Shrub Swamp wetland habitat that is adjacent fish streams, such as Site 8. Small mammals that may inhabit this wetland habitat include the meadow vole, masked shrew, and the water shrew.

#### 4.2.5 Seasonally Flooded Black Cottonwood Forest

##### *4.2.5.1 Mapping Classification and Description*

The Seasonally Flooded Black Cottonwood Forest wetland habitat comprises 11.8 acres (1.3 percent) of the study area. The NWI classification for this wetland habitat is PFO1C (Palustrine, Forest, Broad-leaf Deciduous, Seasonally Flooded) and the Alaska Vegetation Classification code is Fbc (Forest, broadleaf, closed). Dominant vegetation in this habitat includes Black cottonwood, alder, nootka rose, and meadow horsetail. The structure of this wetland habitat type is similar the upland Black Cottonwood Forest (described in Section 4.4.3); however, it sits at a lower elevation along the Chilkat River. This wetland habitat type was mapped based on sample Site 12 and extrapolated to other Black Cottonwood Forests at the same elevation using October 2004 Light Detection and Ranging

(LIDAR) topography lines. LIDAR is a sensory system that uses light and laser light to measure distances. The sampled site within this wetland habitat did not have saturated soils at the time of sampling; however, drainage patterns were present and the soils were low in chroma. It is likely that due to the low elevation of this wetland habitat that it experiences saturated soils for at least two weeks of the growing season either from flooding from the Chilkat River or from fluctuation of the groundwater table.

#### *4.2.5.2 Wetland Functional Assessment*

The primary functions that this wetland provides are shoreline stabilization and floodflow control. This wetland habitat is located along the Chilkat River and is effective at preventing stream bank or shoreline erosion. This habitat also acts as a buffer during periods of overbank flow by altering floodflow.

#### *4.2.5.3 Wildlife Habitat Evaluation*

In comparison to the upland Black Cottonwood Forest, the Seasonally Flooded Black Cottonwood Forests are small in scale, typically not connected to other habitats, and therefore are lower habitat value. Furbearers that use this habitat include coyote, lynx, marten, mink, ermine, red fox, beaver, and muskrat. Small mammals include snowshoe hare, northern flying squirrel, red squirrel, porcupine, mice, shrews, and voles. Raptors may visit this habitat to feed on the small mammals. Most importantly, bald eagles use this habitat to perch on the black cottonwoods, especially during the months of October to February when they congregate to feed on the late salmon run.

### **4.3 Riverine Habitat**

The USFWS NWI wetland classification system divides wetlands into five major Systems including Marine, Estuarine, Riverine, Lacustrine, and Palustrine. For this reason, rivers are treated as wetlands in this report. However, it is important to note that the USACE does not define rivers as wetlands. Under USACE regulations, rivers are defined as Waters of the U.S.

The USFWS defines the riverine system as all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent

emergents, emergent mosses, or lichens; and (2) habitats with water containing ocean-derived salts in excess of 0.5 percent (Cowardin, 1979).

#### 4.3.1 Rivers and Streams

##### 4.3.1.1 *Mapping Classification and Description*

The River habitat comprises 99.2 acres (11.0 percent) of the study area and includes the Chilkat River and its tributaries. The NWI classification for the River habitat is R3OW (Riverine, Upper Perennial, Open Water (unknown bottom)).

Interfluve Inc. conducted a stream survey of the project area that included mapping the streams. Their stream data has been incorporated into Figures 2a-1 through 4a-1. The stream data does not have an associated area, and therefore the Interfluve mapped streams are not included in the area of River habitat mentioned above.

##### 4.3.1.2 *Wetland Functional Assessment*

The River wetland provides many functions such as floodflow alteration, groundwater interchange, sediment/toxicant retention, nutrient cycling, production export, wildlife habitat, and fish habitat. The River has the ability to store water during runoff, snowmelt, and high periods of precipitation. With the abundance of salmon that use Chilkat River and its tributaries, this wetland system provides excellent production export. Wildlife and fish habitat is also an important function of this wetland, and is described below.

##### 4.3.1.3 *Wildlife Habitat Evaluation*

The lower Chilkat River (#115-32-10250) is catalogued as an anadromous fish stream. The DF&G Catalog of Waters Important to Anadromous Fishes states that all five salmon species (sockeye, king, coho, pink, chum) are present. Many tributaries of the Chilkat River are also catalogued as anadromous for spawning and rearing habitat.

The river flats of the Chilkat River, along the Haines Highway between Miles 18 and 24, is considered critical habitat in the Alaska Chilkat Bald Eagle Preserve. Bald eagles are attracted to the area by the availability of spawned-out salmon and open waters in late fall and winter. This combination of open water and large amounts of food bring large concentrations of eagles into the Chilkat Valley beginning by early October and lasting

through February. Bear also visit the Chilkat River to feed on spawning salmon during the summer months.

#### **4.4 Upland Habitat Types**

##### **4.4.1 Fireweed-Bluejoint Meadow**

###### *4.4.1.1 Mapping Classification and Description*

The Fireweed-Bluejoint habitat comprises 7.3 acres (0.8 percent) of the study area. The Alaska Vegetation Classification code for this habitat type is Hgd (Herbaceous, graminoid, dry). Dominant species in this habitat include fireweed, bluejoint, and nootka rose. The soils in this habitat type are dry and sandy. Sample Site 7 is located within this habitat. This habitat was frequently observed adjacent to the Haines Highway.

###### *4.4.1.2 Wildlife Habitat Assessment*

The low species richness of this habitat results in low overall habitat value. This habitat is likely utilized mostly by small mammals such as mice, shrews, and voles.

##### **4.4.2 Mixed Shrub**

###### *4.4.2.1 Mapping Classification and Description*

The Mixed Shrub habitat comprises 49.5 acres (5.5 percent) of the study area. The Alaska Vegetation Classification code for this habitat type is Stc (Shrub tall closed) and Slo. Dominant vegetation in this habitat includes nootka rose, feltleaf willow (*Salix alaxensis*), mountain willow, black cottonwood, common horsetail, and common dandelion (*Taraxacum officinale*). This habitat was most commonly observed along the roadside in disturbed areas. Sample sites within this habitat are 3, 9, and 16.

###### *4.4.2.2 Wildlife Habitat Assessment*

Similar to the Shrub Swamp wetland habitat, the Mixed Shrub habitat is preferred by many avian species due to the diverse habitat structure. Moose also use this habitat for forage and shelter. Smaller mammal species such as mice, shrews, and voles are also abundant in the Mixed Shrub habitat.



#### 4.4.3 Black Cottonwood Forest

##### 4.4.3.1 *Mapping Classification and Description*

The Black Cottonwood Forest habitat comprises 315.5 acres (35.1 percent) of the study area. The Alaska Vegetation Classification code for this habitat type is Fbc (Forest broadleaf closed) and Fbo (Forest, broadleaf, open). Vegetation in this habitat includes black cottonwood, soapberry (*Shepherdia Canadensis*), nootka rose, alder, red osier dogwood, highbush cranberry, and meadow horsetail. The soils are dry and generally sandy. Sample sites within this habitat include 6, 15, 19, and 33.

##### 4.4.3.2 *Wildlife Habitat Assessment*

The Black Cottonwood Forest provides habitat for large mammals such as Sitka black-tailed deer, brown and black bears, and wolves. Furbearers that use this habitat include coyote, lynx, marten, mink, ermine, red fox, beaver, and muskrat. Small mammals include snowshoe hare, northern flying squirrel, red squirrel, porcupine, mice, shrews, and voles. Raptors that are found in this habitat are sharp-shinned hawk, goshawk, great-horned owl, boreal owl, red-tailed hawk, osprey, and great gray owl. Numerous bird species also use this habitat including Canada goose, common goldeneye, mergansers, gulls, woodpeckers, and numerous species of songbirds. In addition, extremely large concentrations of bald eagles use the Black Cottonwood Forests near Haines (Natural Resources Conservation Service, 1999).

#### 4.4.4 Birch Forest

##### 4.4.4.1 *Mapping Classification and Description*

The Birch Forest habitat comprises 0.85 acre (<0.0 percent) of the study area. The Alaska Vegetation Classification code for this habitat type is Fbc. Dominant vegetation in the Birch Forest consists of paper birch, feltleaf willow, highbush cranberry, nootka rose, meadow horsetail, and oak fern (*Gymnocarpium dryopteris*). The soils are sandy and cobbles increase with depth. Sample Site 22 is located within this habitat.

#### 4.4.4.2 *Wildlife Habitat Assessment*

Similar to other forests in the study area, Birch Forest habitat provides cover for moose and deer and also provides a winter food source for them. Snowshoe hare and porcupine also feed on paper birch. Birds that use paper birch as a food source include redpoll, pine siskin, and chickadee. Many birds also nest in paper birch trees such as woodpeckers, sapsucker, and vireos.

#### 4.4.5 Sitka Spruce Forest

##### 4.4.5.1 *Mapping Classification and Description*

The Sitka Spruce Forest habitat comprises 57.5 acres (6.5 percent) of the study area. The Alaska Vegetation Classification code for this habitat type is Fnc (Forest needle-leaf closed). The Sitka Spruce Forest is dominated by Sitka spruce, alder, highbush cranberry, nootka rose, northern gooseberry (*Ribes oxyanthoides*), arctic starflower (*Trientalis europaea*), and fireweed. Sample Sites 26 and 28 are located within the Sitka Spruce Forest habitat.

##### 4.4.5.2 *Wildlife Habitat Assessment*

Moose will not likely use this habitat because their browse preference (willow or birch) is not represented well. Bear may frequent the area during berry season or for down time during the day. A resident indicated bears rest in the Spruce Forest during the day, next to sample Site 25, and feed on a salmon in the evening. Red squirrels are abundant in the Spruce Forest, as well as mice, shrew, and voles.

#### 4.4.6 Mixed Forest

##### 4.4.6.1 *Mapping Classification and Description*

The Mixed Forest habitat comprises 102.3 acres (11.4 percent) of the study area. The Alaska Vegetation Classification code for this habitat type is Fmc (Forest mixed closed). Vegetation in this habitat are black cottonwood, Sitka spruce, paper birch, nootka rose, red osier dogwood, highbush cranberry, meadow horsetail, one-sided wintergreen (*Pyrola secunda*), and common pink wintergreen (*Pyrola asarifolia*). The soils are dry and large rock was encountered less than 18 inches in depth. Samples Sites 5 and 24 are located within this habitat.

4.4.6.2 *Wildlife Habitat Assessment*

The Mixed Forest habitat provides diverse habitat structure. The presence or absence of most shrub and forest bird species depends on the tree species present (coniferous or deciduous), density of woody plants, and density of taller trees (Kessel, 1998; as cited in USFWS, no date). A variety of mammals are known to use this habitat as well, such as shrews, voles, mice, lemmings, bats, squirrels, moose, porcupine, marten, mink, wolverine, lynx, wolves, coyotes, red foxes, and bears (Magoun and Dean, 2000; as cited in USFWS, no date).

**Table 2: Haines Highway Study Area National Wetland Inventory (NWI) Types**

NWI Types	Sample Site	System	Class	Subclass	Water Regime	Wetland Type
PEM1B	1, 2, 13, 36, 37	Palustrine	Emergent	Persistent	Saturated	Fresh Sedge Meadow, Bluejoint Meadow
PEM1H	10, 11, 17, 32	Palustrine	Emergent	Persistent	Permanently Inundated	Herbaceous Swamp
PSS1H	18, 20, 21, 23, 27, 29, 30, 31,	Palustrine	Scrub-Shrub	Broad-leaved Deciduous	Permanently Inundated	Shrub Swamp
PSS1E	8, 13, 34, 35	Palustrine	Scrub-Shrub	Broad-leaved Deciduous	Seasonally Flooded/Saturated	Shrub Swamp
PFO1C	12	Palustrine	Forest	Broad-leaved Deciduous	Seasonally Flooded	Seasonally Flooded Cottonwood Forest
R3OW	4	River	Upper Perennial	Open Water	Unknown Bottom	River

**Table 3: Haines Highway Study Area Alaska Vegetation Classification**

Mapping Code	Viereck Code	Level 1	Level 2	Level 3	Habitat
Hgd	III.A.1	Herbaceous	Graminoid	Dry	Fireweed Bluejoint Meadow
Hgm	III.A.3	Herbaceous	Graminoid	Moist	Bluejoint Meadow, Fresh Sedge Meadow
Haf	III.B.3	Herbaceous	Aquatic	Freshwater	Herbaceous Swamp
Sto	II.B.2	Shrub	Tall	Open	Shrub Swamp, Mixed Shrub
Stc	II.B.1	Shrub	Tall	Closed	Mixed Shrub
Slo	II.C.2	Shrub	Low	Open	Shrub Swamp, Mixed Shrub
Fmc	I.C.3	Forest	Mixed	Closed	Mixed Forest
Fmo	I.C.2	Forest	Mixed	Open	Mixed Forest
Fbc	I.B.1	Forest	Broad-leaved	Closed	Birch Forest, Black Cottonwood Forest, Seasonally Flooded Black Cottonwood Forest
Fbo	I.B.2	Forest	Broad-leaved	Open	Black Cottonwood Forest
Fnc	I.A.1	Forest	Needle-leaved	Closed	Sitka Spruce Forest
Bb	--	Barren	--	--	River

**Table 4: Haines Highway Study Area Habitat Types**

Wetland Habitat Type	Sample Sites	NWI Code	Alaska Vegetation Class Code
Fresh Sedge Meadow	1, 2, 36, 37	PEM1B	Hgm
Bluejoint Meadow	14	PEM1B	Hgm
Herbaceous Swamp	10, 17, 20, 21, 23, 27, 29, 32	PEM1H	Haf
Shrub Swamp	8, 11, 13, 18, 31, 34, 35	PSS1H, PSS1E	Sto, Slo
Seasonally Flooded Black Cottonwood Forest	12	PFO1C	Fbc
River	4	R3OW	Bb
<b>Upland Habitat Types</b>			
Fireweed Bluejoint Meadow	7	Upland	Hgd
Mixed Shrub	3, 9, 16	Upland	Stc, Slo
Black Cottonwood Forest	6, 15, 19, 25, 33	Upland	Fbc, Fbo
Birch Forest	22	Upland	Fbc
Sitka Spruce Forest	26, 28	Upland	Fnc
Mixed Forest	5, 24	Upland	Fmc, Fmo

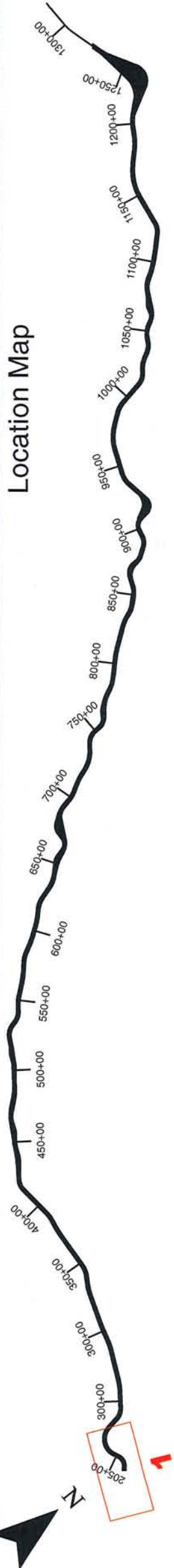
**Table 5: Functions and Values of Wetlands in the Haines Highway Study Area**

Habitat Type	Fresh Sedge Meadow	Bluejoint Meadow	Herbaceous Swamp	Shrub Swamp	Seasonally Flooded Black Cottonwood Forest	River
Wetland Type	PEM1B	PEM1B	PEM1H	PSS1H, PSS1E	PFO1C	R3OW
Vegetation Type	Hgm	Hgm	Haf	Sto, Slo	Fbc	Bb
Functions and Values						
Floodflow Alteration	Low	Low	Moderate	Moderate	High	Low
Groundwater Interchange	Low	Low	Moderate	Moderate	Moderate	Low
Sediment/Toxicant Retention	Low	Low	Moderate	Moderate	Low	Low
Sediment/Shoreline Stabilization	Moderate	Low	Moderate	Moderate	High	Low
Nutrient Cycling	Moderate	Low	Moderate	Moderate	Moderate	High
Production/Detrital Export	Moderate	Low	Moderate	Moderate	Low	High
Wildlife Habitat	Moderate	Low	High	High	Moderate	High
Fish Habitat	Low	Low	Moderate	Low	Low	High
Sensitive, Rare, Threatened, Species of Concern or Endangered Species Habitat	Low	Low	Low	Low	Low	Low
<b>Percentage of Wetland Type in Study Area</b>	0.9	1.7	4.5	8.0	1.3	11.0





- PEM1H Palustrine, Emergent, Persistent, Permanently Flooded
- PEM1B Palustrine, Emergent, Persistent, Saturated
- PSS1H Palustrine, Scrub-Shrub, Broad Leaved Deciduous, Permanently Flooded
- PSS1E Palustrine, Scrub-Shrub, Broad Leaved Deciduous, Seasonally Flooded/Saturated
- PFO1C Palustrine, Forested, Broad Leaved Deciduous, Seasonally Flooded
- R3OW Riverine, Upper Perennial, Open Water/Unknown Bottom
- U Upland
- Sample Points
- Culverts: Waters of the U.S./Non Fish-Bearing Streams
- Culverts: Waters of the U.S./Fish-Bearing Streams
- R3OW (Stream data mapped by Inter-Fluve, Inc., 2005)
- Waters of the U.S./Fish-Bearing Streams



Location Map

Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 2a: Wetland

DOT & PF Project No. 68606



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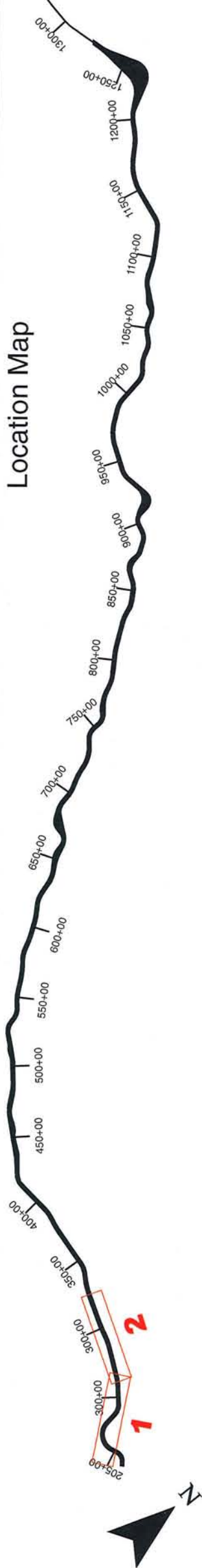
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2



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 2b: Wetland

DOT & PF Project No. 68606

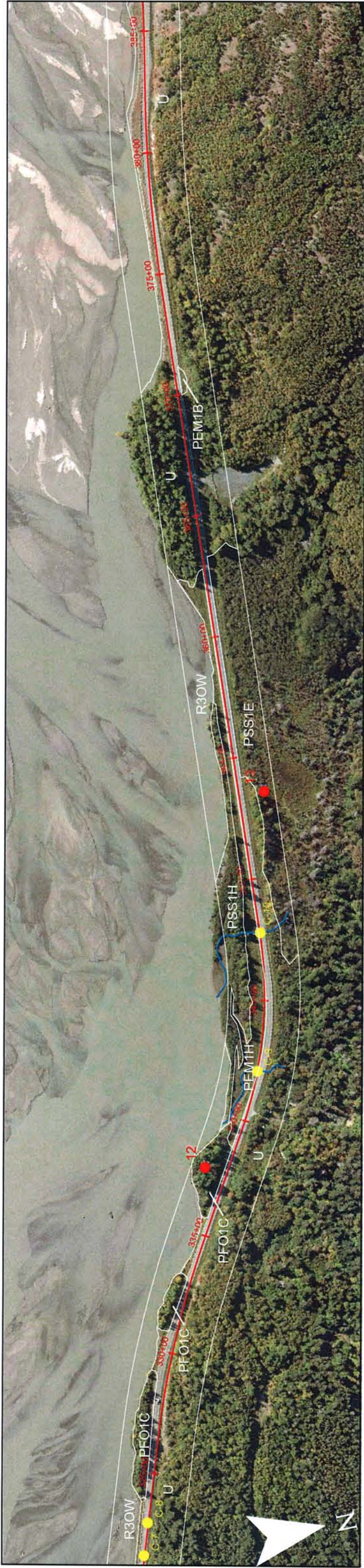


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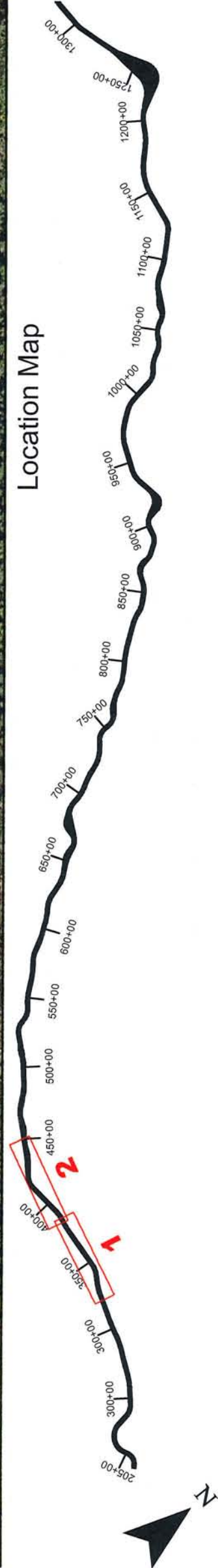
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Location Map



Haines Highway Wetland Delineation  
MP 3.5 to MP 25.3

Figure 2c: Wetland

DOT & PF Project No. 60851

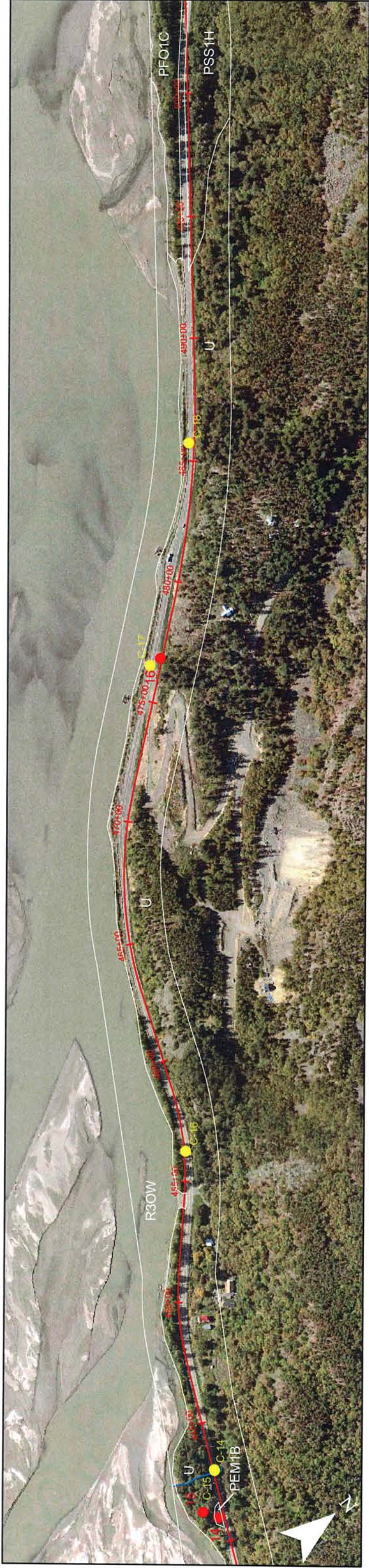
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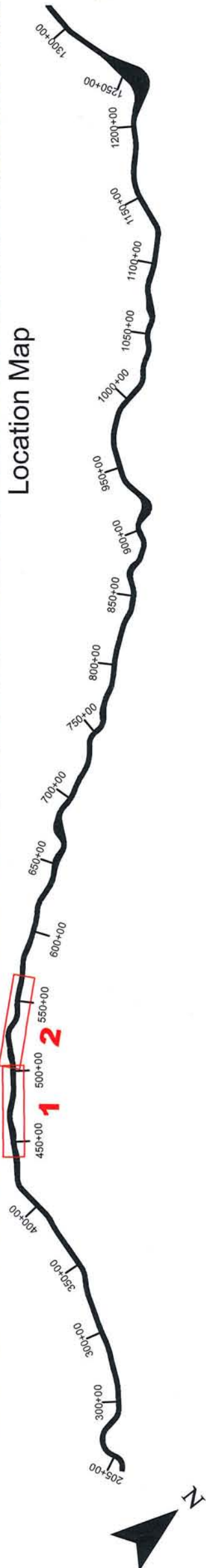
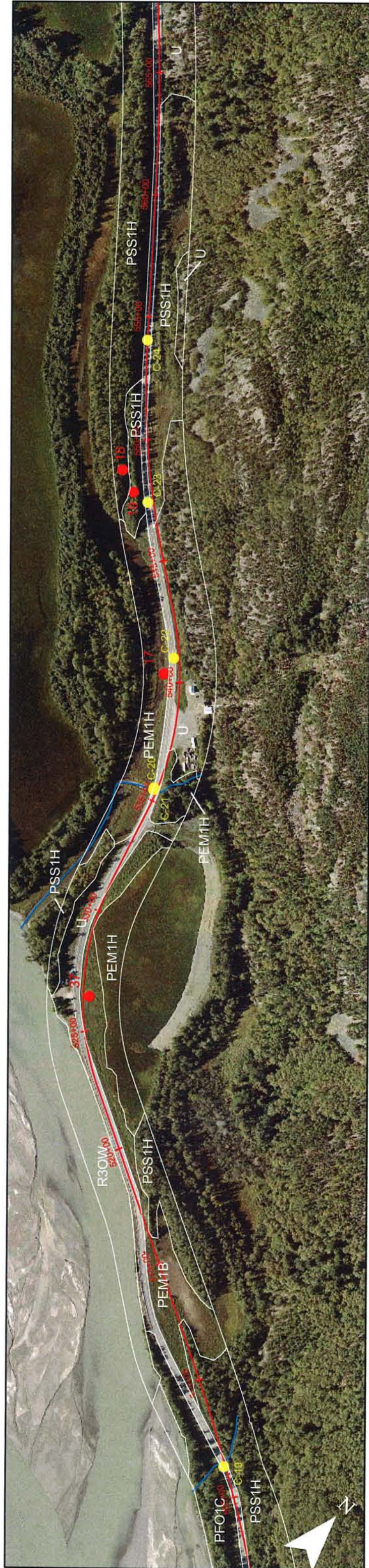
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2



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 2d: Wetland

DOT & PF Project No. 68606

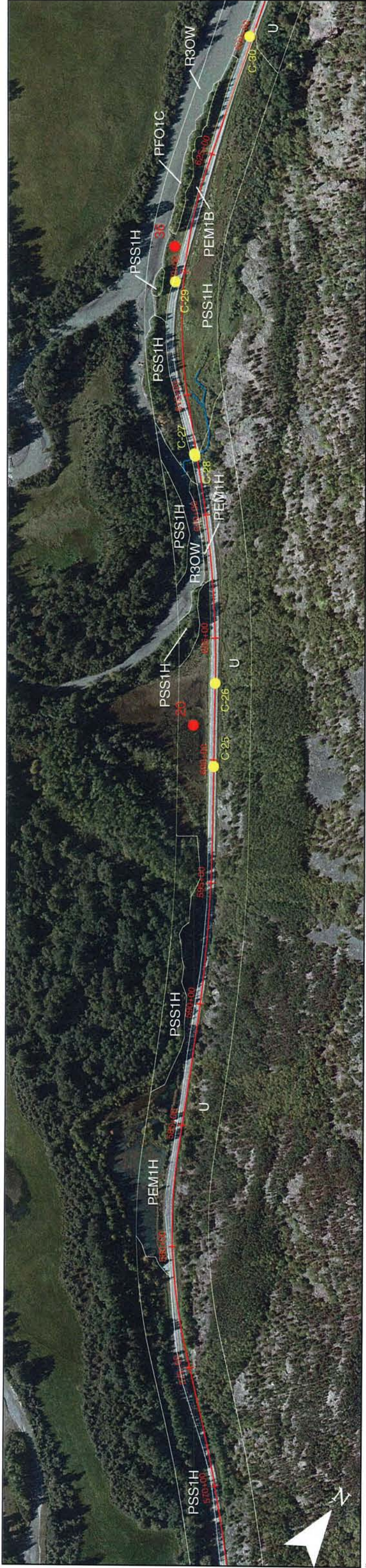
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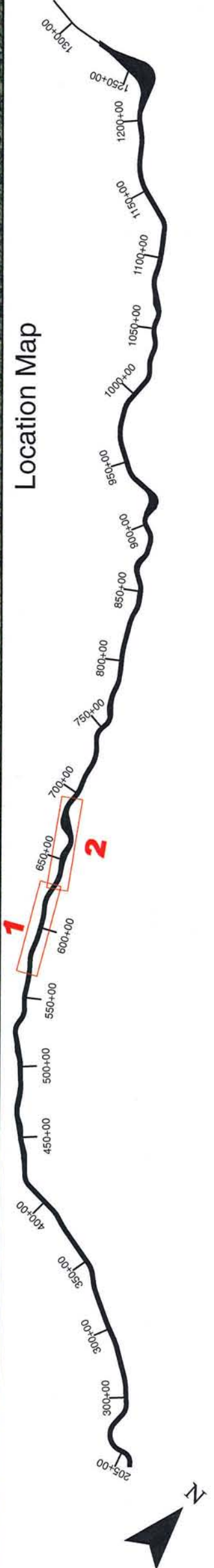
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2



Location Map



Haines Highway Wetland Delineation  
MP 3.5 to MP 25.3

Figure 2e: Wetland

ADOT & PF Project No. 60851



Scale: 1:4800  
April 27, 2006

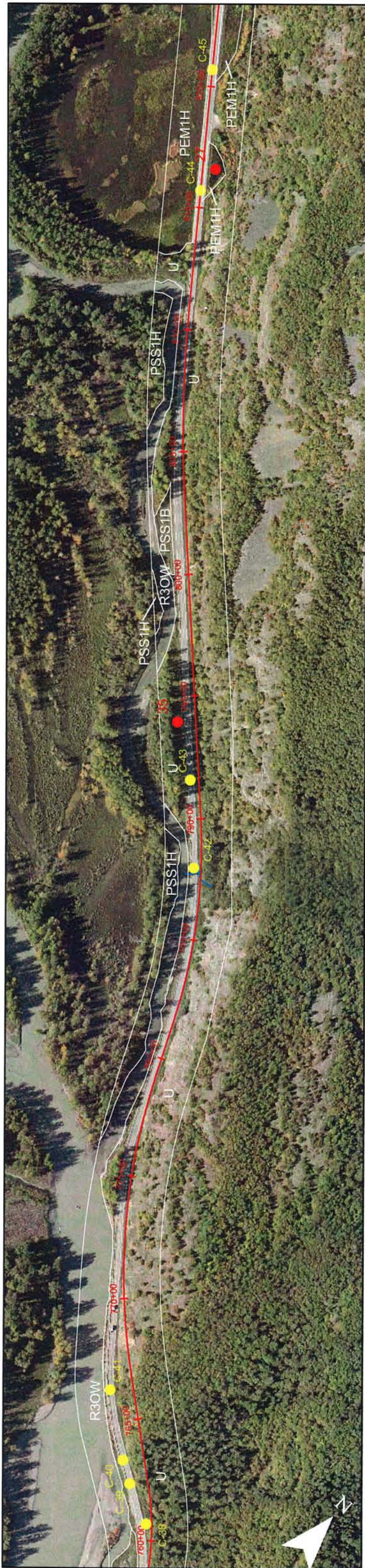
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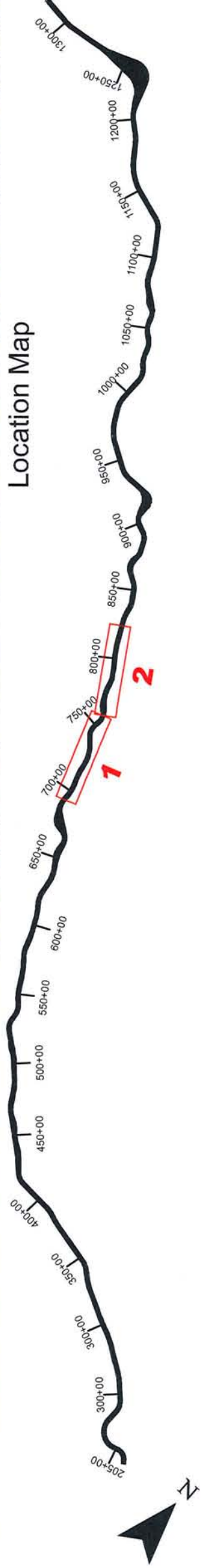
1



2



### Location Map



## Haines Highway Wetland Delineation MP 3.5 to MP 25.3

Figure 2f: Wetland

DOT & PF Project No. 68606



Scale: 1:4800  
April 27, 2006

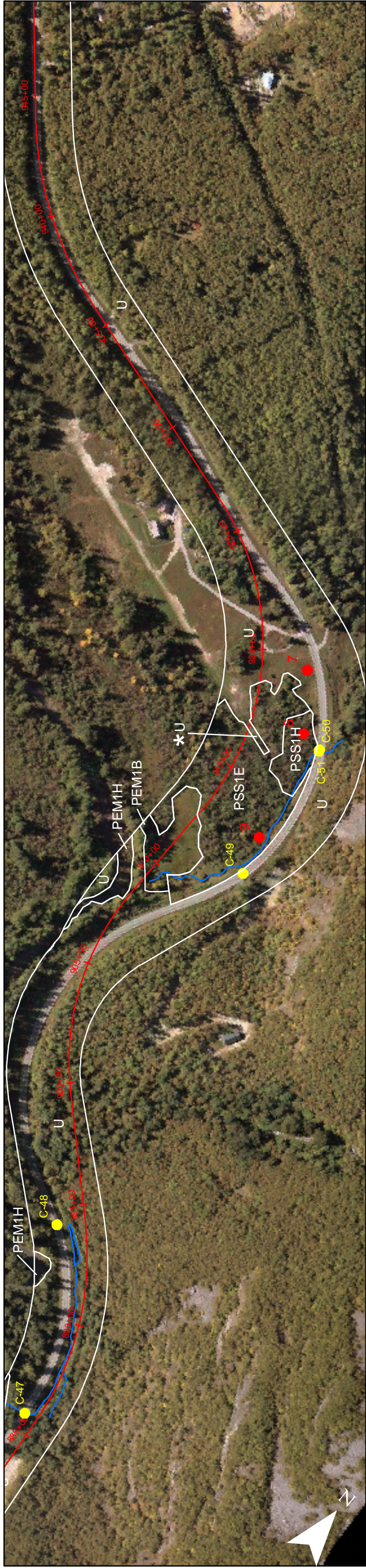
W.O. D59119  
Filename :Figure\_2f.mxd



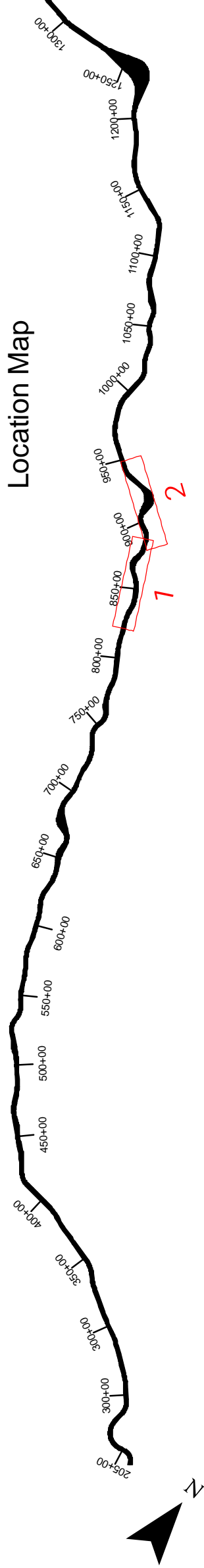
1



2



### Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 2g: Wetland

DOT & PF Project No. 68606

Scale: 1:20400  
 July 31, 2006

W.O. D59119  
 Filename :Figure\_2g.mxd

\* U The runway has been extended since this aerial photograph



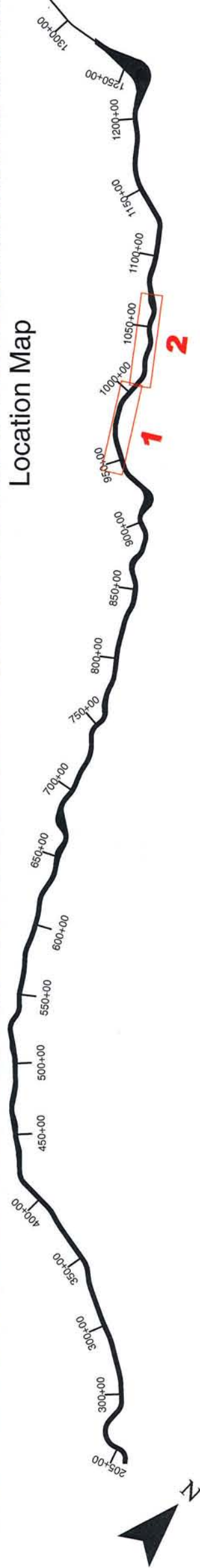
1



2



Location Map



Haines Highway Wetland Delineation  
MP 3.5 to MP 25.3  
Figure 2h: Wetland

DOT & PF Project No. 68606

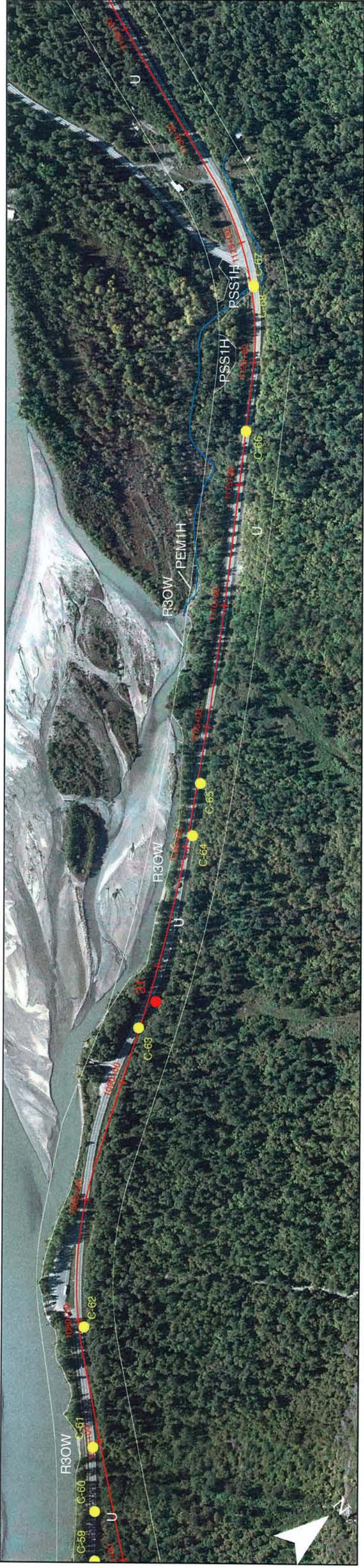
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April 27, 2006



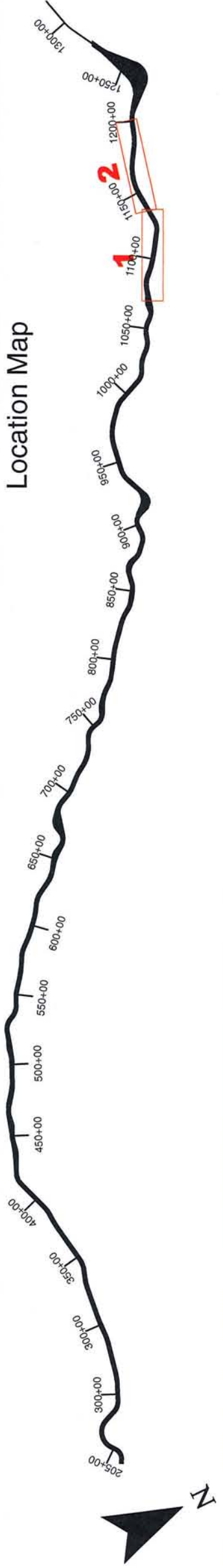
W.O. D59119  
Filename: Figure\_2h.mxd



1



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 2i: Wetland

DOT & PF Project No. 68606



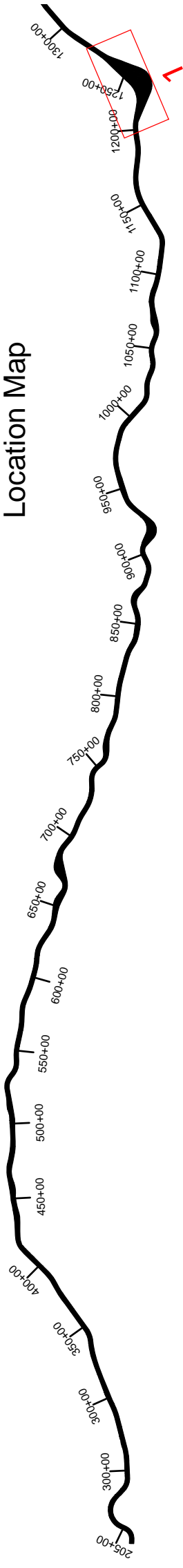
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 April 27, 2006

W.O. D59119  
 Filename :Figure\_2i.mxd





### Location Map



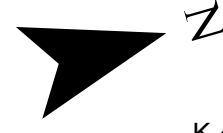
Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 2j: Wetland  
 Alignment Option A

ADOT & PF Project No. 68606

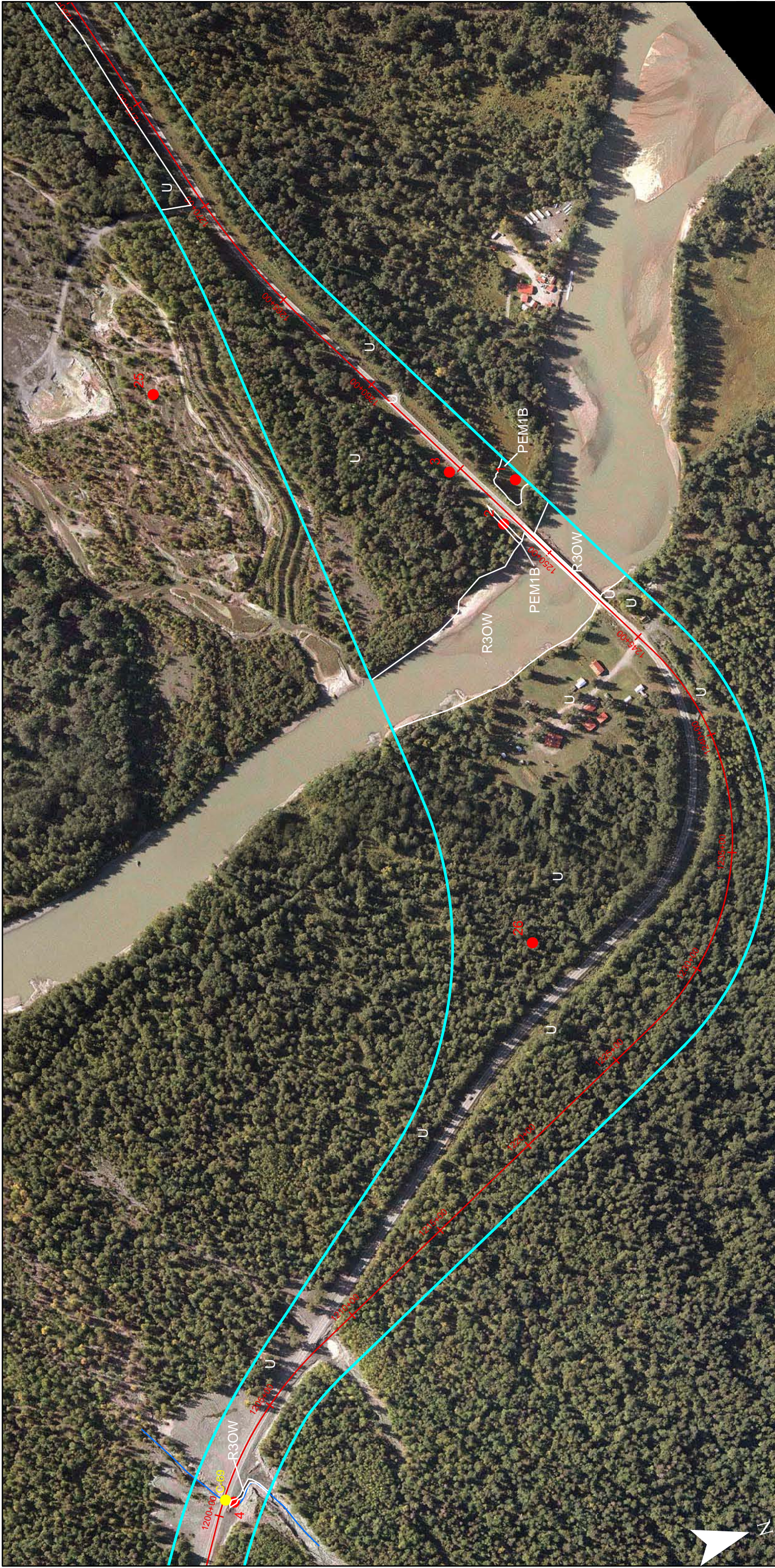
Scale: 1:4800  
 August 26, 2006



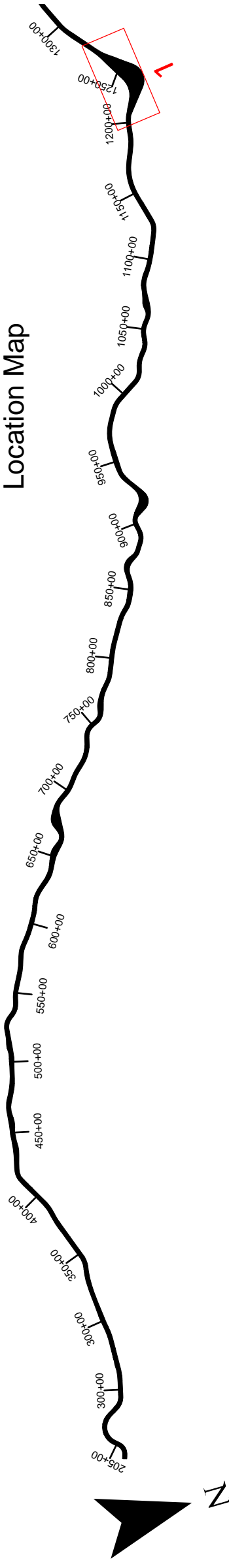
W.O. D59119  
 Filename :Figure\_2j.mxd







### Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 2k: Wetland  
 Alignment Option B

ADOT & PF Project No. 68606

Scale: 1:4800  
 April 27, 2006

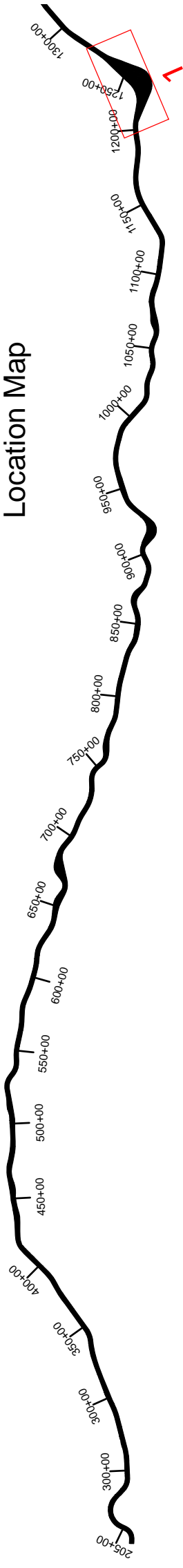


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 Filename :Figure\_2k.mxd





### Location Map



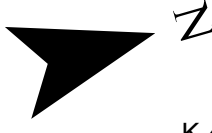
Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 2i: Wetland  
 Alignment Option C

ADOT & PF Project No. 68606

Scale: 1:4800  
 April 27, 2006



W.O. D59119  
 Filename :Figure\_2i.mxd





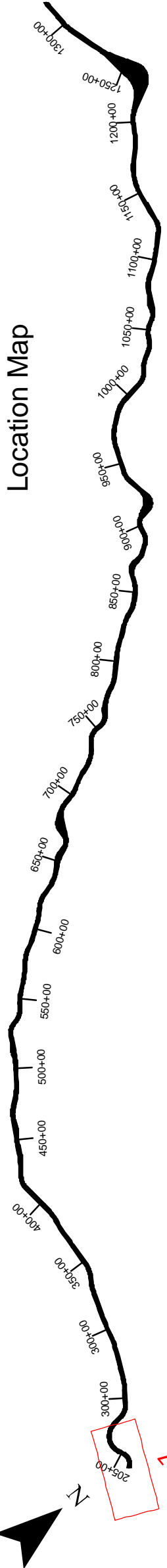






- Bb Barren
- Fbc Forest, Broadleaf, Closed
- Fbo Forest, Broadleaf, Open
- Fnc Forest, Mixed, Closed
- Fmo Forest, Mixed, Open
- Fnc Forest, Needleleaf, Closed
- Hgd Herbaceous, Graminoid, Dry
- Haf Herbaceous, Graminoid, Moist
- Hgm Herbaceous, Aquatic, Freshwater
- Slo Shrub, Low, Open
- Sic Shrub, Tall, Closed
- Sto Shrub, Tall, Open
- W Water
- Sample Points
- ~ Streams (Stream data mapped by Inter-fluve, 2005)

Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 3a: Vegetation

DOT & PF Project No. 68606

Scale: 1:4800  
 April 17, 2006

W.O. D59119  
 Filename :Figure\_3a.mxd



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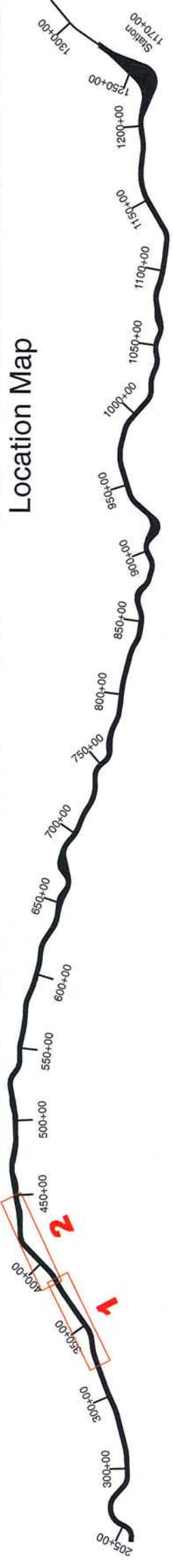
1



2



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 3c: Vegetation

DOT & PF Project No. 60851



Scale: 1:4800  
 April 17, 2006

W.O. D59119  
 Filename :Figure\_3c.mxd



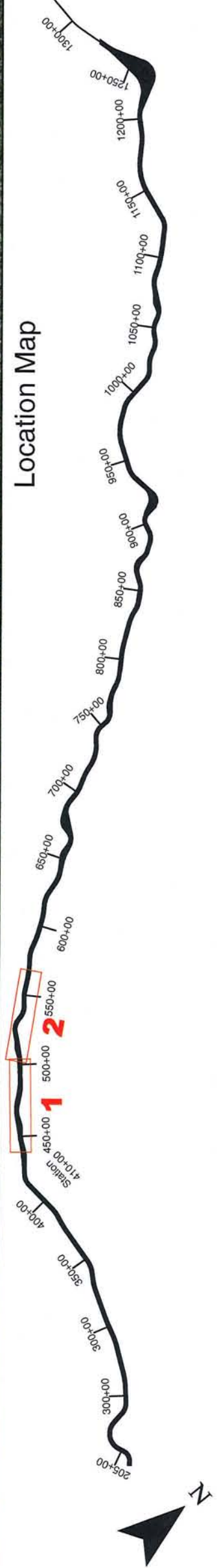
1



2



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 3d: Vegetation

DOT & PF Project No. 68606

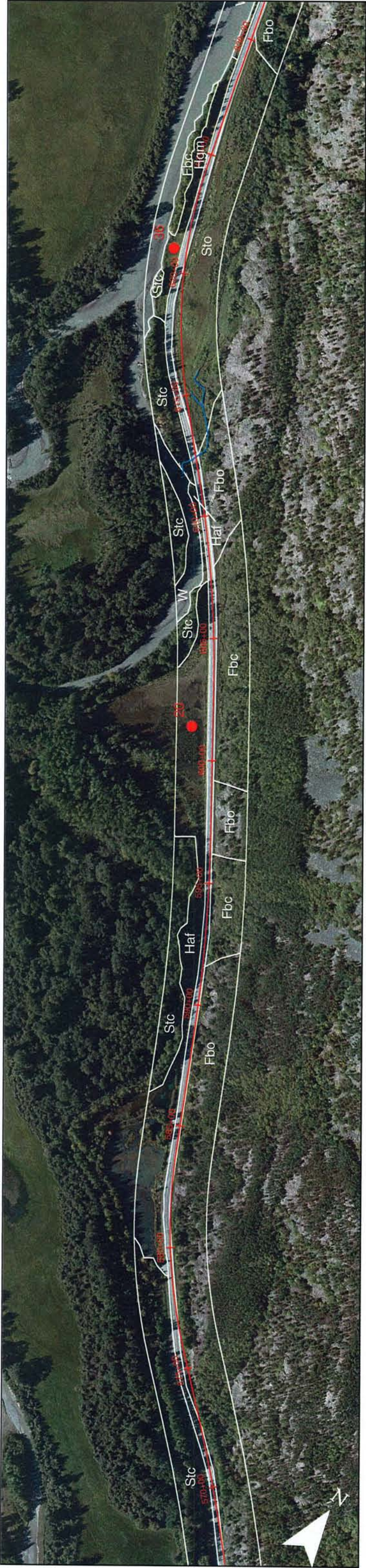


Scale: 1:4800  
 April 17, 2006

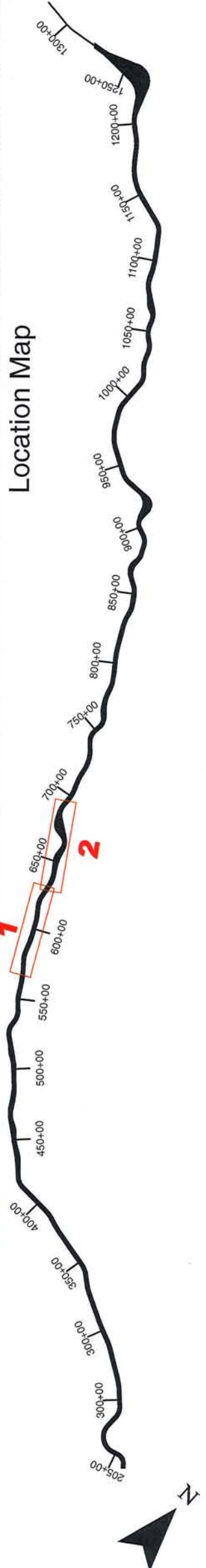
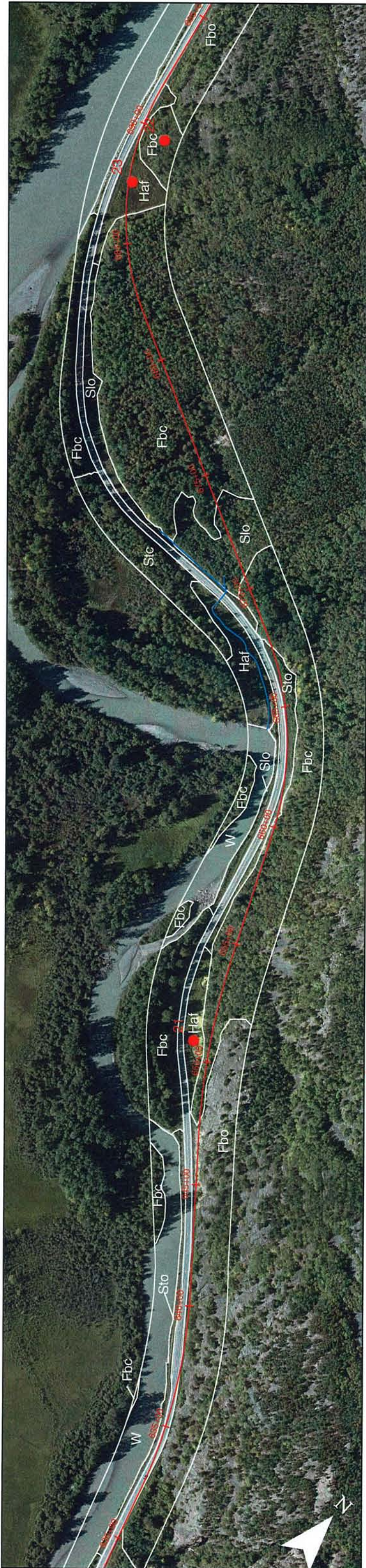
W.O. D59119  
 Filename: Figure\_3d.mxd



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Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 3e: Vegetation

DOT & PF Project No. 60851  
 Scale: 1:4800  
 April 27, 2006  
 W.O. D59119  
 Filename :Figure\_3e.mxd

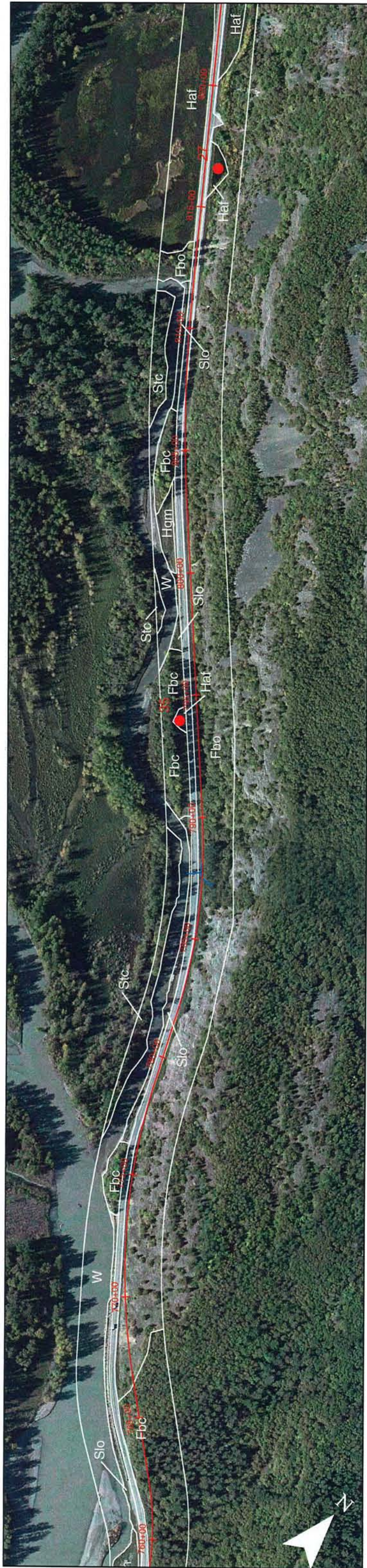




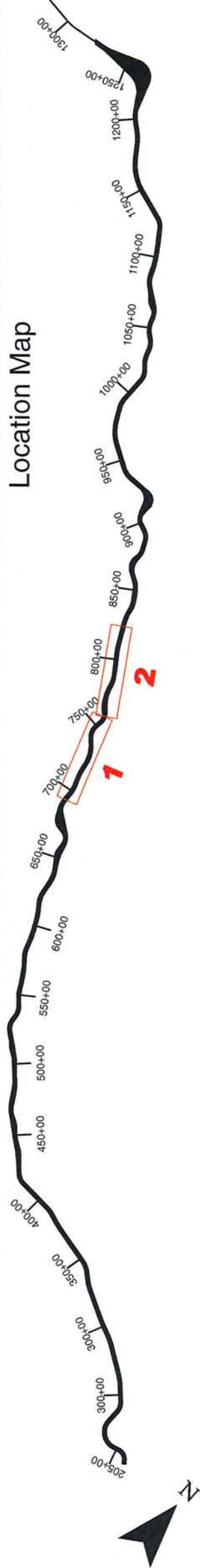
1



2



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 3f: Vegetation

ADOT & PF Project No. 68606

Scale: 1:4800  
April 17, 2006



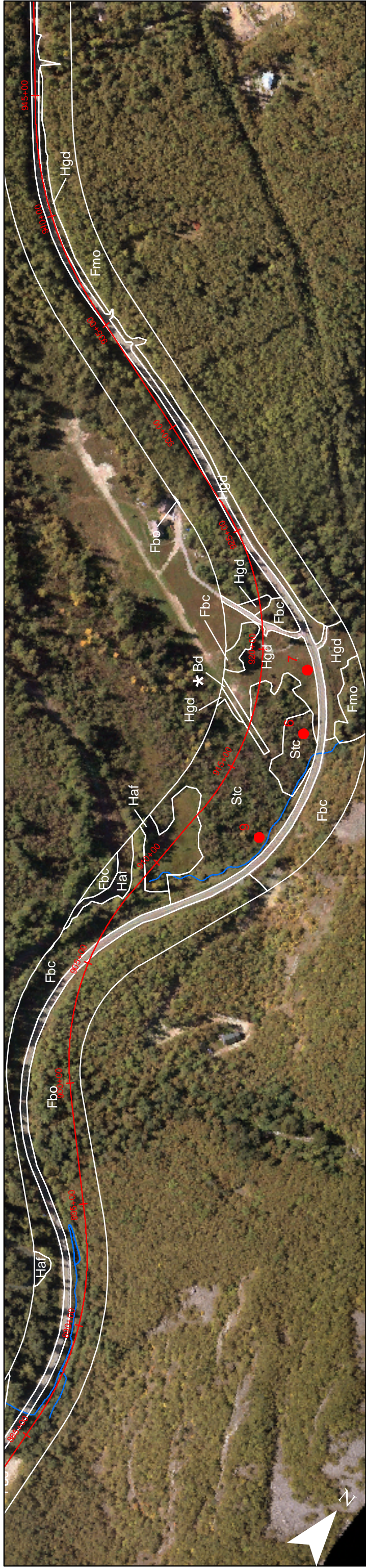
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Filename : Figure\_3f.mxd



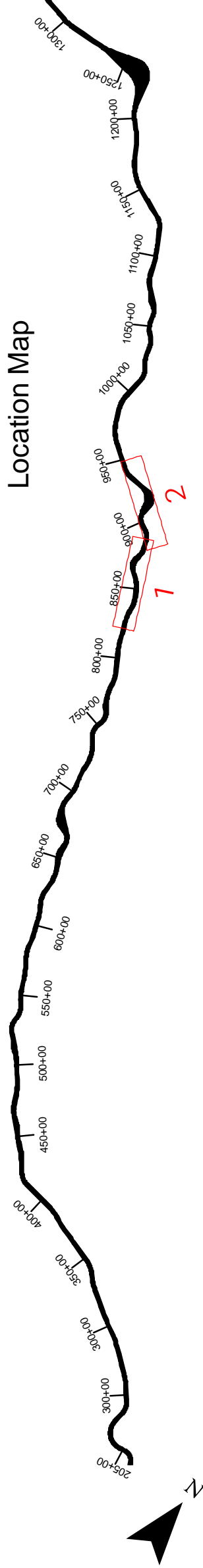
1



2



### Location Map



## Haines Highway Wetland Delineation MP 3.5 to MP 25.3 Figure 3g: Vegetation

DOT & PF Project No. 68606

Scale: 1:4800  
July 31, 2006

W.O. D59119  
Filename :Figure\_3g.mxd

★ Bd The runway has been extended since this aerial photograph



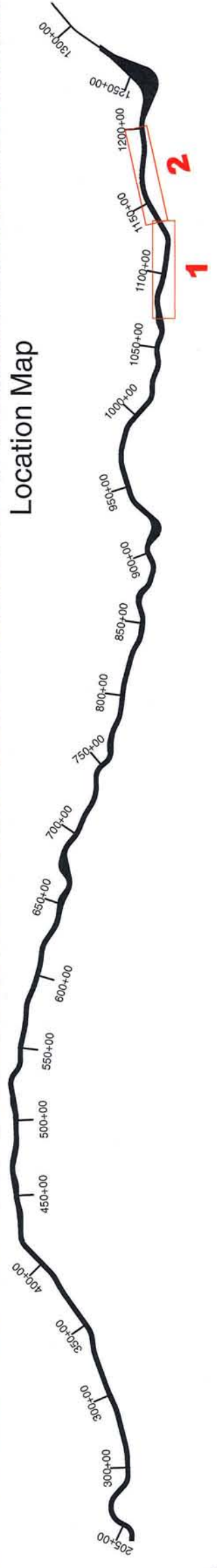




1



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 3i: Vegetation

DOT & PF Project No. 68606



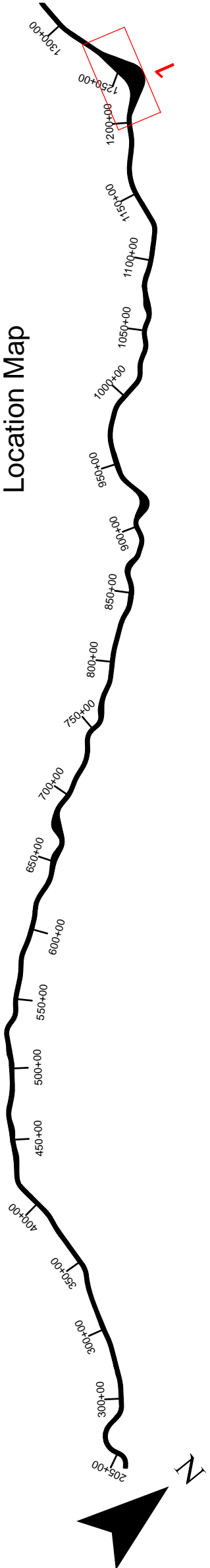
Scale: 1:4800  
 April 17, 2006

W.O. D59119  
 Filename: Figure\_3i.mxd





### Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 3j: Vegetation  
 Alignment Option A

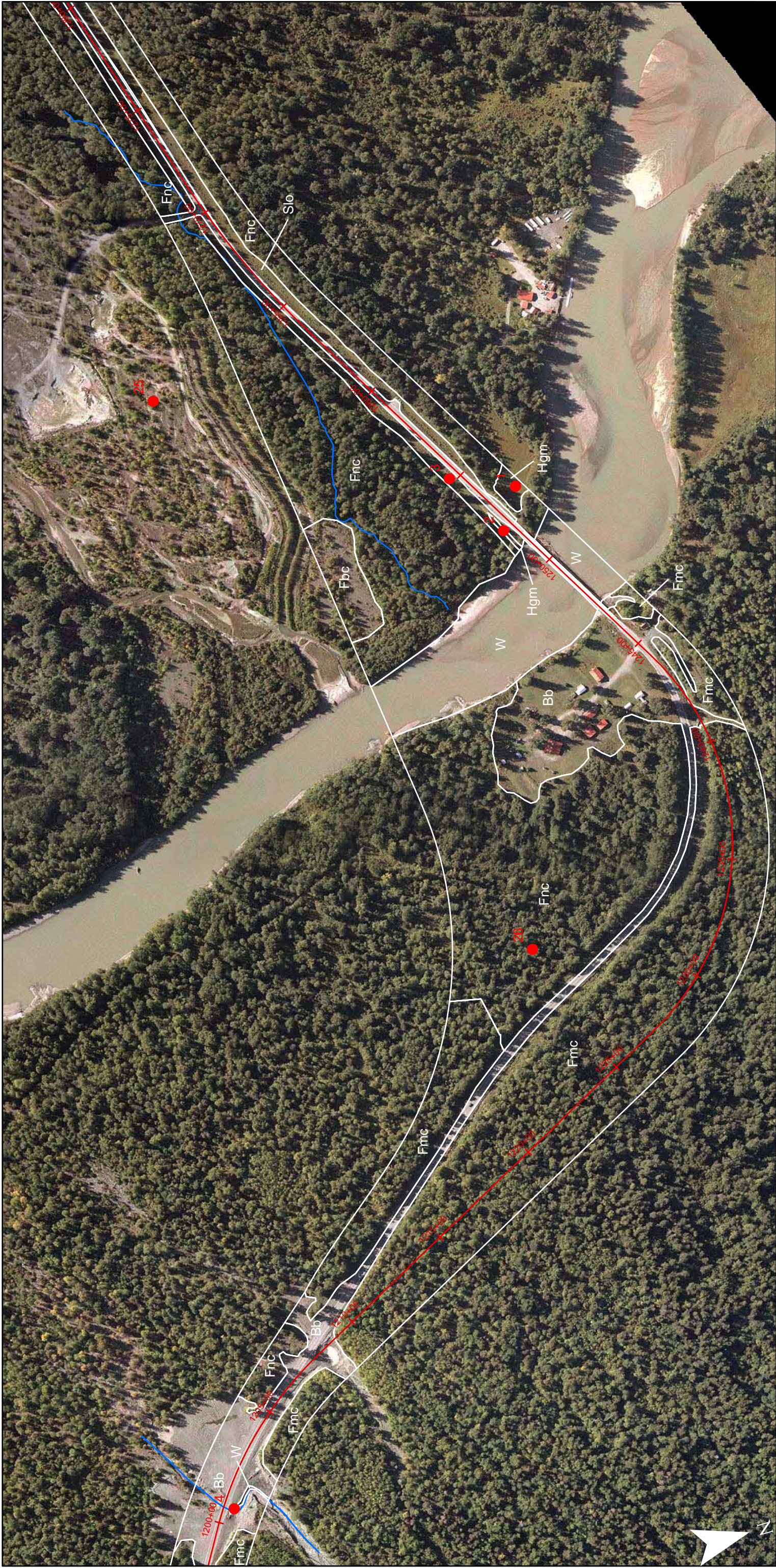
DOT & PF Project No. 68606

Scale: 1:4800  
 August 26, 2006

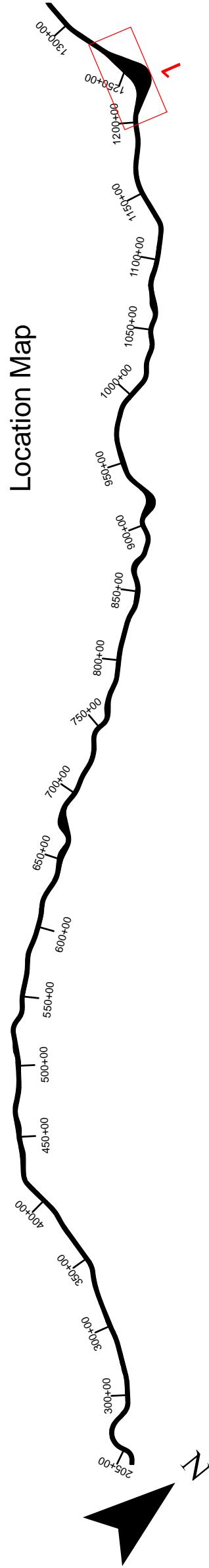


W.O. D59119  
 Filename :Figure\_3j.mxd





Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 3k: Vegetation  
 Alignment Option B

DOT & PF Project No. 68606

Scale: 1:4800  
 August 26, 2006

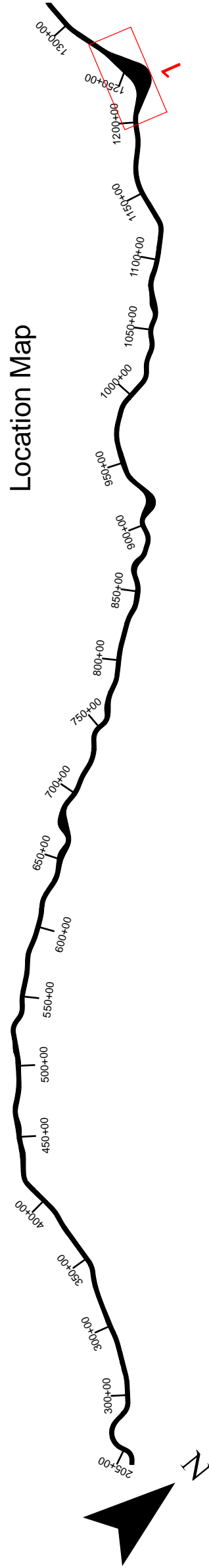


W.O. D59119  
 Filename :Figure\_3k.mxd





### Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 31 Vegetation  
 Alignment Option C

DOT & PF Project No. 68606

Scale: 1:4800  
 August 26, 2006

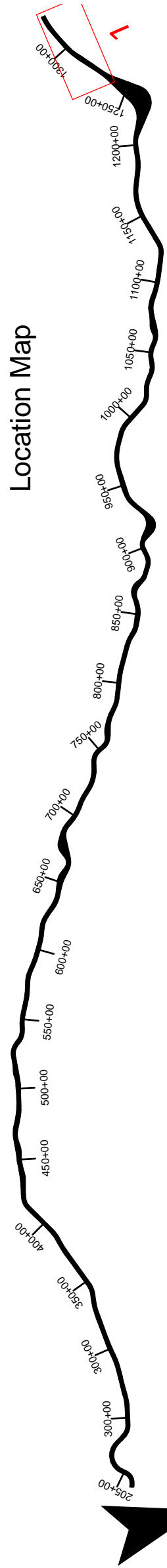


W.O. D59119  
 Filename :Figure\_31.mxd





Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 3m: Vegetation

DOT & PF Project No. 68606



Scale: 1:4800  
 June 28, 2006

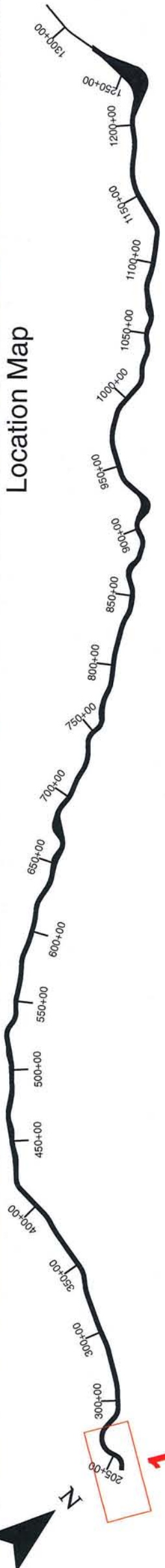
W.O. D59119  
 Filename :Figure\_3m.mxd





- BF Birch Forest
- BCF Black Cottonwood Forest
- BM Bluejoint Meadow
- D/D Developed / Disturbed
- FBM Fireweed Bluejoint Meadow
- FSM Fresh Sedge Meadow
- HM Herbaceous Marsh
- HS Herbaceous Swamp
- MF Mixed Forest
- MS Mixed Swamp
- R River
- SFBCF Seasonally Flooded Black Cottonwood Forest
- SS Shrub Swamp
- SSF Sitka Spruce Forest
- Sample Points
- ~ Streams (Stream data mapped by Inter-Fluve, Inc., 2005)

### Location Map



## Haines Highway Wetland Delineation MP 3.5 to MP 25.3

Figure 4a: Habitat

DOT & PF Project No. 68606

Scale: 1:4800  
April 17, 2006



W.O. D59119  
Filename: Figure\_4a.mxd



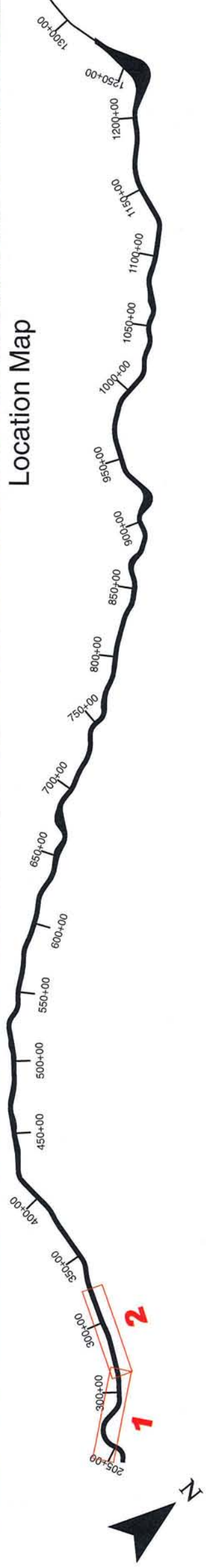
1



2



Location Map



Haines Highway Wetland Delineation  
MP 3.5 to MP 25.3

Figure 4b: Habitat

DOT & PF Project No. 68606



Scale: 1:4800  
April 17, 2006

W.O. D59119  
Filename: Figure\_4b.mxd



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2

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Haines Highway Wetland Delineation  
MP 3.5 to MP 25.3

Figure 4c: Habitat

DOT & PF Project No. 60851



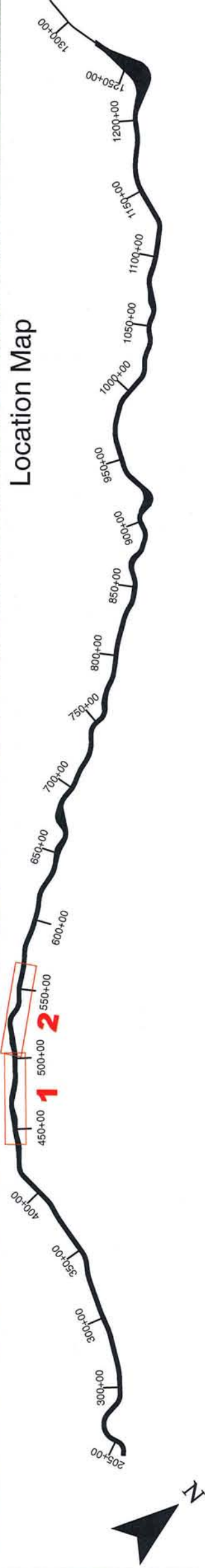
1



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Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 4d: Habitat

DOT & PF Project No. 68606



Scale: 1:4800  
 April 17, 2006

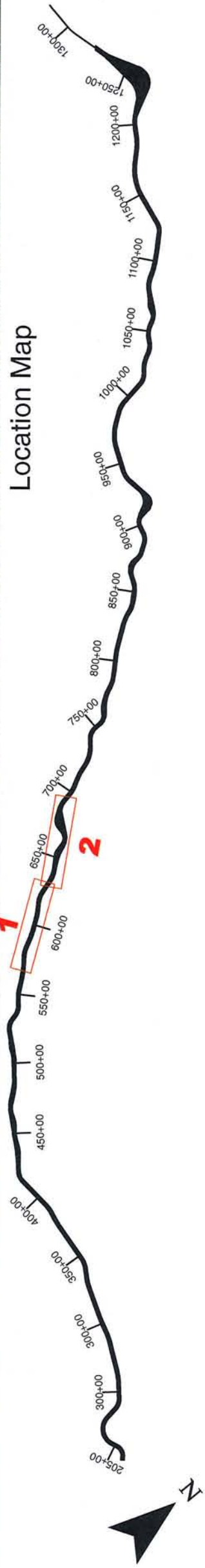
W.O. D59119  
 Filename :Figure\_4d.mxd



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Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 4e: Habitat

DOT & PF Project No. 60851

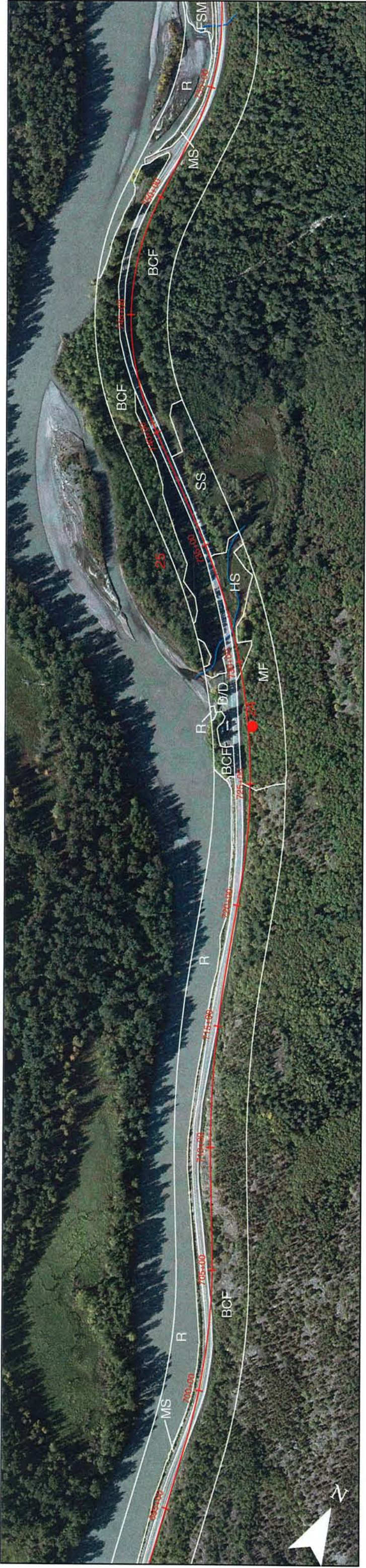


Scale: 1:4800  
 April 27, 2006

W.O. D59119  
 Filename :Figure\_4e.mxd



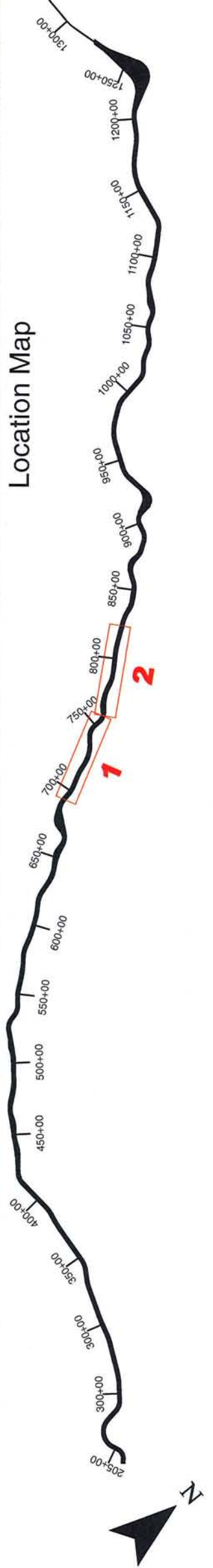
1



2



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 4f: Habitat

DOT & PF Project No. 68606



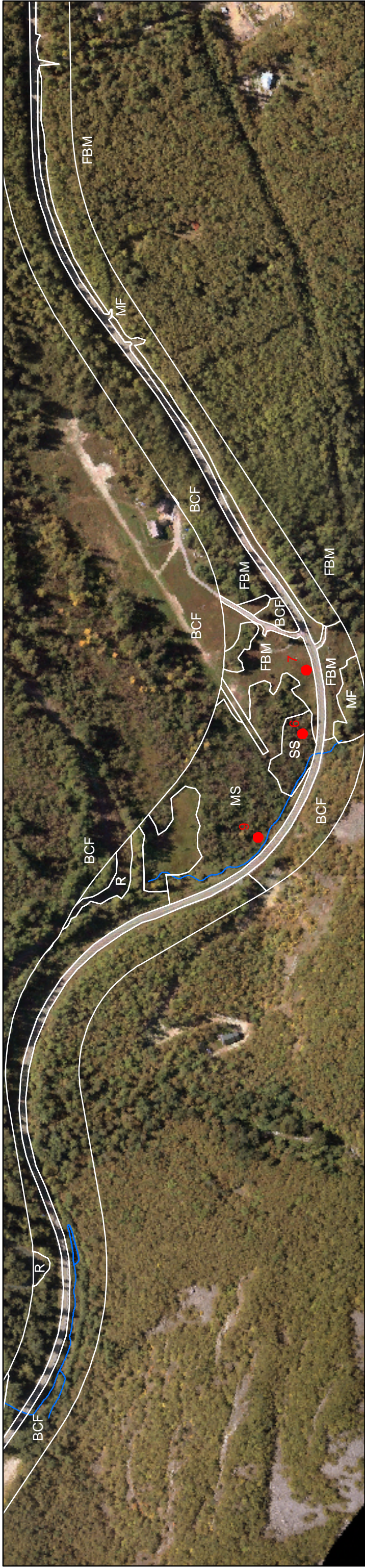
Scale: 1:4800  
 April 17, 2006

W.O. D59119  
 Filename :Figure\_4f.mxd



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Haines Highway Wetland Delineation  
MP 3.5 to MP 25.3

Figure 4g: Habitat

DOT & PF Project No. 68606

Scale: 1:4800  
July 31, 2006

W.O. D59119  
Filename :Figure\_4g.mxd

1 2



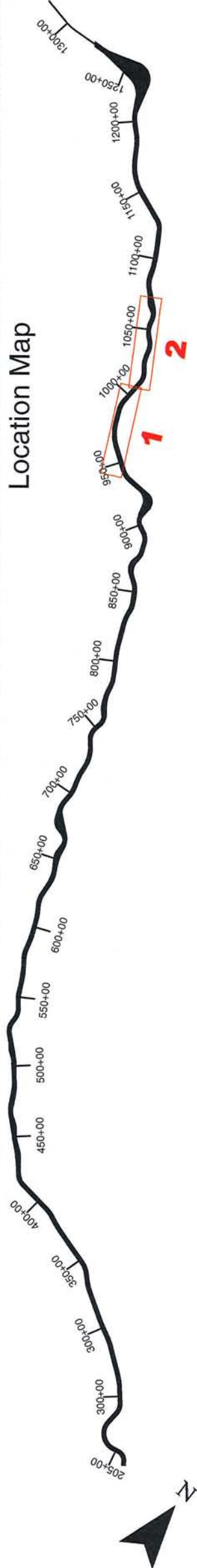
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2



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 4h: Habitat

DOT & PF Project No. 68606

Scale: 1:4800  
February 22, 2006



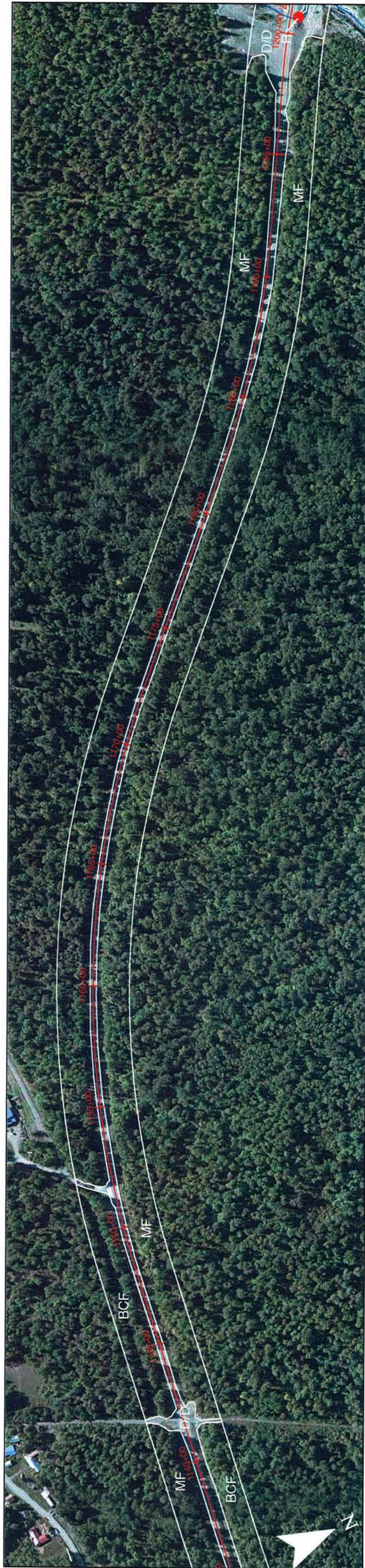
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Filename: Figure\_4h.mxd



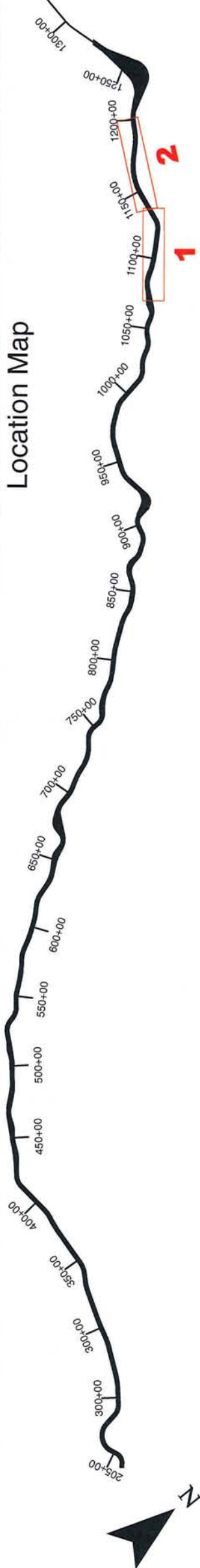
1



2



Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3

Figure 4i: Habitat

DOT & PF Project No. 68606

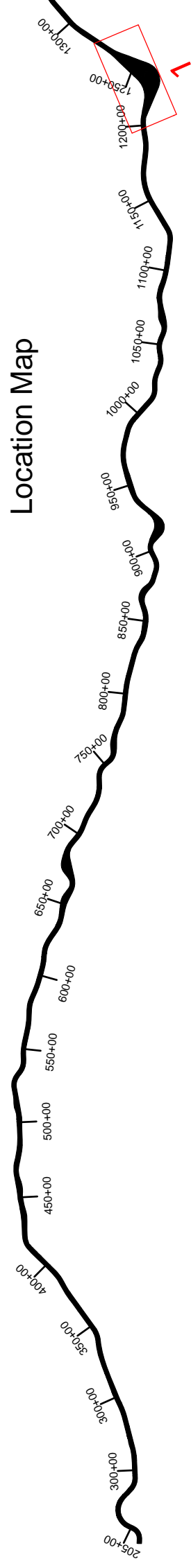
Scale: 1:4800  
April 17, 2006







Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 4j: Habitat  
 Alignment Option A

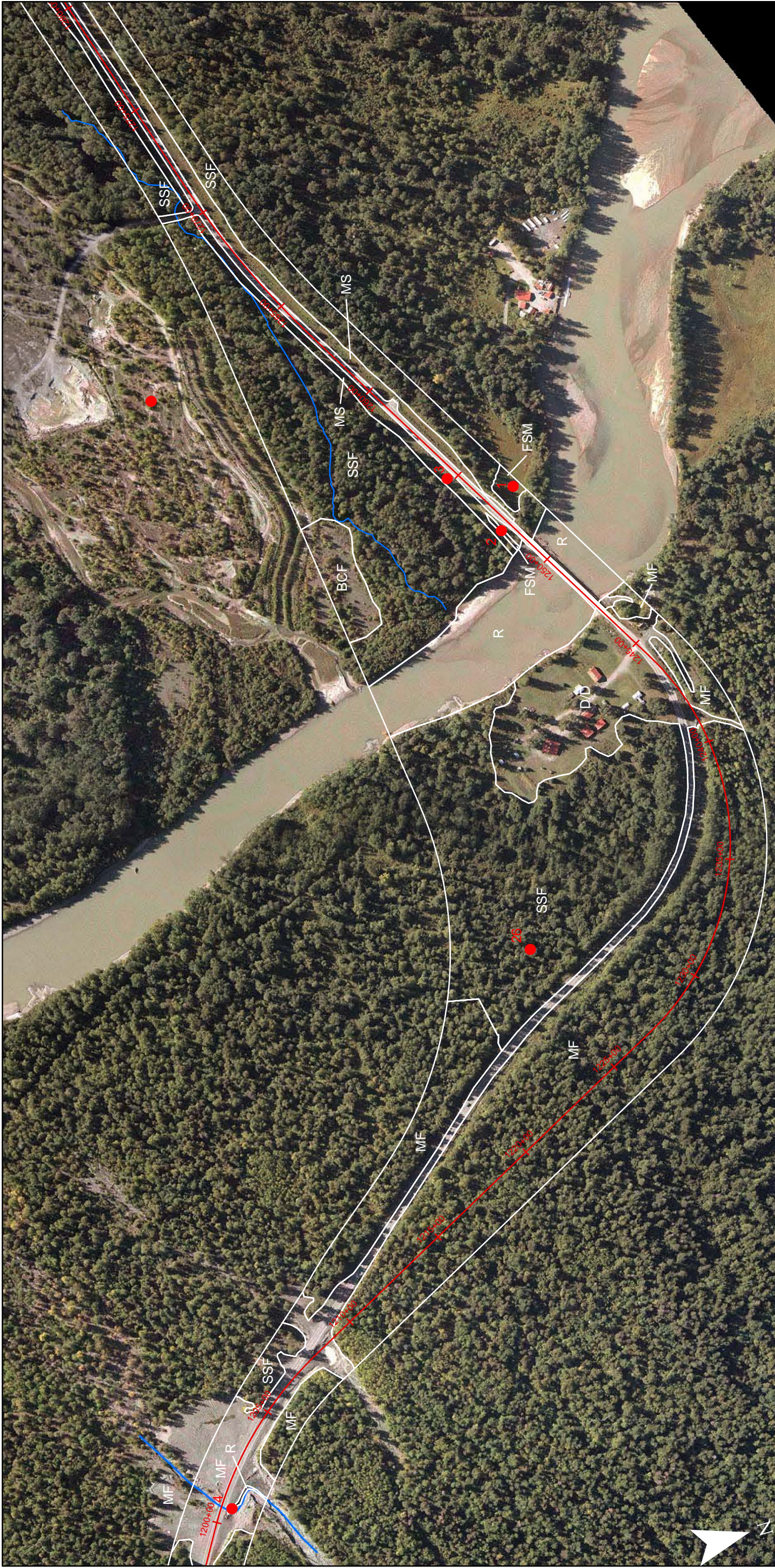
DOT & PF Project No. 68606

Scale: 1:4800  
August 26, 2006

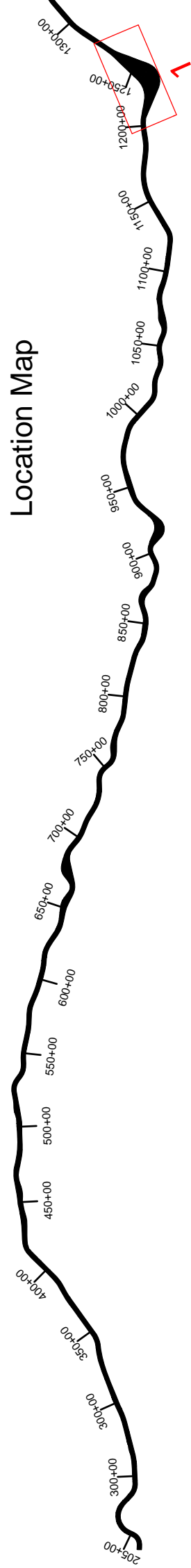


W.O. D59119  
Filename :Figure\_4j.mxd





Location Map



Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 4k: Habitat  
 Alignment Option B

DOT & PF Project No. 68606

Scale: 1:4800  
August 26, 2006

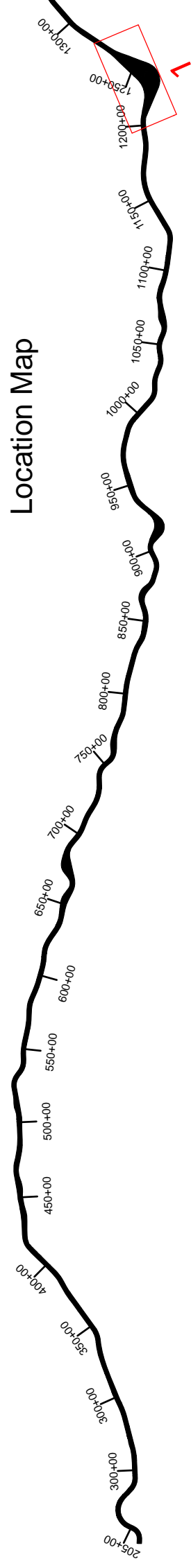


W.O. D59119  
Filename :Figure\_4k.mxd





Location Map



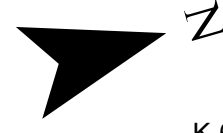
Haines Highway Wetland Delineation  
 MP 3.5 to MP 25.3  
 Figure 4I: Habitat  
 Alignment Option C

DOT & PF Project No. 68606

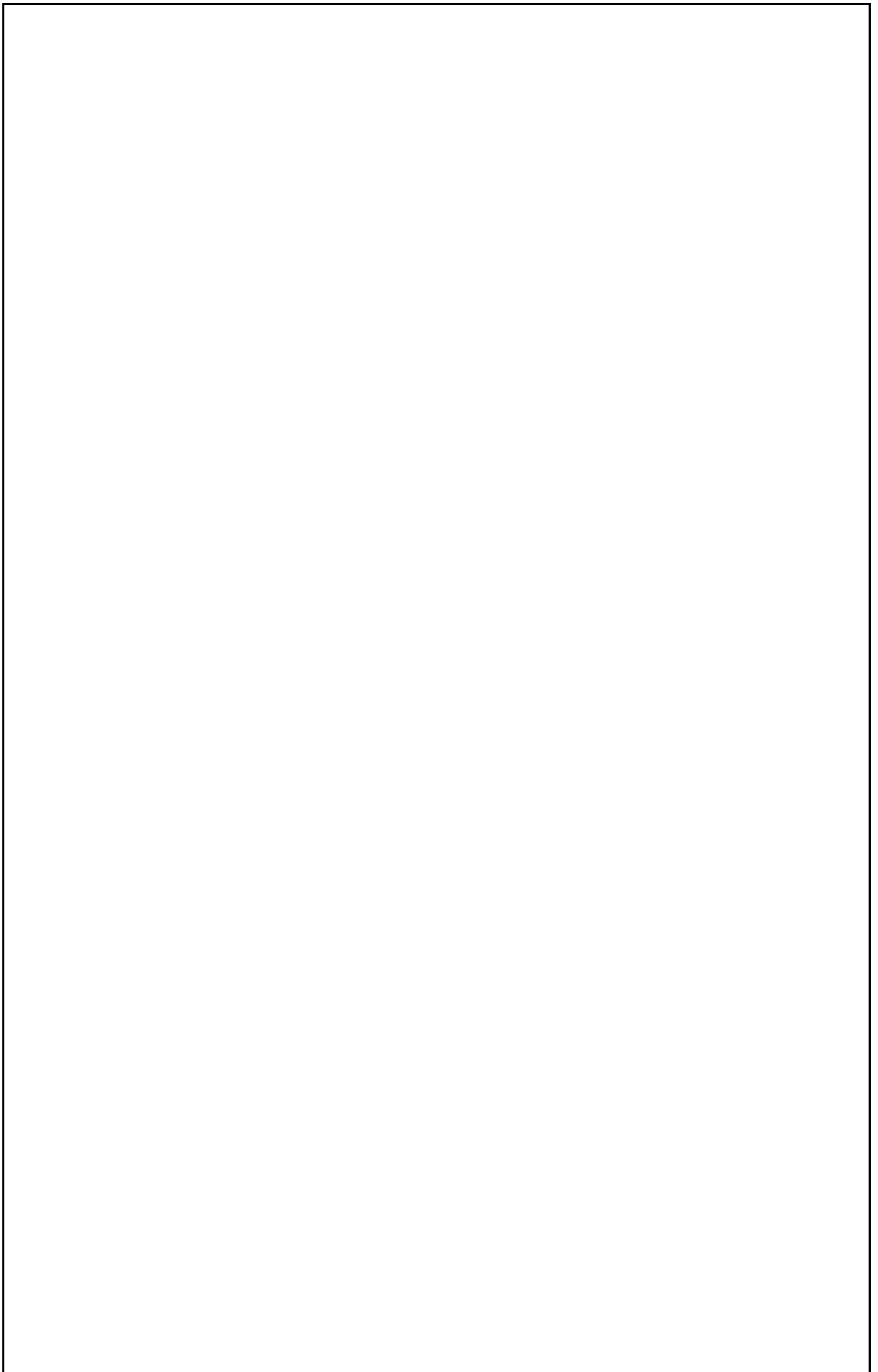
Scale: 1:4800  
August 26, 2006



W.O. D59119  
Filename :Figure\_4I.mxd









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## **APPENDIX A**

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- A.1 .....Wetland Delineation Data Forms
- A.2 .... Vegetation Relative Percentage Calculations



## **APPENDIX A.1**

### **Wetland Delineation Data Forms**



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Fresh Sedge Meadow</u> Transect ID: <u>Sheet#39</u> Plot ID: <u>1</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phalaris arundinacea L.*</u>	<u>H</u>	NI	9. _____	_____	Pick One
2. <u>Carex rostrata*</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. <u>Carex sitchensis</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. <u>Equisetum arvense</u>	<u>H</u>	FACU	12. _____	_____	Pick One
5. <u>Calamagrostis canadensis</u>	<u>H</u>	FAC	13. _____	_____	Pick One
6. <u>Populus balsamifera</u>	<u>H</u>	FACU	14. _____	_____	Pick One
7. <u>Juncus 1</u>	<u>H</u>	FACW	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: Wet sedge, lots of small brown snails on the vegetation. Thin layer of moss for ground cover. Three small cottonwoods creeping into the area. Grass 1 is very tall (up to 4 ft.) and thick; resembles Ca ca. Keyed out to Phalaris arundinacea L. (Reed Canarygrass).

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	

Remarks: No saturation, but ground is wet. A small pond is adjacent the area. Bowl-shaped, low-lying area surrounded by a ring of higher ground. River is approximately 250 feet away. Area will receive runoff.



**SOILS**

<p>Map Unit Name (Series and Phase): <u>Hollow and Skagway Soils</u></p> <p>Taxonomy (Subgroup): <u>N/A</u></p>	<p>Drainage Class: <u>Somewhat Poorly Drained</u></p> <p>Field Observations Confirm Mapped Type? <u>Yes</u></p>																																										
<p><u>Profile Description:</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Depth (Inches)</th> <th style="text-align: left;">Horizon</th> <th style="text-align: left;">Matrix Color (Munsell Moist)</th> <th style="text-align: left;">Mottle Colors (Munsell Moist)</th> <th style="text-align: left;">Mottle Abundance/ Contrast</th> <th style="text-align: left;">Texture, Concretions, Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-2</u></td> <td><u>O</u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> </tr> <tr> <td><u>2-14</u></td> <td><u>A1</u></td> <td><u>5Y 5/2</u></td> <td><u>5Y 6/3</u></td> <td><u>many</u></td> <td><u>silty clay</u></td> </tr> <tr> <td><u>14-15</u></td> <td><u>A2</u></td> <td><u>10YR 4/1</u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>silty clay</u></td> </tr> <tr> <td><u>15-16</u></td> <td><u>A1</u></td> <td><u>5Y 5/2</u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>silty clay</u></td> </tr> <tr> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> </tr> <tr> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> <td><u>      </u></td> </tr> </tbody> </table>		Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.	<u>0-2</u>	<u>O</u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>2-14</u>	<u>A1</u>	<u>5Y 5/2</u>	<u>5Y 6/3</u>	<u>many</u>	<u>silty clay</u>	<u>14-15</u>	<u>A2</u>	<u>10YR 4/1</u>	<u>      </u>	<u>      </u>	<u>silty clay</u>	<u>15-16</u>	<u>A1</u>	<u>5Y 5/2</u>	<u>      </u>	<u>      </u>	<u>silty clay</u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>
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<p>Remarks: <u>The soil subgroup could not be determined because the observed soil profile is not similar to Hollow or Skagway, however the soil component was determined to be Pondered Soils.</u></p>																																											

**WETLAND DETERMINATION**

<p>Hydrophytic Vegetation Present? <u>Yes</u></p> <p>Wetland Hydrology Present? <u>Yes</u></p> <p>Hydric Soils Present? <u>Yes</u></p>	<p>Is this Sampling Point Within a Wetland? <u>Yes</u></p>
<p>Remarks: <u>Site visit was conducted when hydrology was not present, however professional opinion indicates that this is site is a wetland.</u></p>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Fresh Sedge Meadow</u> Transect ID: <u>Sheet# 39</u> Plot ID: <u>2</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Equisetum pratense*</u>	<u>H</u>	FACW	9. _____	_____	Pick One
2. <u>Carex lyngbyei*</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. <u>Sedge 2*</u>	<u>H</u>	FAC	11. _____	_____	Pick One
4. <u>Sedge 1</u>	<u>H</u>	FAC	12. _____	_____	Pick One
5. <u>Calamagrostis canadensis</u>	<u>H</u>	FAC	13. _____	_____	Pick One
6. <u>Grass 2</u>	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percentage = 100 %

Remarks: Ground cover is partially sphagnum moss.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Moist on top/surface -- But dry in the pit</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Hollow and Skagway Soils</u>		Drainage Class: <u>Somewhat Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	<u>Matrix Color</u> (Munsell Moist)	<u>Mottle Colors</u> (Munsell Moist)	<u>Mottle Abundance/</u> <u>Contrast</u>	<u>Texture, Concretions,</u> <u>Structure, etc.</u>
<u>0-1</u>	<u>A1</u>	<u>5Y 4/2</u>	<u>_____</u>	<u>_____</u>	<u>silty clay</u>
<u>1-16</u>	<u>A2</u>	<u>5Y 5/2</u>	<u>5Y 5/4</u>	<u>few</u>	<u>slity clay</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Many cobbles of various size. A1 has more roots than A2. A2 is thick, and holds together - so moist. If dry would be powdery. The soil subgroup could not be determined because the observed soil profile is not similar to Hollow or Skagway, however the soil component was determined to be Poned Soils.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Site appears to be drying up. Site is adjacent to road. May not have been present to observe hydrology. Vegetation and soils indicate that the area is likely saturated for at least two weeks during the growing season (4/1 - 10/30).</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      No Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Mixed Shrub</u> Transect ID: <u>Sheet# 39</u> Plot ID: <u>3</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Rosa nutkana*</u>	<u>S</u>	FACU	9. <u>Achillea millefolium</u>	<u>H</u>	FACU
2. <u>Salix alaxensis*</u>	<u>S</u>	FAC	10. <u>Centaurea biebersteinii</u>	<u>H</u>	NI
3. <u>Salix monticola*</u>	<u>S</u>	FAC	11. <u>Phalaris arundinacea</u>	<u>H</u>	NI
4. <u>Grass 2*</u>	<u>H</u>	NI	12. _____	_____	Pick One
5. <u>Equisetum arvense*</u>	<u>H</u>	FACU	13. _____	_____	Pick One
6. <u>Alnus sp.</u>	<u>S</u>	FAC	14. _____	_____	Pick One
7. <u>Populus balsamifera</u>	<u>S</u>	FACU	15. _____	_____	Pick One
8. <u>Epilobium angustifolium</u>	<u>H</u>	FACU	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percentage = 50%

Remarks: Grass 2 is a short, weak, wispy grass; see a lot in distrubed areas.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Does not pass FAC-neutral test. No hydrology observed.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Hollow and Skagway Soils</u>		Drainage Class: <u>Somewhat Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Typic Cryofluvents</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	<u>Matrix Color</u> (Munsell Moist)	<u>Mottle Colors</u> (Munsell Moist)	<u>Mottle Abundance/</u> <u>Contrast</u>	<u>Texture, Concretions,</u> <u>Structure, etc.</u>
<u>0-2</u>	<u>O</u>	_____	_____	_____	_____
<u>2-6</u>	<u>A1</u>	<u>5Y 3/2</u>	_____	_____	<u>cobbles</u>
<u>6-16</u>	<u>A2</u>	<u>5Y 5/2</u>	<u>2.5 Y 5/6</u>	<u>faint</u>	<u>clay silty loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Hollow.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Vegetation on the slope of the road just above the site is mostly composed of weeds. Site is in ditch adjacent to road. Vegetation is weak and no hydrology. Soils indicate that site may have been previously connected to Site 2 but has since dried up and is being colonized by new species.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      No Is the site significantly disturbed (Atypical Situation)?      Yes Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>River</u> Transect ID: <u>Sheet# 37</u> Plot ID: <u>4</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. _____	_____	Pick One	9. _____	_____	Pick One
2. _____	_____	Pick One	10. _____	_____	Pick One
3. _____	_____	Pick One	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): \_\_\_\_\_

Remarks: No vegetation.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Creek.</u>	



**SOILS**

Map Unit Name (Series and Phase): _____  Taxonomy (Subgroup): _____	Drainage Class: _____ Field Observations Confirm Mapped Type? <u>Pick One</u>						
<b>Profile Description:</b>							
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.		
_____	_____	_____	_____	_____	_____		
_____	_____	_____	_____	_____	_____		
_____	_____	_____	_____	_____	_____		
_____	_____	_____	_____	_____	_____		
_____	_____	_____	_____	_____	_____		
_____	_____	_____	_____	_____	_____		
Hydric Soil Indicators:							
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histosol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfidic Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input type="checkbox"/> Gleyed or Low-Chroma Colors                 </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Concretions  <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils  <input type="checkbox"/> Organic Streaking in Sandy Soils  <input type="checkbox"/> Listed on Local Hydric Soils List  <input type="checkbox"/> Listed on National Hydric Soils List  <input type="checkbox"/> Other (Explain in Remarks)                 </td> </tr> </table>						<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)						
Remarks: <u>No soil sample taken - river.</u>							

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Disturbed because creek runs through a material site. Creek appears to have been moved. The sample site is a river, Waters of the U.S.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Mixed Forest</u> Transect ID: <u>Sheet# 32</u> Plot ID: <u>5</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. _____	_____	Pick One
2. <u>Picea sitchensis*</u>	<u>T</u>	FACU	10. _____	_____	Pick One
3. <u>Rosa nutkana*</u>	<u>S</u>	NI	11. _____	_____	Pick One
4. <u>Cornus stolonifera*</u>	<u>S</u>	FAC	12. _____	_____	Pick One
5. <u>Symphoricarpos albus*</u>	<u>S</u>	UPL	13. _____	_____	Pick One
6. <u>Equisetum arvense*</u>	<u>H</u>	FACU	14. _____	_____	Pick One
7. <u>Aruncus dioicus</u>	<u>S</u>	UPL	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 20%

Remarks: Ground cover composed of leaf litter.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None. Bone dry.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Nataga-Cryorthents association</u>		Drainage Class: <u>Somewhat Excessively Drained</u>			
Taxonomy (Subgroup): <u>Typic Cryorthents</u>		Field Observations Confirm Mapped Type? <u>Yes</u>			
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-6	O	_____	_____	_____	_____
6-9	A	<u>7.5 YR 3/2</u>	_____	_____	<u>sandy loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Hit huge rock at 9 inches - likely growing on rock outcrop; just like the other side of the road.</u> <u>Hydric rating is no on the Haines Soil Survey. The soil component was determined to be Nataga.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Topography of the site is sloping down to the Chilkat River.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
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Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Blk Cottonwood Forest</u> Transect ID: <u>Sheet# 30</u> Plot ID: <u>6</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. <u>Gallium boreale</u>	<u>H</u>	FACU
2. <u>Shepherdia canadensis*</u>	<u>S</u>	NI	10. _____	_____	Pick One
3. <u>Rosa nutkana*</u>	<u>S</u>	NI	11. _____	_____	Pick One
4. <u>Viola glabella*</u>	<u>H</u>	FACW	12. _____	_____	Pick One
5. <u>Pyrola asarifolia*</u>	<u>H</u>	FAC	13. _____	_____	Pick One
6. <u>Picea sitchensis</u>	<u>T</u>	FACU	14. _____	_____	Pick One
7. <u>Cornus stolonifera</u>	<u>S</u>	FAC	15. _____	_____	Pick One
8. <u>Populus balsamifera</u>	<u>S</u>	FACU	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 66%

Remarks: Mixed height tall trees and tall shrubs. A lot of leaf litter on ground. Thick understory - mixed deciduous. Tree canopy = 80% cover.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Bone dry.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Nataga-Cryorthents association</u>		Drainage Class: <u>Somewhat Excessively Drained</u>			
Taxonomy (Subgroup): <u>Typic Cryorthents</u>		Field Observations Confirm Mapped Type? <u>Yes</u>			
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-3</u>	<u>O</u>	_____	_____	_____	_____
<u>3-7</u>	<u>O2</u>	_____	_____	_____	<u>organic, sandy loamy</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Interstitial layer with cobbles. Couldn't dig deeper than 7 inches because of large boulders and roots. Dry. Not listed as hydric in the Haines Soil Survey. The soil component was determined to be Nataga.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Site is adjacent to Chilkat viewing station.</u>	



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Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Fireweed-Bluejoint Meadow</u> Transect ID: <u>Sheet# 27</u> Plot ID: <u>7</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Rosa nutkana*</u>	<u>S</u>	NI	9. _____	_____	Pick One
2. <u>Epilobium angustifolium*</u>	<u>H</u>	FACU	10. _____	_____	Pick One
3. <u>Calamagrostis canadensis*</u>	<u>H</u>	FAC	11. _____	_____	Pick One
4. <u>Taraxacum officinale</u>	<u>H</u>	FACU	12. _____	_____	Pick One
5. <u>Achillea millefolium</u>	<u>H</u>	FACU	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 50%

Remarks: Grass is thick about 50 feet south. Young cottonwood at the edge of the road.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:            _____(in.)  Depth to Free Water in Pit:        _____(in.)  Depth to Saturated Soil:            _____(in.)	
Remarks: <u>Bone dry.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Ashnum-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Typic Cryaquents</u>					
<b>Profile Description:</b>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
<u>0-1</u>	<u>O</u>	_____	_____	_____	_____
<u>1-8</u>	<u>A</u>	<u>2.5Y 4/2</u>	_____	_____	<u>sandy</u>
<u>8-14</u>	<u>B</u>	<u>5Y 5/2</u>	_____	_____	<u>sandy gravel</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Soils component resembles Ashmun the most, but no field observations of hydric soils.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Site may have been previously disturbed.</u>	



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Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Shrub Swamp</u> Transect ID: <u>Sheet# 27</u> Plot ID: <u>8</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Alnus sp.*</u>	<u>T</u>	FAC	9. _____	_____	Pick One
2. <u>Salix monticola*</u>	<u>T</u>	FAC	10. _____	_____	Pick One
3. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. <u>Sedge juncus*</u>	<u>H</u>	FAC	12. _____	_____	Pick One
5. <u>Equisetum arvense</u>	<u>H</u>	FACU	13. _____	_____	Pick One
6. <u>Aruncus dioicus</u>	<u>H</u>	UPL	14. _____	_____	Pick One
7. <u>Pteridium aquilinum</u>	<u>H</u>	FACU	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: Tall alder canopy cover % - thin understory. EQFL is about 3.5' high. The arvense is growing close to the stumps. Willows and alders are trees.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: <u>N/A</u> (in.)  Depth to Free Water in Pit: <u>4</u> (in.)  Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>Adjacent to creeks.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Ashmun-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Typic Cryaquents</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-2</u>	<u>O</u>	_____	_____	_____	_____
<u>2-6</u>	<u>A</u>	<u>10 YR 2/1</u>	<u>7.5YR 3/3</u>	<u>Few</u>	<u>sandy silty</u>
<u>6-12</u>	<u>B1</u>	<u>2.5Y 4/1</u>	_____	_____	<u>some clay/loam</u>
<u>12-16</u>	<u>B2</u>	<u>10YR 4/1</u>	_____	_____	<u>silty clay</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input checked="" type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input checked="" type="checkbox"/> Reducing Conditions		<input checked="" type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Ashmun.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Wetland Hydrology Present? <u>Yes</u>	
Hydric Soils Present? <u>Yes</u>	
Remarks: <u>Lot of earth worms, bear scat. Site is adjacent to an anadromous stream</u>	



**DATA FORM**  
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Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      No Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Mixed Shrub</u> Transect ID: <u>Sheet# 26</u> Plot ID: <u>9</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>S</u>	FACU	9. _____	_____	Pick One
2. <u>Salix alaxensis*</u>	<u>S</u>	FAC	10. _____	_____	Pick One
3. <u>Equisetum arvense*</u>	<u>H</u>	FACU	11. _____	_____	Pick One
4. <u>Taraxacum officinale*</u>	<u>H</u>	FACU	12. _____	_____	Pick One
5. <u>Achillea millefolium</u>	<u>H</u>	Pick One	13. _____	_____	Pick One
6. <u>Trifolium pratense</u>	<u>H</u>	Pick One	14. _____	_____	Pick One
7. <u>Calamagrostis canadensis.</u>	<u>H</u>	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 25%

Remarks: Really tall fireweed near the edge of the road (outside sample area). Overall canopy is 60/65%.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Dry.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Ashmun-Hollow-Funter complex</u>		Drainage Class: _____ Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<b>Profile Description:</b>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
<u>O-1</u>	<u>O</u>	_____	_____	_____	_____
<u>1-3</u>	<u>A</u>	<u>7.5YR 3/1</u>	_____	_____	<u>sandy loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>At three inches, encountered a big rock layer/boulder. Thin layer of soil on rock outcrop has pebble-sized rocks. Site is disturbed - on the shoulder of the road. Not similar to any of the NRCS mapped soils, which is most likely because the site is in the shoulder of the road.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Wetland Hydrology Present? <u>No</u>	
Hydric Soils Present? <u>Yes</u>	
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
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Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 3</u> Plot ID: <u>10</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Equisetum hyemale*</u>	<u>H</u>	FACW	9. _____	_____	Pick One
2. <u>Carex lyngbyei*</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. <u>Carex utriculata*</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. <u>Phalaris arundinacea*</u>	<u>H</u>	NI	12. _____	_____	Pick One
5. <u>Nuphar luteum</u>	<u>H</u>	OBL	13. _____	_____	Pick One
6. <u>Alnus sp.</u>	<u>H</u>	FAC	14. _____	_____	Pick One
7. <u>Salix sp.</u>	<u>H</u>	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percentage = 100 %

Remarks: Dead stumps. Area of muck in the center. Too high of water to walk to the shrubs. Dense grass and sedge buffer between pond and road.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: <u>12(in.)</u>  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: <u>Sounds like a creek is nearby.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Tsirku-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u>			
Taxonomy (Subgroup): <u>Terric Sphagnofibrists</u>		Field Observations Confirm Mapped Type? <u>No</u>			
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>This site is located within a depression; therefore, the component, Funter, was chosen for this site.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Shrub Swamp</u> Transect ID: <u>Sheet# 4</u> Plot ID: <u>11</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Alnus sp.*</u>	<u>S</u>	FAC	9. _____	_____	Pick One
2. <u>Salix pulchra*</u>	<u>S</u>	FACW	10. _____	_____	Pick One
3. <u>Salix monicola*</u>	<u>S</u>	FAC	11. _____	_____	Pick One
4. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	12. _____	_____	Pick One
5. <u>Symphoricarpos albus</u>	<u>S</u>	UPL	13. _____	_____	Pick One
6. <u>Lysichiton americanum</u>	<u>H</u>	OBL	14. _____	_____	Pick One
7. <u>Viola palustris</u>	<u>H</u>	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percentage = 100 %

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:            _____(in.)  Depth to Free Water in Pit:        _____(in.)  Depth to Saturated Soil:            _____(in.)	
Remarks: _____	



**SOILS**

Map Unit Name (Series and Phase): <u>Tsirku-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>Terric Sphagnofibrists</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input checked="" type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Funter.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Area of tall willow, evenly spaced with an inundated ground of equisetum and skunk cabbage. Area is near a waterfall and a cliff.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/13/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Seasonally Flooded Black Cottonwood Forest</u> Transect ID: <u>Sheet# 5</u> Plot ID: <u>12</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. <u>Aster sp.</u>	<u>H</u>	FAC
2. <u>Alnus sp.*</u>	<u>S</u>	FAC	10. <u>Taraxacum officinale</u>	<u>H</u>	FACU
3. <u>Rosa nutkana*</u>	<u>S</u>	NI	11. _____	_____	Pick One
4. <u>Equisetum pratense*</u>	<u>H</u>	FACW	12. _____	_____	Pick One
5. <u>Viburnum edule</u>	<u>S</u>	FACU	13. _____	_____	Pick One
6. <u>Cornus stolonifera</u>	<u>S</u>	FAC	14. _____	_____	Pick One
7. <u>Boschniakia rossica</u>	<u>H</u>	FACU	15. _____	_____	Pick One
8. <u>Streptopus amplexifolius</u>	<u>H</u>	FAC	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 66%

Remarks: Alder is about 20-feet tall

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: <u>N/A</u> (in.)  Depth to Free Water in Pit: <u>N/A</u> (in.)  Depth to Saturated Soil: <u>N/A</u> (in.)	
Remarks: <u>Damp, but not wet. Slight drainage patterns.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Tsirku-Hollow-Funter complex</u>		Drainage Class: <u>Somewhat Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Typic Cryofluvents</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-3</u>	<u>A</u>	<u>2.5Y 2.5/1</u>	<u>_____</u>	<u>_____</u>	<u>silty loam</u>
<u>3-16</u>	<u>B</u>	<u>2.5Y 4/2</u>	<u>_____</u>	<u>_____</u>	<u>sandy</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input checked="" type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Hollow.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Wetland Hydrology Present? <u>Yes</u>	
Hydric Soils Present? <u>Yes</u>	
Remarks: <u>This site is lower than shrub areas on either side. It is closer to the river. May be saturated when river is high.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Shrub Swamp</u> Transect ID: <u>Sheet# 6</u> Plot ID: <u>13</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix monticola*</u>	<u>T</u>	FAC	9. _____	_____	Pick One
2. <u>Populus balsamifera*</u>	<u>T</u>	FACU	10. _____	_____	Pick One
3. <u>Salix monticola*</u>	<u>S</u>	FAC	11. _____	_____	Pick One
4. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	12. _____	_____	Pick One
5. <u>Calamagrostis canadensis</u>	<u>H</u>	FAC	13. _____	_____	Pick One
6. <u>Lysichiton americanum</u>	<u>H</u>	OBL	14. _____	_____	Pick One
7. <u>Conioselinum sp.</u>	<u>H</u>	FACW	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 75%

Remarks: Ground cover includes some moss. About 6 dead spruce trees ~ 10 feet high. Some dead cottonwood. Healthy cottonwood closer to the road than S. monticola. Conioselinum is hemlock parsely.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: <u>N/A</u> (in.)  Depth to Free Water in Pit: <u>4</u> (in.)  Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>Stream is about ~150 feet towards the mountains. The vegetation stays the same in the area. Except sedges around stream.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Rock outcrop-Lithic Cryofolists complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<b>Profile Description:</b>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
<u>0-2</u>	<u>O</u>	_____	_____	_____	_____
<u>2-8</u>	<u>A</u>	<u>gley1 5/5GY</u>	_____	_____	<u>clay loam</u>
<u>8-17</u>	<u>B</u>	<u>gley1 4/10GY</u>	_____	_____	<u>clay silt</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input checked="" type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The taxonomic subgroup could not be determined because the observed soil profile is not similar to rock outcrop or lithic cryofolists, however the soil component was determined to be aquepts.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      No Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Bluejoint Meadow</u> Transect ID: <u>Sheet# 9</u> Plot ID: <u>14</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Calamagrostis canadensis*</u>	<u>H</u>	FAC	9. _____	_____	Pick One
2. <u>Equisetum arvense*</u>	<u>H</u>	FACU	10. _____	_____	Pick One
3. _____	_____	Pick One	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 50%

Remarks: Cottonwood and rose bush are on the upslope of the ditch mostly bluejoint in the ditch, but all within 20 feet. Some moss. Vegetation listed above captures what is growing in the ditch.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>N/A</u> (in.)  Depth to Free Water in Pit: <u>N/A</u> (in.)  Depth to Saturated Soil: <u>10</u> (in.)	
Remarks: _____	



**SOILS**

Map Unit Name (Series and Phase): <u>Tsirku-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Terric Sphagnofibrists</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
<u>0-1</u>	<u>O</u>	_____	_____	_____	_____
<u>1-10</u>	<u>A</u>	<u>5YR 3/1</u>	_____	_____	<u>sandy loam</u>
<u>10-17</u>	<u>B1</u>	<u>5YR 3/1</u>	_____	_____	<u>clayey silt</u>
<u>17-19</u>	<u>B2</u>	<u>5YR 4/1</u>	_____	_____	<u>sand</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Soil pit dug in ditch. O is mostly roots, B1 is saturated, and A has some silt. The soil component was determined to be Funter.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Vegetation is borderline, but hydrology and soils support a wetland. Professional opinion is that the sample point is located within a wetland. This site is located in the ditch.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Blk Cottonwood Forest</u> Transect ID: <u>Sheet# 9</u> Plot ID: <u>15</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. _____	_____	Pick One
2. <u>Rosa nutkana*</u>	<u>S</u>	NI	10. _____	_____	Pick One
3. <u>Cornus stolonifera*</u>	<u>S</u>	FAC	11. _____	_____	Pick One
4. <u>Rosa nutkana*</u>	<u>H</u>	NI	12. _____	_____	Pick One
5. <u>Equisetum arvense*</u>	<u>H</u>	FACU	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 33%

Remarks: Rose only grows on the slope towards the road

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Bone dry</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Tsirku-Hollow-Funter complex</u>		Drainage Class: <u>Somewhat Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Typic Cryofluvents</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-7</u>	<u>A</u>	<u>7.5YR 4/2</u>	_____	_____	<u>sandy loam</u>
<u>7-16</u>	<u>B</u>	<u>10YR 5/1</u>	_____	_____	<u>sand</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Leaf layer on top. The soil component was determined to be Hollow.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>In footprint and upslope from 14.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Mixed Shrub</u> Transect ID: <u>Sheet# 10</u> Plot ID: <u>16</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix monticola*</u>	<u>S</u>	FAC	9. <u>Trifolium pratense*</u>	<u>H</u>	FAC
2. <u>Picea sitchensis*</u>	<u>S</u>	FACU	10. <u>Aster sp.*</u>	<u>H</u>	FAC
3. <u>Populus balsamifera*</u>	<u>S</u>	FACU	11. <u>Linaria vulgaris*</u>	<u>H</u>	NI
4. <u>Alnus sp.*</u>	<u>S</u>	FAC	12. <u>Picea sitchensis*</u>	<u>H</u>	FACU
5. <u>Salix monticola*</u>	<u>S</u>	FAC	13. <u>Gallium boreale*</u>	<u>H</u>	FACU
6. <u>Taraxacum officinale*</u>	<u>H</u>	FACU	14. <u>Ribes oxyanthoides</u>	<u>S</u>	NI
7. <u>Achillea millefolium*</u>	<u>H</u>	FACU	15. _____	_____	Pick One
8. <u>Epilobium angustifolium*</u>	<u>H</u>	FACU	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 36%

Remarks: Appears to be a vegetation clearing area in the right-of-way that needs to be cleared

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Rock outcrop-Lithic Cryofolists complex</u>		Drainage Class: <u>Well Drained</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>Lithic Cryofolists</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Not listed as hydric in the Haines Soil Survey. The soil component was determined to be Lithic Cryofolists.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Wetland Hydrology Present? <u>No</u>	
Hydric Soils Present? <u>No</u>	
Remarks: <u>Plants only --- community verification point. Similar to sites 3 and 9.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 13</u> Plot ID: <u>17</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>S</u>	FACU	9. _____	_____	Pick One
2. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. <u>Carex rostrata</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. <u>Hippuris vulgaris</u>	<u>H</u>	OBL	12. _____	_____	Pick One
5. <u>Calamagrostis canadensis</u>	<u>H</u>	FAC	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 50%

Remarks: Caro is more on the border. Poba is on very edge.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>24</u> (in.)  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: <u>Standing water about 2 feet at the deepest</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Ashmun-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>Terric Sphagnofibrists</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input checked="" type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Funter.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Although the dominant plants are a FACU and an OBL, the cottonwood is on the very outside of the radius and its dominance is not applicable to the area. The area has three obligates and is obviously a wetland. A lot of biosheen. Sandhill cranes wading in the area</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/4/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Shrub Swamp</u> Transect ID: <u>Sheet# 14</u> Plot ID: <u>18</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Cornus stolonifera*</u>	<u>S</u>	FAC	9. _____	_____	Pick One
2. <u>Salix monticola*</u>	<u>S</u>	FAC	10. _____	_____	Pick One
3. <u>Salix alaxensis*</u>	<u>S</u>	FAC	11. _____	_____	Pick One
4. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	12. _____	_____	Pick One
5. <u>Carex rostrata*</u>	<u>H</u>	OBL	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>5 - 12(in.)</u>  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	Remarks: <u>Water is 12 inches deep with sedge/equisetum and about 5 inches deep with shrubs</u>



**SOILS**

Map Unit Name (Series and Phase): <u>Ashmun-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Pick One</u>			
Taxonomy (Subgroup): <u>Typic Cryaquents</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Ashmun.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Blk Cottonwood Forest</u> Transect ID: <u>Sheet# 14</u> Plot ID: <u>19</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. _____	_____	Pick One
2. <u>Populus balsamifera*</u>	<u>S</u>	FACU	10. _____	_____	Pick One
3. <u>Alnus sp.*</u>	<u>S</u>	FAC	11. _____	_____	Pick One
4. <u>Equisetum arvense*</u>	<u>H</u>	FACU	12. _____	_____	Pick One
5. <u>Ribes oxyanthoides*</u>	<u>H</u>	NI	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 25%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____(in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil: <u>15</u> (in.)	
Remarks: <u>Saturated at 15 inches.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Ashmun-Hollow-Funter complex</u>		Drainage Class: <u>Somewhat Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Typic Cryofluvents</u>					
<b>Profile Description:</b>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
<u>0-3</u>	<u>O</u>	_____	_____	_____	_____
<u>3-10</u>	<u>A</u>	<u>5Y 4/1</u>	_____	_____	<u>silty sandy loam</u>
<u>10-16</u>	<u>B</u>	<u>2.5Y 4/2</u>	_____	_____	<u>clay silty</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Hollow.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>adjacent to #18 -- On a downslope. With leaf litter</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 15</u> Plot ID: <u>20</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	9. _____	_____	Pick One
2. <u>Nuphar luteum*</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. <u>Potentilla palustris</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. <u>Menyanthes trifoliata</u>	<u>H</u>	OBL	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>variable</u> (in.)  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: <u>open water</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Funter peat</u>		Drainage Class: <u>Very Poorly Drained</u>			
Taxonomy (Subgroup): <u>Terric Sphagnofibrists</u>		Field Observations Confirm Mapped Type? <u>No</u>			
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Funter.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Biosheen - point is in the middle of the pond.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 17</u> Plot ID: <u>21</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. <u>Calamagrostis canadensis</u>	<u>H</u>	FAC
2. <u>Populus balsamifera*</u>	<u>S</u>	FACU	10. <u>Potentilla palustris</u>	<u>H</u>	OBL
3. <u>Salix alaxensis*</u>	<u>S</u>	FAC	11. _____	_____	Pick One
4. <u>Carex rostrata*</u>	<u>H</u>	OBL	12. _____	_____	Pick One
5. <u>Hippuris vulgaris</u>	<u>H</u>	OBL	13. _____	_____	Pick One
6. <u>Equisetum fluviatile</u>	<u>H</u>	OBL	14. _____	_____	Pick One
7. <u>Carex lyngbyei</u>	<u>H</u>	OBL	15. _____	_____	Pick One
8. <u>Angelica lucida</u>	<u>H</u>	FACU	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 50%

Remarks: Bluejoint is on periphery. Angelica is young.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>variable</u> (in.)  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: _____	



**SOILS**

Map Unit Name (Series and Phase): <u>Rock outcrop-Lithic Cryofolists complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil subgroup could not be determined, however the soil component was determined to be aquepts.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Stagnant water site with green algal covering. Vegetation is borderline, but due to hydrology, the sample site is definitely in a wetland.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/1 /05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Birch Forest</u> Transect ID: <u>Sheet# 18</u> Plot ID: <u>22</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Betula papyrifera*</u>	<u>T</u>	FACU	9. <u>Trientalis europaea</u>	<u>H</u>	FAC
2. <u>Salix alaxensis*</u>	<u>T</u>	FAC	10. <u>Pyrola secunda</u>	<u>H</u>	UPL
3. <u>Viburnum edule*</u>	<u>S</u>	FACU	11. _____	_____	Pick One
4. <u>Rosa nutkana*</u>	<u>S</u>	NI	12. _____	_____	Pick One
5. <u>Equisetum arvense*</u>	<u>H</u>	FACU	13. _____	_____	Pick One
6. <u>Gymnocarpium dryopteris*</u>	<u>H</u>	FACU	14. _____	_____	Pick One
7. <u>Populus balsamifera</u>	<u>S</u>	FACU	15. _____	_____	Pick One
8. <u>Ribes oxyanthoides</u>	<u>H</u>	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 20 %

Remarks: Huge willow trees!!

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Nataga-Cryorthents association</u>		Drainage Class: <u>Somewhat Excessively Drained</u>			
Taxonomy (Subgroup): <u>Typic Cryorthents</u>		Field Observations Confirm Mapped Type? <u>Yes</u>			
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-4.5	O	_____	_____	_____	_____
4.5-16	A	<u>2.5Y 4/3</u>	_____	_____	<u>sandy loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Cobbles increases with depth. Not listed as hydric in the Haines Soil Survey. The soil component was determined to be Nataga.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Wetland Hydrology Present?	<u>No</u>	
Hydric Soils Present?	<u>No</u>	
Remarks: <u>No wet areas w/in radius, but just outside of it there is a wet area. This site is about 2 feet higher in elevation.</u>		



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 18</u> Plot ID: <u>23</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Menyanthes trifoliata*</u>	<u>H</u>	OBL	9. _____	_____	Pick One
2. <u>Carex lyngbyei*</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. <u>Potentilla palustris</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percentage = 100 %

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Standing water when moss bed compressed</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Nataga-Cryorthents association</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil subgroup could not be determined, however the soil component was determined to be ponded soils.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Mixed Forest</u> Transect ID: <u>Sheet# 20</u> Plot ID: <u>24</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Betula papyrifera*</u>	<u>T</u>	FACU	9. <u>Ribes oxyanthoides</u>	<u>S</u>	NI
2. <u>Alnus sp.*</u>	<u>T</u>	FAC	10. <u>Rosa nutkana</u>	<u>S</u>	NI
3. <u>Picea sitchensis*</u>	<u>T</u>	FACU	11. _____	_____	Pick One
4. <u>Cornus stolonifera*</u>	<u>S</u>	FAC	12. _____	_____	Pick One
5. <u>Viburnum edule*</u>	<u>S</u>	FACU	13. _____	_____	Pick One
6. <u>Pyrola asarifolia*</u>	<u>H</u>	FAC	14. _____	_____	Pick One
7. <u>Pyrola secunda*</u>	<u>H</u>	UPL	15. _____	_____	Pick One
8. <u>Populus balsamifera</u>	<u>T</u>	FACU	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 42%

Remarks: Ground cover is mostly leaf litter and old stems and branches. Trees about 50 feet high.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:            _____ (in.)  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: <u>None.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Rock outcrop-Lithic Cryorthents complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Lithic Cryorthents</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-2</u>	<u>O</u>	_____	_____	_____	_____
<u>2-8</u>	<u>A</u>	<u>2.5Y 4/3</u>	_____	_____	<u>sandy loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Parent rock at 8 inches. A horizon has pebbles and cobbles. Not listed as hydric in the Haines Soil Survey. The soil component was determined to be Lithic Cryorthents.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Wetland Hydrology Present? <u>No</u>	
Hydric Soils Present? <u>No</u>	
Remarks: <u>Big rock in the middle of the pit - True mixed forest.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      No Is the site significantly disturbed (Atypical Situation)?      Yes Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Blk Cottonwood Forest</u> Transect ID: <u>Sheet# 39</u> Plot ID: <u>25</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. _____	_____	Pick One
2. <u>Salix monticola*</u>	<u>S</u>	FAC	10. _____	_____	Pick One
3. <u>Populus balsamifera*</u>	<u>S</u>	FACU	11. _____	_____	Pick One
4. <u>Dryas sp. *</u>	<u>H</u>	FACU	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 25%

Remarks: Absolute tree cover is 15 % and shrub cover is 50 %.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None</u>	



**SOILS**

Map Unit Name (Series and Phase): _____  Taxonomy (Subgroup): _____	Drainage Class: _____ Field Observations Confirm Mapped Type? <u>Pick One</u>				
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10	B	5Y 5/2	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Pebble - rock- cobble throughout. Couldn't dig any further - drains well when water is poured down. The area is an old riverbar. This area is not mapped in the Haines Soil Survey (data gap).

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Moose poop - major bear habitat, fish spawning. Disturbed area.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/14/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Sitka Spruce Forest</u> Transect ID: <u>Sheet#39A</u> Plot ID: <u>26</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Picea sitchensis*</u>	<u>T</u>	FACU	9. _____	_____	Pick One
2. <u>Alnus sp.*</u>	<u>T</u>	FAC	10. _____	_____	Pick One
3. <u>Viburnum edule*</u>	<u>S</u>	FACU	11. _____	_____	Pick One
4. <u>Ribes oxyanthoides*</u>	<u>S</u>	NI	12. _____	_____	Pick One
5. <u>Rosa nutkana*</u>	<u>S</u>	FACU	13. _____	_____	Pick One
6. <u>Trientalis europaea*</u>	<u>H</u>	FAC	14. _____	_____	Pick One
7. <u>Cornus stolonifera</u>	<u>S</u>	FAC	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 20 %

Remarks: Sitka spruce dbh is 100 inches or so. Big alders too. VIED way overhead and the forest floor is lettuce lichen/moss and needles.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None</u>	



**SOILS**

Map Unit Name (Series and Phase): _____  Taxonomy (Subgroup): _____	Drainage Class: _____ Field Observations Confirm Mapped Type? <u>Pick One</u>				
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-5	O	_____	_____	_____	_____
5-16	B	5Y 3/1	_____	_____	<u>sandy silty loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Dry. This area is not mapped in the Haines Soil Survey (data gap).

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Moose poop - dead tree logs everywhere.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/1 /05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 23</u> Plot ID: <u>27</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	9. _____	_____	Pick One
2. <u>Juncus 1*</u>	<u>H</u>	FACW	10. _____	_____	Pick One
3. <u>Carex rostrata*</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: C. rostrata is on outer point of point radius

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>3</u> (in.)  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: <u>Standing water throughout, about three inches.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Rock outcrop-Lithic Cryofolists complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-4</u>	<u>O</u>	_____	_____	_____	_____
<u>4-13</u>	<u>A</u>	<u>2.5Y 3/3</u>	_____	_____	<u>sand</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Pit was dug adjacent to standing water. Cobbles throughout and hit a large boulder at 13 inches. The soil subgroup could not be determined because the observed soil profile is not similar to Rock outcrop or Lithic Cryofolists. However, the soil component was determined to be aquepts.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Sitka Spruce Forest</u> Transect ID: <u>Sheet# 1</u> Plot ID: <u>28</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Picea sitchensis*</u>	<u>T</u>	FACU	9. _____	_____	Pick One
2. <u>Sambucus racemosa*</u>	<u>S</u>	FACU	10. _____	_____	Pick One
3. <u>Alnus sp. *</u>	<u>S</u>	FAC	11. _____	_____	Pick One
4. <u>Ribes oxyanthoides*</u>	<u>H</u>	NI	12. _____	_____	Pick One
5. <u>Epilobium angustifolium*</u>	<u>H</u>	FACU	13. _____	_____	Pick One
6. <u>Cornus stolonifera</u>	<u>S</u>	FAC	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 25%

Remarks: Alder thicket

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:      _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Kupreanof-Foad complex</u>		Drainage Class: <u>Well Drained</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>Typic Humicryods</u>					
<u>Profile Description:</u>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The alder is too thick to walk in. Not listed as hydric in the Haines Soil Survey. Soil component is Kupreanof.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>No</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: <u>Site is in area of varying slopes but inside a large, dense alder patch. Large boulders jut out. Ground cover is rock, moss, leaf litter, old branches and little else.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 2</u> Plot ID: <u>29</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Hippuris vulgaris*</u>	<u>H</u>	OBL	9. _____	_____	Pick One
2. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. <u>Phalaris arundinacea*</u>	<u>H</u>	NI	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>variable</u> (in.)  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: _____	



**SOILS**

Map Unit Name (Series and Phase): <u>Tsirku-Hollow-Funter complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil subgroup could not be determined because the observed soil profile is not similar to Tsirku, Hollow, or Funter, but appears to be within the soil component, Pondered Soils.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Biosheen</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      No Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 2</u> Plot ID: <u>30</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Sedge 3*</u>	<u>H</u>	FAC	9. _____	_____	Pick One
2. <u>Menyanthes trifoliata</u>	<u>H</u>	OBL	10. _____	_____	Pick One
3. _____	_____	Pick One	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100 %

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:     _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>Open water channel</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Tsirku-Hollow-Funter complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil subgroup could not be determined because the observed soil profile is not similar to Tsirku, Hollow, or Funter, but appears to be within the soil component, Pondered Soils</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Site is capturing vegetation around a culvert. First turn out by commercial business -- culvert -- other side of road -- stream runs away from business.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Shrub Swamp</u> Transect ID: <u>Sheet# 33</u> Plot ID: <u>31</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix alaxensis*</u>	<u>S</u>	FAC	9. _____	_____	Pick One
2. <u>Phalaris arundinacea*</u>	<u>H</u>	NI	10. _____	_____	Pick One
3. <u>Equisetum fluviatile*</u>	<u>H</u>	OBL	11. _____	_____	Pick One
4. <u>Carex rostrata*</u>	<u>H</u>	OBL	12. _____	_____	Pick One
5. <u>Sedge juncus</u>	<u>H</u>	FAC	13. _____	_____	Pick One
6. <u>Calamagrostis canadensis</u>	<u>H</u>	FAC	14. _____	_____	Pick One
7. <u>Potamogeton sp.</u>	<u>H</u>	OBL	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: Pondweed has a serrated edge - green on top/purple on bottom.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>3</u> (in.)  Depth to Free Water in Pit:                      _____ (in.)  Depth to Saturated Soil:                      _____ (in.)	
Remarks: _____	



**SOILS**

Map Unit Name (Series and Phase): <u>Nataga-Cryorthents association</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Hydric soils assumed due to inundation and hydrophytic vegetation. The soil subgroup could not be determined, however the soil component was determined to be Aquepts.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Shrub swamp - small creek running through.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 31</u> Plot ID: <u>32</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Grass 2*</u>	<u>H</u>	NI	9. _____	_____	Pick One
2. <u>Equisetum hyemale*</u>	<u>H</u>	FACW	10. _____	_____	Pick One
3. <u>Equisetum arvense*</u>	<u>H</u>	FACU	11. _____	_____	Pick One
4. <u>Salix monticola</u>	<u>H</u>	FAC	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 50 %

Remarks: Equisetum is in standing water.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>3-5(in.)</u>  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: <u>Inundation at toe of slope. Stagnant water.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Nataga-Cryorthents association</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<u>Profile Description:</u>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil subgroup could not be determined, however the soil component was determined to be aquepts.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>The vegetation is not over 50%; however, professional opinion is that the sampling point is within a wetland due to the hydrology and listing on the hydric soils list. Also, due to the season, Grass 2 could not be keyed out and therefore could not be taken into consideration for the dominance calculations.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Blk Cottonwood Forest</u> Transect ID: <u>Sheet# 28</u> Plot ID: <u>33</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus balsamifera*</u>	<u>T</u>	FACU	9. _____	_____	Pick One
2. <u>Salix monticola*</u>	<u>T</u>	FAC	10. _____	_____	Pick One
3. <u>Viburnum edule*</u>	<u>S</u>	FACU	11. _____	_____	Pick One
4. <u>Alnus sp.*</u>	<u>S</u>	FAC	12. _____	_____	Pick One
5. <u>Rosa nutkana</u>	<u>S</u>	NI	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 50%

Remarks: Huge cottonwoods. A couple of them have dbh of ~100 inches.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Nataga-Cryorthents association</u>		Drainage Class: <u>Somewhat Excessively Drained</u>			
Taxonomy (Subgroup): <u>Typic Cryorthents</u>		Field Observations Confirm Mapped Type? <u>Yes</u>			
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-3</u>	<u>O</u>	_____	_____	_____	_____
<u>3-5.5</u>	<u>A</u>	<u>2.5Y 3/1</u>	_____	_____	<u>silty loam</u>
<u>5.5-</u>	<u>B</u>	<u>5Y 4/2</u>	_____	_____	<u>sand with cobbles</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Dry. Not listed as hydric on the Haines Soil Survey. The soil component was determined to be Nataga.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>No</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>No</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Shrub Swamp</u> Transect ID: <u>Sheet# 24</u> Plot ID: <u>34</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Alnus sp.*</u>	<u>S</u>	FAC	9. _____	_____	Pick One
2. <u>Salix alaxensis*</u>	<u>S</u>	FAC	10. _____	_____	Pick One
3. <u>Grass 2*</u>	<u>H</u>	NI	11. _____	_____	Pick One
4. <u>Calamagrostis sp.*</u>	<u>H</u>	FAC	12. _____	_____	Pick One
5. <u>Salix glauca</u>	<u>S</u>	FAC	13. _____	_____	Pick One
6. <u>Epilobium angustifolium</u>	<u>H</u>	FACU	14. _____	_____	Pick One
7. <u>Taraxacum officinale</u>	<u>H</u>	FACU	15. _____	_____	Pick One
8. <u>Equisetum pratense</u>	<u>H</u>	FACW	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 75 %

Remarks: Willow and alder are about 4 feet high. Ground cover is sphagnum.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	Remarks: <u>None - it seems as though it used to be wet and isn't anymore. Or it may flood occasionally; adjacent to stream.</u>



**SOILS**

Map Unit Name (Series and Phase): <u>Rock outcrop-Lithic Cryofolists complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>N/A</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-4</u>	<u>O</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>4</u>	<u>B</u>	<u>5Y 4/1</u>	<u>2.5 Y 5/6</u>	<u>65%</u>	<u>silty clay</u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Damp. The soil subgroup could not be determined because the observed soil profile is not similar to rock outcrop or Lithic Cryofolists. However, the soil component was determined to be aquepts.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Wetland Hydrology Present? <u>No</u>	
Hydric Soils Present? <u>Yes</u>	
Remarks: <u>Hydrology is likely present at least two weeks during the growing season (4/1 - 10/30).</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Swamp</u> Transect ID: <u>Sheet# 22</u> Plot ID: <u>35</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex rostrata*</u>	<u>H</u>	OBL	9. _____	_____	Pick One
2. <u>Phalaris arundinacea*</u>	<u>H</u>	NI	10. _____	_____	Pick One
3. _____	_____	Pick One	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100 %

Remarks: Phalaris arundinacea on road edge only

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: <u>24</u> (in.)  Depth to Free Water in Pit:        _____ (in.)  Depth to Saturated Soil:            _____ (in.)	
Remarks: <u>Open water surrounded by sedges and Phalaris arundinacea.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Rock outcrop-Lithic Cryorthents complex</u>		Drainage Class: <u>N/A</u> Field Observations Confirm Mapped Type? <u>No</u>			
Taxonomy (Subgroup): <u>Aquepts</u>					
<b>Profile Description:</b>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Hydric soils assumed as the water was so deep.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Fresh Sedge Meadow.</u> Transect ID: <u>Sheet# 16</u> Plot ID: <u>36</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex rostrata*</u>	<u>H</u>	OBL	9. _____	_____	Pick One
2. <u>Calamagrostis canadensis</u>	<u>H</u>	FAC	10. _____	_____	Pick One
3. _____	_____	Pick One	11. _____	_____	Pick One
4. _____	_____	Pick One	12. _____	_____	Pick One
5. _____	_____	Pick One	13. _____	_____	Pick One
6. _____	_____	Pick One	14. _____	_____	Pick One
7. _____	_____	Pick One	15. _____	_____	Pick One
8. _____	_____	Pick One	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100%

Remarks: Sedges at toe of slope.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: <u>N/A</u> (in.)  Depth to Free Water in Pit: <u>N/A</u> (in.)  Depth to Saturated Soil: <u>N/A</u> (in.)	
Remarks: <u>No saturation.</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Hollow and Skagway soils</u>		Drainage Class: <u>Somewhat Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Typic Cryofluvents</u>					
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
<u>0-0.5</u>	<u>O</u>	_____	_____	_____	_____
<u>0.5-16</u>	<u>A</u>	<u>5Y 4/1</u>	<u>10YR 5/4</u>	<u>75%</u>	<u>silty sandy</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>A few cobbles in the A layer. The soil component was determined to be Hollow.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>Yes</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

Project/Site: <u>Haines Highway - M.P 3.5 to M.P 25.3</u> Applicant/Owner: <u>ADOT&amp;PF</u> Investigator: <u>RAC/EMC</u>	Date: <u>9/15/05</u> County: _____ State: <u>Alaska</u>
Do Normal Circumstances exist on the site?                      Yes Is the site significantly disturbed (Atypical Situation)?      No Is the area a potential Problem Area?                              No (If needed, explain on reverse.)	Community ID: <u>Fresh Sedge Meadow</u> Transect ID: <u>Sheet# 12</u> Plot ID: <u>37</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix monticola*</u>	<u>S</u>	FAC	9. <u>Grass 2</u>	<u>H</u>	NI
2. <u>Rosa nutkana*</u>	<u>S</u>	NI	10. _____	_____	Pick One
3. <u>Equisetum hyemale*</u>	<u>H</u>	FACW	11. _____	_____	Pick One
4. <u>Sedge 8*</u>	<u>H</u>	FAC	12. _____	_____	Pick One
5. <u>Achillea millefolium</u>	<u>H</u>	FACU	13. _____	_____	Pick One
6. <u>Equisetum arvense</u>	<u>H</u>	FACU	14. _____	_____	Pick One
7. <u>Rubus chamaemorus</u>	<u>H</u>	FACW	15. _____	_____	Pick One
8. <u>Taraxacum officinale</u>	<u>H</u>	FACU	16. _____	_____	Pick One

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Relative percent = 100 %

Remarks: The rose and salix are about 16-24" and are grow parallel and adjacent to the road (on edge of community).

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water:        _____ (in.)  Depth to Free Water in Pit:    _____ (in.)  Depth to Saturated Soil:        _____ (in.)	
Remarks: <u>None</u>	



**SOILS**

Map Unit Name (Series and Phase): <u>Ashmun-Hollow-Funter complex</u>		Drainage Class: <u>Very Poorly Drained</u> Field Observations Confirm Mapped Type? <u>Yes</u>			
Taxonomy (Subgroup): <u>Terric Sphagnofibrists</u>					
<b>Profile Description:</b>					
Depth (Inches)	<u>Horizon</u>	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ <u>Contrast</u>	Texture, Concretions, <u>Structure, etc.</u>
<u>0-5</u>	<u>O</u>	_____	_____	_____	<u>saturated</u>
<u>5-16</u>	<u>B</u>	<u>5Y 4/1</u>	<u>2.5Y 5/6</u>	<u>many</u>	<u>silty loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>The soil component was determined to be Funter.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <u>Yes</u> Wetland Hydrology Present? <u>No</u> Hydric Soils Present? <u>Yes</u>	Is this Sampling Point Within a Wetland? <u>Yes</u>
Remarks: <u>Due to strong vegetation and soil wetland indicators, professional opinion is that this site is saturated for at least 2 weeks during the growing season (4/1 - 10/30).</u>	



## **APPENDIX A.2**

### **Relative Percent Calculations**



<b>SHEET # 39 SITE #1</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Carex rostrata	40	H	21.1%	Y	OBL
Equisetum arvense	25	H	13.2%	N	FACU
Carex sitchensis	30	H	15.8%	N	OBL
Juncus 1	10	H	5.3%	N	FACW
Phalaris arundinacea L.	60	H	31.6%	Y	NI
Calamagrostis canadensis	15	H	7.9%	N	FAC
Populus balsamifera	10	H	5.3%	N	FAC
<b>Relative Percentage = 100%</b>	190				

<b>SHEET #39 SITE #2</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Calamagrostis canadensis	10	H	10	N	FAC
Carex lyngbyei	20	H	20	Y	OBL
Sedge 2	20	H	20	Y	FAC
Grass 2	10	H	10	N	NI
Equisetum pratense	25	H	25	Y	FACW
Sedge 1	15	H	15	N	FAC
<b>Relative Percentage = 100%</b>	100				

<b>SHEET #39 SITE #3</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Alnus sp.	30	S	17.1%	N	FAC
Rosa acicularis	45	S	25.7%	Y	FACU
Populus balsamifera	15	S	8.6%	N	FACU
Salix alaxensis	40	S	22.9%	Y	FAC
Salix monticola	45	S	25.7%	Y	FAC
	175				
Epilobium angustifolium	20	H	8.3%	N	FACU
Grass 2	65	H	27.1%	Y	NI
Achillea millefolium	25	H	10.4%	N	FACU
Equisetum arvense	75	H	31.3%	Y	FACU
Centaurea biebersteinii	30	H	12.5%	N	NI
Taraxacum officinale	10	H	4.2%	N	FACU
Phalaris arundinacea L.	15	H	6.3%	N	NI
<b>Relative Percentage = 50%</b>	240				

<b>Site 4 is water - no vegetation</b>					
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<b>SHEET #32 SITE #5</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	70	T	77.8%	Y	FACU
Picea sitchensis	20	T	22.2%	Y	FACU
	90				
Rosa nutkana	40	S	38.1%	Y	NI
Aruncus dioicus	15	S	14.3%	N	UPL
Cornus stolonifera	25	S	23.8%	Y	FAC
Symphoricarpos albus	25	S	23.8%	Y	UPL
	105				
Equisetum arvense	10	H	100.0%	Y	FACU
<b>Relative Percentage = 33%</b>	10				

<b>SHEET #30 SITE #6</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	80	T	88.9%	Y	FACU
Picea sitchensis	10	T	11.1%	N	FACU
	90				
Shepherdia canadensis	40	S	36.4%	Y	NI
Rosa nutkana	35	S	31.8%	Y	NI
Cornus stolonifera	20	S	18.2%	N	FAC
Populus balsamifera	15	S	13.6%	N	FACU
	110				
Viola glabella	15	H	42.9%	Y	FACW
Gallium boreale	5	H	14.3%	N	FACU
Pyrola asarifolia	15	H	42.9%	Y	FAC
<b>Relative Percentage = 66%</b>	35				

<b>SHEET #27 SITE #7</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Rosa nutkana	40	S	100	Y	NI
Epilobium angustifolium	50	H	52.6%	Y	FACU
Taraxacum officinale	15	H	15.8%	N	FACU
Calamagrostis canadensis	20	H	21.1%	Y	FAC
Achillea millefolium	10	H	10.5%	N	FACU
<b>Relative Percentage = 50%</b>	95				



<b>SHEET #27 SITE #8</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Alnus sp.	70	T	63.6%	Y	FAC
Salix monticola	40	T	36.4%	Y	FAC
	110				
Equisetum fluviatile	20	H	28.6%	Y	OBL
Equisetum arvense	10	H	14.3%	N	FACU
Aruncus dioicus	10	H	14.3%	N	UPL
Pteridium aquilinum	10	H	14.3%	N	FACU
Sedge juncus	20	H	28.6%	Y	FAC
<b>Relative Percentage = 100%</b>	70				

<b>SHEET #26 SITE #9</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	60	S	60.0%	Y	FACU
Salix alaxensis	40	S	40.0%	Y	FAC
	100				
Equisetum arvense	15	H	27.3%	Y	FACU
Taraxacum officinale	15	H	27.3%	Y	FACU
Achillea millefolium	10	H	18.2%	N	FACU
Trifolium pratense	5	H	9.1%	N	FAC
Grass 2	10	H	18.2%	N	
<b>Relative Percentage = 25%</b>	55				

<b>SHEET #3 SITE #10</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Euisetum hyemale	60	H	37.5%	Y	FACW
Nuphar luteum	15	H	9.4%	N	OBL
Alnus sp	15	H	9.4%	N	FAC
Salix sp	10	H	6.3%	N	FAC
Carex lyngbyei	20	H	12.5%	Y	OBL
Carex utriculata	20	H	12.5%	Y	OBL
Phalaris arundinacea L.	20	H	12.5%	Y	NI
<b>Relative Percentage = 100%</b>	160				

<b>SHEET #4 SITE #11</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Alnus sp.	40	S	42.1%	Y	FAC
Salix pulchra	25	S	26.3%	Y	FAC
Symphoricarpos albus	5	S	5.3%	N	UPL
Salix monticola	25	S	26.3%	Y	FAC
	95				
Lysichiton americanum	20	H	17.4%	N	OBL
Equisetum fluviatile	90	H	78.3%	Y	OBL
Viola palustris	5	H	4.3%	N	NA
<b>Relative Percentage = #100%</b>	115				



<b>SHEET #5</b>	<b>SITE #12</b>				
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	65	T	100.0%	Y	FACU
	65				
Viburnum edule	25	S	16.1%	N	FACU
Cornus stolonifera	25	S	16.1%	N	FAC
Alnus sp.	75	S	48.4%	Y	FAC
Rosa nutkana	30	S	19.4%	Y	NI
	155				
Boschniakia rossica	15	H	10.7%	N	FACU
Equisetum pratense	85	H	60.7%	Y	FACW
Streptopus amplexifolius	15	H	10.7%	N	FAC
Aster sp.	15	H	10.7%	N	
Taraxacum officinale	10	H	7.1%	N	FACU
<b>Relative Percentage = 66%</b>	140				

<b>SHEET #6</b>	<b>SITE #13</b>				
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Salix monticola	30	T	60.0%	Y	FAC
Populus balsamifera	20	T	40.0%	Y	FACU
	50				
Salix monticola	25	S	100.0%	Y	FAC
	25				
Equisetum fluviatile	85	H	63.0%	Y	OBL
Calamagrostis canadensis	20	H	14.8%	N	FAC
Lysichiton americanum	15	H	11.1%	N	OBL
Conioselinum sp.	15	H	11.1%	N	FACW
<b>Relative Percentage = 75%</b>	135				

<b>SHEET #9</b>	<b>SITE #14</b>				
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Calamagrostis canadensis	70	H	77.8%	Y	FAC
Equisetum arvense	20	H	22.2%	Y	FACU
<b>Relative Percentage = 50%</b>	90				

<b>SHEET #9</b>	<b>SITE #15</b>				
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	70	T	100.0%	Y	FACU
	70				
Rosa nutkana	20	S	40.0%	Y	NI
Cornus stolonifera	30	S	60.0%	Y	FAC
	50				
Rosa nutkana	15	H	25.0%	Y	NI
Equisetum arvense	45	H	75.0%	Y	FACU
<b>Relative Percentage = 33%</b>	60				



<b>SHEET #10 SITE #16</b>						
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>	
Salix monticola	25	T	71.4%	Y	FAC	
Picea sitchensis	10	T	28.6%	Y	FACU	
	35					
Populus balsamifera	15	S	25.0%	Y	FACU	
Alnus sp.	20	S	33.3%	Y	FAC	
Salix monticola	15	S	25.0%	Y	FAC	
Ribes oxyanthoides	10	S	16.7%	N	NI	
	60					
Taraxacum officinale	5	H	12.5%	Y	FACU	
Achillea millefolium	5	H	12.5%	Y	FACU	
Epilobium angustifolium	5	H	12.5%	Y	FACU	
Trifolium pratense	5	H	12.5%	Y	FAC	
Aster sp.	5	H	12.5%	Y	NI	
Linaria vulgaris	5	H	12.5%	Y	NI	
Picea sitchensis	5	H	12.5%	Y	FACU	
Gallium boreale	5	H	12.5%	Y	FACU	
<b>Relative Percentage = 36%</b>	40					

<b>SHEET #13 SITE #17</b>						
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>	
Populus balsamifera	5	SS	100.0%	Y	FACU	
	5					
Carex rostrata	15	H	13.6%	N	OBL	
Equisetum fluviatile	80	H	72.7%	Y	OBL	
Hippuris vulgaris	10	H	9.1%	N	OBL	
Calamagrostis canadensis	5	H	4.5%	N	FAC	
<b>Relative Percentage = 50%</b>	110					

<b>SHEET #14 SITE #18</b>						
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>	
Cornus stolonifera	40	S	53.3%	Y	FAC	
Salix monticola	20	S	26.7%	Y	FAC	
Salix alaxensis	15	S	20.0%	Y	FAC	
	75					
Equisetum fluviatile	40	H	36.4%	Y	OBL	
Carex rostrata	70	H	63.6%	Y	OBL	
<b>Relative Percentage = 100%</b>	110					



<b>SHEET #14 SITE #19</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	70	T	100.0%	Y	FACU
	70				
Rosa nutkana	15	S	18.8%	N	NI
Viburnum edule	15	S	18.8%	N	FACU
Populus balsamifera	20	S	25.0%	Y	FACU
Alnus sp.	30	S	37.5%	Y	FAC
	80				
Equisetum arvense	60	H	85.7%	Y	FACU
Ribes oxyanthoides	10	H	14.3%	N	NA
<b>Relative Percentage = 25%</b>	70				

<b>SHEET #15 SITE #20</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Equisetum fluviatile	20	H	20.0%	Y	OBL
Nuphar luteum	60	H	60.0%	Y	OBL
Potentilla palustris	5	H	5.0%	N	OBL
Menyanthes trifoliata	15	H	15.0%	N	OBL
<b>Relative Percentage = 100%</b>	100				

<b>SHEET #17 SITE #21</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	10	T	100.0%	Y	FACU
	10				
Populus balsamifera	5	SS	50.0%	Y	FACU
Salix alaxensis	5	S	50.0%	Y	FAC
	10				
Hippuris vulgaris	5	H	3.1%	N	OBL
Carex rostrata	80	H	50.0%	Y	OBL
Equisetum fluviatile	25	H	15.6%	N	OBL
Carex lyngbyei	10	H	6.3%	N	OBL
Angelica sp.	5	H	3.1%	N	
Calamagrostis canadensis	30	H	18.8%	N	FAC
Potentilla palustris	5	H	3.1%	N	OBL
<b>Relative Percentage = 50%</b>	160				



<b>SHEET #18</b>	<b>SITE #22</b>				
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Betula papyrifera	65	T	65.0%	Y	FACU
Salix l	30	T	30.0%	Y	FAC
Populus balsamifera	5	T	5.0%	N	FACU
	100				
Viburnum edule	80	S	50.0%	Y	FACU
Rosa nutkana	80	S	50.0%	Y	NI
	160				
Equisetum arvense	40	H	23.5%	Y	FACU
Gymnocarpium dryopteris	80	H	47.1%	Y	FACU
Ribes oxyanthoides	15	H	8.8%	N	NA
Trientalis europaea	10	H	5.9%	N	FAC
Pyrola secunda	25	H	14.7%	N	UPL
<b>Relative Percentage = 20%</b>	170				

<b>SHEET #18</b>	<b>SITE #23</b>				
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Menyanthes trifoliata	30	H	21.4%	Y	OBL
Potentilla palustris	25	H	17.9%	N	OBL
Carex lyngbyei	85	H	60.7%	Y	OBL
<b>Relative Percentage = 100%</b>	140				

<b>SHEET #20</b>	<b>SITE #24</b>				
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Betula papyrifera	30	T	24.0%	Y	FACU
Alnus sp.	35	T	28.0%	Y	FAC
Picea sitchensis	45	T	36.0%	Y	FACU
Populus balsamifera	15	T	12.0%	N	FACU
	125				
Cornus stolonifera	30	S	40.0%	Y	FAC
Viburnum edule	20	S	26.7%	Y	FACU
Ribes oxyanthoides	10	S	13.3%	N	NA
Rosa nutkana	15	S	20.0%	Y	NI
	75				
Pyrola asarifolia	5	H	50.0%	Y	FAC
Pyrola secunda	5	H	50.0%	Y	UPL
<b>Relative Percentage = 42%</b>	10				



<b>SHEET #39 SITE #25</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Populus balsamifera	15	T	100.0%	Y	FACU
	15				
Salix monticola	10	S	20.0%	Y	FAC
Populus balsamifera	40	S	80.0%	Y	FACU
	50				
Dryas sp.	60	H	100.0%	Y	FACU
<b>Relative Percentage = 25%</b>	60				

<b>SHEET #39A SITE #26</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Picea sitchensis	85	T	89.5%	Y	FACU
Alnus sp.	10	T	10.5%		FAC
	95				
Viburnum edule	65	S	35.1%	Y	FACU
Ribes oxyanthoides	40	S	21.6%	Y	NI
Rosa nutkana	55	S	29.7%	Y	FACU
Cornus stolonifera	25	S	13.5%	N	FAC
	185				
Trientalis europaea	40	H	100.0%	Y	FAC
<b>Relative Percentage = 20%</b>	40				

<b>SHEET #23 SITE #27</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Equisetum fluviatile	90	H	64.3%	Y	OBL
Juncus l	30	H	21.4%	Y	FAC
Carex rostrata	20	H	14.3%	N	OBL
<b>Relative Percentage = 100%</b>	140				

<b>SHEET #1 SITE #28</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Picea sitchensis	20	T	100.0%	Y	FACU
	20				
Sambucus racemosa	45	S	29.0%	Y	FACU
Alnus sp.	80	S	51.6%	Y	FAC
Cornus stolonifera	30	S	19.4%	N	FAC
	155				
Ribes oxyanthoides	30	H	66.7%	Y	NA
Epilobium angustifolium	15	H	33.3%	Y	FACU
<b>Relative Percentage = 25%</b>	45				



SHEET #2 SITE #29					
Vegetation	Absolute Percentage	Stratum	Relative Percentage	Dominant?	Indicator
Hippuris vulgaris	75	H	40.5%	Y	OBL
Equisetum fluviatile	70	H	37.8%	Y	OBL
Phalaris arundinacea L.	40	H	21.6%	Y	NI
<b>Relative Percentage = 100%</b>	185				

SHEET #2 SITE #30					
Vegetation	Absolute Percentage	Stratum	Relative Percentage	Dominant?	Indicator
Sedge 3	75	H	93.8%	Y	FAC
Menyanthes trifoliata	5	H	6.3%	N	OBL
<b>Relative Percentage = 100%</b>	80				

SHEET #33 SITE #31					
Vegetation	Absolute Percentage	Stratum	Relative Percentage	Dominant?	Indicator
Salix monticola	50	S	100.0%	Y	FAC
	50				
Phalaris arundinacea L.	15	H	18.8%	Y	NI
Equisetum fluviatile	15	H	18.8%	Y	OBL
Sedge	25	H	31.3%	Y	FAC
Sedge juncus	5	H	6.3%	N	FAC
Calamagrostis canadensis	10	H	12.5%	N	FAC
Potamogeton sp.	10	H	12.5%	N	OBL
<b>Relative Percentage = 100%</b>	80				

SHEET #31 SITE #32					
Vegetation	Absolute Percentage	Stratum	Relative Percentage	Dominant?	Indicator
Grass 2	15	H	27.3%	Y	NI
Salix monticola	5	H	9.1%	N	FAC
Equisetum hyemale	20	H	36.4%	Y	FACW
Equisetum arvense	15	H	27.3%	Y	FACU
<b>Relative Percentage = 66%</b>	55				

SHEET #28 SITE #33					
Vegetation	Absolute Percentage	Stratum	Relative Percentage	Dominant?	Indicator
Populus balsamifera	30	T	66.7%	Y	FACU
Salix monticola	15	T	33.3%	Y	FAC
	45				
Viburnum edule	80	S	57.1%	Y	FACU
Rosa nutkana	25	S	17.9%	N	NI
Alnus sp.	35	S	25.0%	Y	FAC
<b>Relative Percentage = 50%</b>	140				



<b>SHEET #24 SITE #34</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Salix glauca	5	S	16.7%	N	FAC
Alnus sp.	15	S	50.0%	Y	FAC
Salix alaxensis	10	S	33.3%	Y	FAC
	30				
Taraxacum officinale	10	H	5.1%	N	FACU
Grass 2	85	H	43.6%	Y	NI
Equisetum pratense	35	H	17.9%	N	FACW
Calamagrostis sp.	60	H	30.8%	Y	FAC
Epilobium angustifolium	5	H	2.6%	N	FACU
<b>Relative Percentage = 100%</b>	195				

<b>SHEET #22 SITE #35</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Carex rostrata	15	H	50.0%	Y	OBL
Phalaris arundinacea L.	15	H	50.0%	Y	NI
<b>Relative Percentage = 100%</b>	30				



<b>SHEET #16 SITE #36</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Carex rostrata	80	H	88.9%	Y	OBL
Calamagrostis canadensis	10	H	11.1%	N	FAC
<b>Relative Percentage =100%</b>	90				

<b>SHEET #12 SITE #37</b>					
<b>Vegetation</b>	<b>Absolute Percentage</b>	<b>Stratum</b>	<b>Relative Percentage</b>	<b>Dominant?</b>	<b>Indicator</b>
Salix monticola	25	S	71.4%	Y	FAC
Rosa nutkana	10	S	28.6%	Y	NI
	35				
Achillea millefolium	10	H	4.3%	N	FACU
Equisetum hyemale	60	H	25.5%	Y	FACW
Equisetum arvense	20	H	8.5%	N	FACU
Sedge 8	60	H	25.5%	Y	FAC
Rubus chamaemorus	30	H	12.8%	N	FACW
Taraxacum officinale	15	H	6.4%	N	FACU
Grass 2	40	H	17.0%	N	NI
<b>Relative Percentage = 100%</b>	235				







## **APPENDIX B**

### **Sample Site Photographs**



Photograph No. 1	
Sample Site: 1	
Habitat: Fresh Sedge Meadow NWI: PSS1B Alaska Vegetation code: Hgm	 A photograph showing a field of tall, green sedge grasses under a clear blue sky. In the foreground, a person's hand holds a yellow rectangular marker with the number '39' above a horizontal line and the number '1' below it. The background consists of a dense forest of evergreen trees.
Photograph No. 2	
Sample Site: 1	
The soil sample revealed low chroma and mottling.	 A close-up photograph of a soil sample. The soil is dark and appears to have some mottling or low chroma. It is surrounded by green and brown sedge grasses. A yellow rectangular marker with the number '39' above a horizontal line and the number '1' below it is placed on the soil for identification.





Photograph No. 3	
Sample Site: 2	
Habitat: Fresh Sedge Meadow NWI: PSS1B Alaska Vegetation code: Hgm	
Photograph No. 4	
Sample Site: 2	
The soil sample showed evidence of mottling.	



Photograph No. 5	
Sample Site: 3	
Habitat: Mixed Shrub  NWI: Upland  Alaska Vegetation code: Slo	
Photograph No. 6	
Sample Site: 3	
The soil sample revealed faint mottling; however, the site was very dry.	





Photograph No. 7	
Sample Site: 4	
Habitat: River NWI: R3OW Alaska Vegetation code: W	
Photograph No. 8	
Sample Site: 5	
Habitat: Mixed Forest NWI: Upland Alaska Vegetation code: Fmo	



Photograph No. 9	
Sample Site: 5	
The sandy loam soils were dry and were not low in chroma.	
Photograph No. 10	
Sample Site: 6	
Habitat: Black Cottonwood Forest  NWI: Upland  Alaska Vegetation code: Fbc	





Photograph No. 11	
Sample Site: 7	
<p>Habitat: Fireweed-Bluejoint Meadow</p> <p>NWI: Upland</p> <p>Alaska Vegetation code: Hgd</p>	 A photograph showing a meadow with tall, dry grasses in the foreground. In the background, there are green trees and mountains under a blue sky with scattered white clouds. A hand is holding a yellow sign with the number '27' over a horizontal line and '7' below it.
Photograph No. 12	
Sample Site: 7	
<p>The soil sample revealed dry, sandy soils. No indications of hydric soils were observed.</p>	 A close-up photograph of a soil sample. The soil is dark and appears sandy. A yellow sign with the number '27' over a horizontal line and '7' below it is placed on the soil for identification.



Photograph No. 13	
Sample Site: 8	
Habitat: Shrub Swamp  NWI: PSS1E  Alaska Vegetation code: Sto	
Photograph No. 14 Sample Site: 8  Water filled the soil sample pit to a depth of four inches below the ground surface. The soils were low in chroma and mottling was also observed. Drainage patterns and a sulfidic odor were observed as well.  This site was adjacent to a creek and there were multiple signs of bear activity.	




Photograph No. 15	
Sample Site: 9	
Habitat: Mixed Shrub  NWI: Upland  Alaska Vegetation code: Stc	
Photograph No. 16	
Sample Site: 9	
The dry, sandy loam soil was dark in chroma.	



Photograph No. 17	
Sample Site: 10	
Habitat: Herbaceous Swamp NWI: PEM1H Alaska Vegetation code: Haf	 A landscape photograph showing a wetland area in the foreground with tall grasses and a forested hillside in the background. A yellow marker with the number '3' over a horizontal line and '10' below it is held in the foreground.
Photograph No. 18	
Sample Site: 10	
Second picture of Site 10 vegetation. No soil sample was taken due to inundation.	 A close-up photograph of the wetland vegetation, showing tall grasses and a forested hillside in the background. A yellow marker with the number '3' over a horizontal line and '10' below it is held in the foreground.





Photograph No. 19	
Sample Site: 11	
<p>Habitat: Shrub Swamp</p> <p>NWI: PSS1H</p> <p>Alaska Vegetation code: Sto</p> <p>The sample site was inundated, so no soil sample was taken.</p>	
Photograph No. 20	
Sample Site: 12	
<p>Habitat: Black Cottonwood Forest</p> <p>NWI: PFO1C</p> <p>Alaska Vegetation code: Fbc</p>	


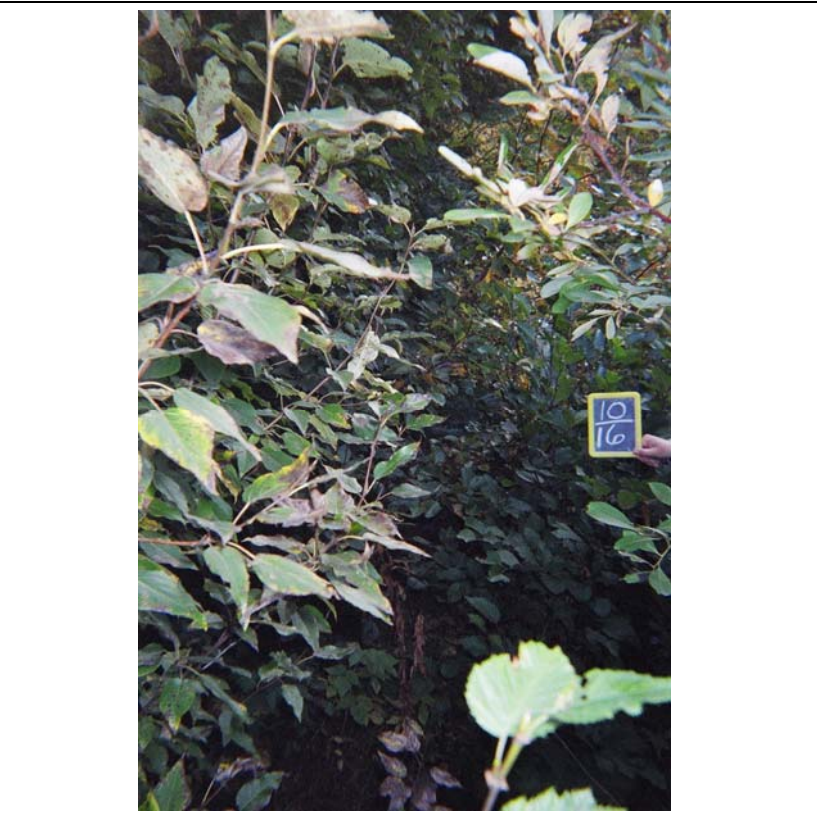
Photograph No. 21	
Sample Site: 12	
The soils exhibited low chroma.	
Photograph No. 22	
Sample Site: 13	
Habitat: Shrub Swamp NWI: PSS1E Alaska Vegetation code: Sto	





Photograph No. 23	
Sample Site: 13	
<p>The saturated soils exhibited low chroma, and oxidized root channels were observed. Water accumulated in the soil pit to four inches below the ground surface.</p>	 A photograph showing a soil pit in a grassy area. A yellow square marker with the number '6' over '13' is placed on the soil surface. The soil appears dark and saturated.
Photograph No. 24	
Sample Site: 14	
<p>Habitat: Bluejoint Meadow NWI: PEM1B Alaska Vegetation code: Hgm</p>	 A photograph showing a forest with tall trees. A hand is holding a yellow square marker with the number '9' over '14' in the foreground. The ground is covered with grass and low vegetation.

Photograph No. 25	
Sample Site: 14	
The saturated soils exhibited low chroma.	
Photograph No. 26	
Sample Site: 15  Habitat: Black Cottonwood Forest  NWI: Upland  Alaska Vegetation code: Fbo	



Photograph No. 27	
Sample Site: 15	
The soils were dry and sandy.	
Photograph No. 28	
Sample Site: 16	
Habitat: Mixed Shrub  NWI: Upland  Alaska Vegetation code: Stc  No soil sample was taken due to the similarity to sample Sites 3, 9, and 25.	

Photograph No. 29	
Sample Site: 17	
<p>Habitat: Herbaceous Swamp</p> <p>NWI: PEM1H</p> <p>Alaska Vegetation code: Haf</p> <p>No soil sample was taken due to inundation of approximately two feet.</p>	 A photograph showing a field of tall, green and brown grasses in a swampy area. A yellow marker with the numbers '13' over '17' is visible in the foreground. The background shows a line of trees under a cloudy sky.
Photograph No. 30	
Sample Site: 18	
<p>Habitat: Shrub Swamp</p> <p>NWI: PSS1H</p> <p>Alaska Vegetation code: Sto</p> <p>No soil sample was taken due to inundation of approximately one foot.</p>	 A photograph showing a dense thicket of shrubs and tall grasses in a swampy area. A yellow marker with the numbers '14' over '18' is visible in the foreground. The background shows more dense vegetation.



Photograph No. 31  
Sample Site: 19

Habitat: Black Cottonwood  
Forest

NWI: Upland



Alaska Vegetation code: Fbo





Photograph No. 32  
Sample Site: 19



The soil was saturated at  
15 inches and was dark in  
chroma; however, did not  
appear to be hydric.





Photograph No. 33	
Sample Site: 20	
Habitat: Herbaceous Swamp  NWI: PEM1H  Alaska Vegetation code: Haf  Sample site is in background in the photograph. No soil sample was taken due to inundation.	
Photograph No. 34	
Sample Site: 21	
Habitat: Herbaceous Swamp  NWI: PEM1H  Alaska Vegetation code: Haf	





Photograph No. 35	
Sample Site: 22	
Habitat: Birch Forest NWI: Upland Alaska Vegetation code: Fbo	 A photograph showing a dense forest of birch trees. The ground is covered with green and brown foliage. A yellow marker with the number '18' over a horizontal line and '22' below it is visible in the lower right corner.
Photograph No. 36	
Sample Site: 22	
The sandy soils were dry and were not low in chroma. No hydric soil indicators were observed.	 A photograph showing a close-up of sandy soil. The soil is light brown and appears dry. There are some fallen leaves and twigs scattered around. A yellow marker with the number '18' over a horizontal line and '22' below it is visible in the lower right corner.



Photograph No. 37	
Sample Site: 23	
Habitat: Herbaceous Swamp NWI: PEM1H Alaska Vegetation code: Haf	
Photograph No. 38	
Sample Site: 24	
Habitat: Mixed Forest NWI: Upland Alaska Vegetation code: Fmo	





Photograph No. 39	
Sample Site: 24	
The dry, sandy soils here did not exhibit any hydric soil indicators.	
Photograph No. 40	
Sample Site: 25  Habitat: Black Cottonwood Forest  NWI: Upland  Alaska Vegetation code: Fbo	



Photograph No. 41	
Sample Site: 25	
The soils were dry and contained many cobbles.	
Photograph No. 42	
Sample Site: 26	
Habitat: Sitka Spruce Forest NWI: Upland Alaska Vegetation code: Fnc	





Photograph No. 43	
Sample Site: 26	
The dry, sandy soils were low in chroma; however, they did not appear to be hydric.	
Photograph No. 44	
Sample Site: 27	
Habitat: Herbaceous Swamp NWI: PEM1H Alaska Vegetation code: Haf No soil samples were taken due to inundation.	



Photograph No. 45	
Sample Site: 28	
Habitat: Sitka Spruce Forest NWI: Upland Alaska Vegetation code: Fnc	
Photograph No. 46	
Sample Site: 28	The dry, sandy soils did not exhibit any hydric soil indicators.





Photograph No. 47	
Sample Site: 29	
<p>Habitat: Herbaceous Swamp</p> <p>NWI: PEM1H</p> <p>Alaska Vegetation code: Haf</p> <p>No soil samples were taken due to inundation.</p>	 A photograph showing a wetland area with tall grasses and a body of water. In the foreground, a yellow marker with the handwritten text '2/29' is visible. The background features a forested hillside under a cloudy sky.
Photograph No. 48	
Sample Site: 30	
<p>Habitat: Herbaceous Swamp</p> <p>NWI: PEM1H</p> <p>Alaska Vegetation code: Haf</p> <p>The sample site is capturing vegetation around the culvert.</p>	 A photograph showing a wetland area with dense vegetation, including tall grasses and shrubs. A yellow marker is visible in the foreground. The background shows a forested hillside and a building.




Photograph No. 49	
Sample Site: 31	
<p>Habitat: Shrub Swamp</p> <p>NWI: PSS1H</p> <p>Alaska Vegetation code: Sto</p> <p>No soil sample taken due to inundation.</p>	
Photograph No. 50	
Sample Site: 31	
<p>Hydrology at Site 31.</p>	






Photograph No. 51	
Sample Site: 32	
Habitat: Herbaceous Swamp  NWI: PEM1H  Alaska Vegetation code: Haf  No soil sample taken due to inundation.	
Photograph No. 52	
Sample Site: 33	
Habitat: Black Cottonwood Forest  NWI: Upland  Alaska Vegetation code: Fbo	

Photograph No. 53	
Sample Site: 33	
The dry soils at Site 33 were low in chroma.	
Photograph No.54	
Sample Site: 34	
Habitat: Shrub Swamp????  NWI:  Alaska Vegetation code:	



Photograph No. 55	
Sample Site: 34	
Comments:	
Photograph No. 56	
Sample Site: 35	
Habitat: Herbaceous Swamp NWI: PEM1H Alaska Vegetation code: Haf No soil sample was taken due to inundation.	
Photograph No. 57	
Sample Site: 36	
Habitat: Fresh Sedge Meadow NWI: PEM1B Alaska Vegetation code: Hgm	



Photograph No. 58	
Sample Site: 36	
The soils were low in chroma and were mottled.	
Photograph No. 59	
Sample Site: 37	
Habitat: Fresh Sedge Meadow NWI: PEM1B Alaska Vegetation code: Haf	
Photograph No. 60	
Sample Site: 37	
The soils were low in chroma and were mottled.	



**APPENDIX C**

**Southeast Alaska Freshwater Wetland Assessment Method**

**U.S. Army Corps of Engineers  
Alaska District**

# Site 1

## Fresh Sedge Meadow PEMIB

### Appendix A: Summary Checklist (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y N U	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	UNKNOWN Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	* Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			* Y (N)			Y (N)	
12				Y (N)			* Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions above	Y	
GWI	N		N	
STR	N		N	
SSS	N		N	
NRRT	N		N	
PE	Y		Y	
WH	Y		Y	
FH	N		N	

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



Site 2

Fresh Sedge Meadow PEMIB

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Unknown Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	* Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			* Y (N)			Y (N)	
12				Y (N)			* Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions above		
GWI	N			
STR	N			
SSS	N			
NRRT	N			
PE	N			
WH	N			
FH	N			

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 4  
River

R 30W

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration  
STR/Sediment/Toxicant Retention  
NRRT/Nutrient Cycling  
WH/Wildlife Habitat  
GWI/Ground Water Interchange  
SSS/Sediment/Shoreline Stabilization  
PE/Production Export  
FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				Y (N)			Y (N)	

Site is freeflowing stream through del. material site - cobbles/gravel/sand no veg

Function	(Y N)	Rationale	Importance	Remarks
FFA	N		N	It would seem as the watercourse is not stable and any increased flow
GWI	N		N	
STR	N		N	
SSS	N		N	
NRRT	N		N	
PE	N		N	Area immediately surrounding site is barren of gravel
WH	N		N	
FH	N		N	

would affect the stream water than vice/versa

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



Site 8  
Shrub Swamp PSS 1E

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	* Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	* Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			* Y (N)			Y (N)	
12				unknown Y (N)			* Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions above	Y	Site is w/in backwater area of creek, likely floods on occasion.
GWI	Y		Y	most positioned a base of mtn.
STR	N		N	
SSS	Y		Y	yes, along stream banks
NRRT	Y		Y	
PE	N		N	
WH	Y		Y	Signs of bear activity. Likely feed at creek.
FH	Y		Y	Bear activity at creek indicates these are likely fish in the creek.

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 10

Herbaceous Swamp PEMIH

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	(Y) N	Y (N)	Y (N)	* Y (N)	(Y) N	Y (N)	(Y) N	(Y) N
02	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)
03	(Y) N	Y (N)	(Y) N	Y (N)	(Y) N	Y (N)	Y (N)	(Y) N
04	<del>unknown</del> Y N	(Y) N	<del>unknown</del> Y N	(Y) N	Y (N)	Y (N)	Y (N)	Y (N)
05	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)
06	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)
07	Y (N)	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	Y (N)
09	(Y) N	Y (N)	(Y) N	Y (N)	<del>unknown</del> Y N		Y (N)	Y (N)
10	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N		Y (N)	Y (N)
11	(Y) N			Y (N)			Y (N)	
12				<del>unknown</del> Y N			Y (N)	

Function (Y N), Rationale Importance Remarks

Function	(Y N)	Rationale	Importance	Remarks
FFA	Y	See questions above	Y	Wetland captures runoff from mountainside
GWI	N		N	Not believed to have much interchange w/ ground water
STR	Y		Y	Adjacent to roadways - many retention toxicants associated w/ the road
SSS	N		N	Not located near the shoreline.
NRRT	Y		Y	Nutrient sink
PE	N		N	NO outlet for export
WH	Y		Y	habitat for waterfowl & moose.
FH	N		N	Not believed to provide habitat for fish

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



Site 11  
Shrub Swamp PSS 1H

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration  
STR/Sediment/Toxicant Retention  
NRRT/Nutrient Cycling  
WH/Wildlife Habitat

GWI/Ground Water Interchange  
SSS/Sediment/Shoreline Stabilization  
PE/Production Export  
FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	(Y) N	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N
02	(Y) N	Y (N)	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	Y (N)
03	(Y) N	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	Y (N)	(Y) N
04	assumed (Y) N	(Y) N	assumed (Y) N	(Y) N	Y (N)	Y (N)	Y (N)	Y (N)
05	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	(Y) N
06	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N	Y (N)
07	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N
08	(Y) N	Y (N)	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N
09	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N		Y (N)	Y (N)
10	(Y) N	Y (N)	(Y) N	Y (N)	(Y) N		Y (N)	Y (N)
11	(Y) N			Y (N)			Y (N)	
12				unknown (Y) N			Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions above	Y	Wetland captures runoff from the adjacent mountainside.
GWI	Y		U	May recharge groundwater - uncertain
STR	Y		Y	Not believed to be an outlet.
SSS	N		N	no shoreline
NRRT	Y		Y	productive wetland
PE	Y		Y	production export likely parallel to the roadway. Roadway is a barrier
WH	Y		Y	habitat for diverse wildlife
FH	N		N	Not believed to be accessible by fish. Roadway blocks access (if possible)

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 13  
Shrub Swamp PSSIE

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	(Y) N	Y (N)	Y (N)	* Y (N)	(Y) N	(Y) N	(Y) N	(Y) N
02	(Y) N	Y (N)	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	* Y (N)
03	(Y) N	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	Y (N)	(Y) N
04	(Y) N	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	Y (N)
05	(Y) N	Y (N)	(Y) N	* (Y) N	(Y) N	Y (N)	Y (N)	(Y) N
06	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N	Y (N)
07	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N
08	(Y) N	Y (N)	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N
09	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N		Y (N)	Y (N)
10	(Y) N	Y (N)	(Y) N	Y (N)	(Y) N		Y (N)	Y (N)
11	(Y) N			* Y (N)			Y (N)	
12				uncertain Y N			* Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions above	Y	streams meander through wet. likely flood area during spring melt.
GWI	Y		U	uncertain about groundwater recharge
STR	Y		Y	Potential to collect sediment & toxicant
SSS	N		N	No shoreline
NRRT	Y		Y	productive, outlet via culvert to Chalk River
PE	Y		Y	" "
WH	Y		Y	Provides wildlife habitat
FH	U		U	Potentially accessible by fish. Saw culvert in area. Uncertain if fish use this area

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration  
 STR/Sediment/Toxicant Retention  
 NRRT/Nutrient Cycling  
 WH/Wildlife Habitat  
 GWI/Ground Water Interchange  
 SSS/Sediment/Shoreline Stabilization  
 PE/Production Export  
 FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y N	Y N	Y N	* Y N	Y N	Y N	Y N	Y N
02	Y N	Y N	Y N	Y N	Y N	Y N	Y N	* Y N
03	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
04	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
05	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
06	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
07	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
08	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
09	Y N	Y N	Y N	Y N	Y N		Y N	Y N
10	Y N	Y N	Y N	Y N	Y N		Y N	Y N
11	Y N			Y N			Y N	
12				Y N			Y N	

Function (Y N) Rationale Importance Remarks

FFA	Y	ditch area on side of road, small	Y	area provides flood control to surrounding area
GWI	N	area ~ 30' from river, beaver near surface	N	
STR	Y	area ~ 10' from road/ditch	Y	
SSS	Y		Y	
NRRT	N		N	
PE	Y		Y	
WH	N		N	
FH	N		N	not fish habitat

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 17

Herbaceous Swamp

PEM1H

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	(Y) N	Y (N)	(Y) N	* (Y) N	(Y) N	(Y) N	(Y) N	(Y) N
02	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N
03	Y (N)	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N
04	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N
05	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	Y N	(Y) N	(Y) N
06	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	Y N
07	Y (N)	(Y) N	(Y) N	Y (N)	* Y N	(Y) N	(Y) N	(Y) N
08	(Y) N	Y (N)	Y (N)	(Y) N	Y N	(Y) N	(Y) N	(Y) N
09	(Y) N	(Y) N	Y N	Y (N)	(Y) N		(Y) N	(Y) N
10	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N		Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				(Y) N			(Y) N	

Function (Y N) Rationale Importance Remarks

FFA	Y	See above	Y	
GWI	Y		Y	Role may have changed the dynamic of this site
STR	Y		Y	details between 1950 and 1978 show accretions
SSS	Y		Y	
NRRT	Y		Y	
PE	Y		Y	
WH	Y		Y	Sandhill cranes observed wading/feeding in area
FH	Y		Y	10 mile creek empties into outlet river - a culvert is adequate for fish passage

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration  
STR/Sediment/Toxicant Retention  
NRRT/Nutrient Cycling  
WH/Wildlife Habitat  
GWI/Ground Water Interchange  
SSS/Sediment/Shoreline Stabilization  
PE/Production Export  
FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	(Y) N	Y (N)	Y (N)	* (Y) (N)	(Y) N	Y (N)	(Y) N	(Y) N
02	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)
03	Y (N)	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N
04	(Y) N	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N
05	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	Y <sup>UN</sup> N	(Y) N	(Y) N
06	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	Y (N)
07	(Y) N	(Y) N	(Y) N	Y (N)	Y <sup>UN</sup> N	Y (N)	(Y) N	(Y) N
08	(Y) N	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N
09	(Y) N	Y (N)	Y (N)	Y (N)	(Y) N		(Y) N	Y (N)
10	(Y) N	Y (N)	(Y) N	Y (N)	(Y) N		(Y) N	Y (N)
11	(Y) N			Y (N)			Y (N)	
12				Y (N)			(Y) N	

Function (Y N) Rationale Importance Remarks

FFA	Y		Y	
GWI	N		N	
STR	Y		Y	
SSS	Y		Y	
NRRT	Y		Y	
PE	N		N	
WH	Y		Y	silver
FH	U		U	if streams connect.

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 20

Herbaceous Swamp

PEM1H

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	(Y) N	Y (N)	Y (N)	* Y (N)	(Y) N	Y (N)	(Y) N	(Y) N
02	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N
03	Y (N)	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N
04	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N
05	(Y) N	(Y) N	(Y) N	* (Y) N	(Y) N	Y N	(Y) N	(Y) N
06	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N	(Y) N
07	(Y) N	Y (N)	(Y) N	Y (N)	Y N	(Y) N	(Y) N	(Y) N
08	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	Y (N)	(Y) N	(Y) N
09	Y N	Y (N)	(Y) N	Y (N)	(Y) N		(Y) N	(Y) N
10	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N		Y N	Y (N)
11	(Y) N			Y (N)			Y (N)	
12				Y (N)			(Y) N	

Function (Y N) Rationale Importance Remarks

FFA	Y	see above	Y	road may create barrier
GWI	N		N	road may function as barrier
STR	Y		Y	aerials show slight accretion, between 1950-1978
SSS	N		N	
NRRT	Y		Y	
PE	N		N	
WH	Y		Y	Steel Salmon ~
FH	Y		Y	Chilkat River is connected through slough system

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



Site 21

Herbaceous Swamp

PEMIH

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				Y (N)			Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	see above	Y	maintain runoff is captured here
GWI	N		N	Wetland is at base of cliff water is stagnant - no outlet - road impedes H <sub>2</sub> O
STR	Y		Y	stagnant water, appears highly rich in nutrients
SSS	N		N	no associated shoreline
NRRT	N		N	no outlet for export
PE	N		N	greenalgae-like material covers water
WH	N	although some indicators exist the area is small	N	and confined by a road & a cliff - making
FH	N		N	no fish - area has no inlet/outlet

wild life unlikely to choose this site.

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 23

Herbaceous Swamp

PEM1H

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				Y (N)			Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	see above	Y	
GWI	N		N	
STR	N		N	
SSS	N		N	
NRRT	N		N	
PE	N		N	
WH	Y		Y	
FH	N		N	

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



Site 27  
Herbaceous Swamp

PEMIH

Appendix A: Summary Checklist (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	(Y) N	Y (N)	Y (N)	* Y (N)	(Y) N	Y (N)	(Y) N	(Y) N
02	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N	Y (N)	(Y) N
03	Y (N)	Y (N)	(Y) N	Y (N)	(Y) N	(Y) N	(Y) N	(Y) N
04	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N
05	(Y) N	Y (N)	Y (N)	* (Y) N	(Y) N	Y <sup>un</sup> N	(Y) N	(Y) N
06	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N	Y (N)	(Y) N	Y (N)
07	(Y) N	(Y) N	(Y) N	Y (N)	Y <sup>un</sup> N	Y (N)	(Y) N	(Y) N
08	(Y) N	Y (N)	(Y) N	(Y) N	Y (N)	Y (N)	(Y) N	(Y) N
09	Y <sup>un</sup> N	Y (N)	Y <sup>un</sup> N	(Y) N	(Y) N		(Y) N	Y (N)
10	(Y) N	Y N	(Y) N	Y (N)	(Y) N		Y <sup>un</sup> N	Y (N)
11	(Y) N			* Y (N)			Y (N)	
12				Y (N)			(Y) N	

Function (Y N) Rationale Importance Remarks

FFA	Y	See above questions	Y	Wetland is large
GWI	N	↓		
STR	Y			Flood separates wetland (divides it in two) - culvert present
SSS	N			
NRRT	N			
PE	N			Chilkat River, Slough system
WH	Y			Silversalmon
FH	Y			Chilkat River is anadromous Highway splits wetland

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 29

Herbaceous Swamp

PEM 1H

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
02	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
03	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
04	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
05	Y N	Y N	Y N	Y N	UN	UN	Y N	Y N
06	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
07	Y N	Y N	Y N	Y N	Y UN	Y N	Y N	Y N
08	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
09	Y N	Y N	Y N	Y N	Y N		Y N	Y N
10	Y N	Y N	Y N	Y N	Y N		Y N	Y N
11	Y N			Y N			Y N	
12				Y N			Y N	

Function (Y N) Rationale Importance Remarks

FFA	Y	see above questions	Y	
GWI	N		N	
STR	Y		Y	highway separates wetland culvert adequate - commercial site has EPA 404 permit
SSS	Y		Y	developed area has beaver driveway adjacent
NRRT	Y		Y	
PE	Y		Y	slough connected to creek near site upslope
WH	Y		Y	industrial complex adjacent - hydroaxing seen
FH	Y		N	area and culvert probably too small to have fish passage

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				Y (N)			Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions above	Y	
GW1	Y		Y	culvert conducts water to other side of the highway
STR	Y		Y	
SSS	N		N	
NRRT	Y		Y	
PE	Y		Y	
WH	Y		Y	
FH	Y		Y	culvert - not degraded

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration  
 STR/Sediment/Toxicant Retention  
 NRRT/Nutrient Cycling  
 WH/Wildlife Habitat

GWI/Ground Water Interchange  
 SSS/Sediment/Shoreline Stabilization  
 PE/Production Export  
 FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				Y (N)			Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See above questions	Y	any runoff from mountainside would hit area before moving
GWI	N		N	Site is small depression between road & cliff probably created when road was built
STR	N		N	aerials don't go back to before the road was built
SSS	N		N	no associated shoreline
NRRT	N		N	area is too small to be effective nutrient sink
PE	N		N	no outlet for export
WH	N		N	animals wouldn't choose to access this area - no natural corridor to it
FH	N		N	area is small + isolated

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



Site 34  
Shoeb Swamp PSSIF

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration  
STR/Sediment/Toxicant Retention  
NRRT/Nutrient Cycling  
WH/Wildlife Habitat  
GWI/Ground Water Interchange  
SSS/Sediment/Shoreline Stabilization  
PE/Production Export  
FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			* Y (N)			Y (N)	
12				Y (N)			* Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions above	Y	highway may regulate flows
GWI	N		N	
STR	Y		Y	
SSS	N		N	
NRRT	Y		Y	
PE	N		N	
WH	Y		Y	
FH	Y		Y	Chickadee swamp

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 35

Herbaceous Swamp PEMIH

Appendix A: Summary Checklist (\* high confidence rating (Y))

FFA/Floodflow Alteration  
 STR/Sediment/Toxicant Retention  
 NRRT/Nutrient Cycling  
 WH/Wildlife Habitat

GWI/Ground Water Interchange  
 SSS/Sediment/Shoreline Stabilization  
 PE/Production Export  
 FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N) NA
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				Y (N)			Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	See questions below	Y	
GWI	N		Y	Highway is Impediment
STR	Y		Y	
SSS	N		N	
NRRT	N		N	
PE	N		N	
WH	N		N	
FH	N		N	not able to support fish

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



Site 36

Fresh Sedge Meadow

PEMIB

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration

STR/Sediment/Toxicant Retention

NRRT/Nutrient Cycling

WH/Wildlife Habitat

GWI/Ground Water Interchange

SSS/Sediment/Shoreline Stabilization

PE/Production Export

FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	* Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	Y (N)	*unk Y (N)	unk Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		unk Y (N)	Y (N)
11	Y (N)			* Y (N)			Y (N)	
12				Y (N)			unk Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	see questions above	Y	technically has hydric soils physically its permeable substrate
GWI	N		N	
STR	N		N	
SSS	N		N	not near a shoreline
NRRT	N		N	
PE	N		N	
WH	N		N	perhaps browsing
FH	N		N	not wet long enough to provide habitat

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.

Site 37

Fresh Sedge Meadow PEMIB

**Appendix A: Summary Checklist** (\* high confidence rating (Y))

FFA/Floodflow Alteration  
 STR/Sediment/Toxicant Retention  
 NRRT/Nutrient Cycling  
 WH/Wildlife Habitat

GWI/Ground Water Interchange  
 SSS/Sediment/Shoreline Stabilization  
 PE/Production Export  
 FH/Fish Habitat

Question	FFA	GWI	STR	SSS	NRRT	PE	WH	FH
01	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
02	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
03	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
04	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
05	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
06	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
07	Y (N)	Y (N)	Y (N)	* Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
08	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)
09	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
10	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)		Y (N)	Y (N)
11	Y (N)			Y (N)			Y (N)	
12				Y (N)			Y (N)	

Function (Y N) Rationale Importance Remarks

FFA	Y	see questions above	Y	
GWI	N		N	
STR	N		N	
SSS	N		N	
NRRT	N		N	
PE	N		N	
WH	Y		Y	
FH	N		N	

Note: Rationale reflects basis for assessment as to whether or not a particular function occurs (e.g., positive responses to the predictors/questions). Importance is whether or not that function is a major function of the wetland. Note whether uncertainty exists as to function occurrence as appropriate.



## **APPENDIX D**

### **Common and Scientific Names of Plants in the Study Area**

**Common and Scientific Names of Plants in the Study Area**

Species	Common Name
<i>Achillea millefolium</i>	Common Yarrow
<i>Alnus sp.</i>	Alder
<i>Angelica lucida</i>	Angelica, Seawatch
<i>Aruncus dioicus</i>	Hairy Goatsbeard
<i>Aster sp.</i>	Aster
<i>Betula papyrifera</i>	Paper Birch
<i>Boschniakia rossica</i>	Northern Groundcone
<i>Calamagrostis canadensis</i>	Bluejoint Reedgrass
<i>Carex rostrata</i>	Beaked Sedge
<i>Carex sitchensis</i>	Sitka sedge
<i>Carex lyngbyei</i>	Lyngbye's Sedge
<i>Carex utriculata</i>	Bladder Sedge
<i>Centaurea biebersteinii</i>	Spotted Knapweed
<i>Conioselinum sp.</i>	Hemlock
<i>Cornus stolonifera</i>	Red Dogwood
<i>Dryas sp.</i>	Mountain Avens
<i>Epilobium angustifolium</i>	Fireweed
<i>Equisetum arvense</i>	Field Horsetail
<i>Equisetum fluviatile</i>	Water Horsetail
<i>Equisetum hyemale</i>	Rough Horsetail
<i>Equisetum pratense</i>	Meadow Horsetail
<i>Gallium boreale</i>	Northern Bedstraw
<i>Phalaris arundinacea</i>	Reed Canarygrass
Grass 2	Grass
<i>Gymnocarpium dryopteris</i>	Oak Fern
<i>Hippuris vulgaris</i>	Common Mare's Tail
<i>Juncus 1</i>	Rush
<i>Linaria vulgaris</i>	Butter and Eggs
<i>Lysichiton americanum</i>	Skunk Cabbage

Species	Common Name
<i>Menyanthes trifoliata</i>	Buckbean
<i>Nuphar luteum</i>	Yellow Pond-Lilly
<i>Pyrola secunda</i>	One-sided Wintergreen
<i>Picea sitchensis</i>	Sitka Spruce
<i>Populus balsamifera</i>	Balsam Poplar
<i>Potamogeton sp.</i>	Pondweed
<i>Potentilla palustris</i>	Marsh Cinquefoil
<i>Pteridium aquilinum</i>	Bracken Fern
<i>Pyrola asarifolia</i>	Pink Wintergreen
<i>Ribes oxyanthoides</i>	Mountain Gooseberry
<i>Rosa acicularis</i>	Prickly Rose
<i>Rosa nutkana</i>	Nootka Rose
<i>Rubus chamaemorus</i>	Cloudberry
<i>Salix alaxensis</i>	Feltleaf Willow
<i>Salix monticola</i>	Mountain Willow
<i>Salix glauca</i>	Gray-Leaf Willow
<i>Sambucus racemosa</i>	Red Elderberry
Sedge 1	Sedge
Sedge 2	Sedge
<i>Sedge juncus</i>	Sedge
<i>Shepherdia canadensis</i>	Canada Buffalo-Berry
<i>Streptopus amplexifolius</i>	Watermelon Berry
<i>Symphoricarpos albus</i>	Snowberry
<i>Taraxacum officinale</i>	Dandelion
<i>Trientalis europaea</i>	Starflower
<i>Trifolium pratense</i>	Clover
<i>Viburnum edule</i>	High Bush Cranberry
<i>Viola palustris</i>	Marsh Violet
<i>Viola sp</i>	Violet



## **APPENDIX E**

### **Exotic Species Plant List in the Study Area**

**Exotic Species Found in the Study Area**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Observation</b>
Bull Thistle	<i>Cirsium vulgare</i>	Road shoulder
Spotted Knapweed	<i>Centaurea biebersteinii</i>	3, 5
Reed Canarygrass	<i>Phalaris arundinacea</i>	1, 10, 29, 31, 35
Purple Sweetclover	<i>Trifolium pratense</i>	Road shoulder
Butter 'n Eggs	<i>Linaria vulgaris</i>	Road shoulder
Dandelion	<i>Taraxacum officinale</i>	7, 9, 12, 16, 34, 37



## **APPENDIX F**

### **Potential Bird, Fish, and Mammal Species Found Within the Study Area**

## Potential Bird, Reptiles, Amphibians, Fish, and Mammal Species Potentially Found Within the Study Area

\*O'Clair R.M., et. al., 1992. *The Nature of Southeast Alaska. A Guide to Plants, Animals, and Habitats.*

### **Birds**

Alder flycatcher (*Empidonax alnorum*)  
American bittern (*Botaurus lentiginosus*)  
American dipper (*Cinclus mexicanus*)  
American golden-plover (*Pluvialis dominica*)  
American kestrel (*Falco sparverius*)  
American pipit (*Anthus rubescens*)  
American robin (*Turdus migratorius*)  
Ancient murrelet (*Synthliboramphus antiuus*)  
Anna's hummingbird (*Calypte anna*)  
Arctic tern (*Sterna paradisaea*)  
Bald eagle (*Haliaeetus leucocephalus*)  
Barred owl (*Strix varia*)  
Barrow's goldeneye (*Bucephala islandica*)  
Belted kingfisher (*Ceryle alcyon*)  
Black-backed woodpecker (*Picoides arcticus*)  
Black-legged kittiwake (*Rissa tridactyla*)  
Black oystercatcher (*Haematopus bachmani*)  
Black scoter (*Melanitta nigra*)  
Black turnstone (*Arenaria melanocephala*)  
Blue grouse (*Dendragapus obscurus*)  
Bohemian waxwing (*Bombycilla Garrulus*)  
Bonaparte's gull (*Larus Philadelphia*)  
Brown creeper (*Certhia americana*)  
Bufflehead (*Bucephala albeola*)  
Chestnut-backed chickadee (*Parus rufescens*)  
Clark's nutcracker (*Nucifraga Columbiana*)  
Common goldeneye (*Bucephala Clangula*)  
Common merganser (*Mergus merganser*)  
Common raven (*Corvus corax*)  
Common redpoll (*Carduelis flammea*)  
Common snipe (*Gallinago Gallinago*)  
Common yellowthroat (*Geothlypis trichas*)  
Dark-eyed junco (*Junco hyemalis*)  
Dulin (*Calidris alpine*)  
Fork-tailed storm-petrel (*Oceanodroma furcata*)  
Golden-crowned kinglet (*Regulus satrapa*)  
Golden-crowned sparrow (*Zonotrichia atricapilla*)  
Great blue heron (*Ardea herodias*)  
Greater yellowlegs (*Tringa melanoleuca*)  
Great horned owl (*Bubo virginianus*)  
Green heron (*Bubo striatus*)  
Green-winged teal (*Anas crecca*)  
Hairy woodpecker (*Picoides villosus*)  
Harlequin duck (*Histrionicus histrionicus*)  
Harris's sparrow (*Zonotrichia querula*)  
Hermit thrush (*Catharus guttatus*)  
Horned lark (*Eremophila alpestris*)  
House sparrow (*Passer domesticus*)  
Lapland longspur (*Calcarius lapponicus*)  
Leach's storm-petrel (*Oceanodroma leucorhoa*)  
Lincoln's sparrow (*Melospiza lincolnii*)  
Long-billed dowitcher (*Limnodromus scolopaceus*)  
Mallard (*Anas platyrhynchos*)  
Merlin (*Falco columbarius*)  
Mountain chickadee (*Parus gambeli*)  
Northern goshawk (*Accipiter gentiles*)  
Northern harrier (*Circus cyaneus*)  
Northern oriole (*Icterus galbula*)  
Northern pintail (*Anas acuta*)  
Northern pygmy-owl (*Glaucidium gnoma*)  
Northern saw-whet owl (*Aegolius acadicus*)  
Northern shrike (*Lanius excubitor*)  
Northern waterthrush (*Seiurus noveboracensis*)  
Northwestern crow (*Corvus caurinus*)  
Orange-crowned warbler (*Vermivora celata*)  
Pacific-slope flycatcher (*Empidonax difficilis*)  
Pied-billed grebe (*Podilymbus podiceps*)  
Pine siskin (*Carduelis pinus*)  
Purple finch (*Carpodacus purpureus*)  
Red-breasted nuthatch (*Sitta canadensis*)



Red crossbill (*Loxia curvirostra*)  
Red-necked phalarope (*Phalaropus lobatus*)  
Red-tailed hawk (*Buteo Jamaicensis*)  
Red-winged blackbird (*Agelaius phoeniceus*)  
Rock ptarmigan (*Lagopus mutus*)  
Rock sandpiper (*Calidris ptilocnemis*)  
Rose-breasted grosbeak (*Pheucticus chrysopheplus*)  
Rosy finch (*Leucosticte arctoa*)  
Ruby-crowned kinglet (*Regulus calendula*)  
Ruffed grouse (*Bonasa umbellus*)  
Rufous hummingbird (*Selaphorus rufus*)  
Sandhill crane (*Grus canadensis*)  
Savannah sparrow (*Passerculus sandwichensis*)  
Semipalmated plover (*Charadrius semipalmatus*)  
Sharp-shinned hawk (*Accipiter striatus*)  
Short-eared owl (*Asio flammeus*)  
Snow bunting (*Plectrophenax nivalis*)  
Solitary vireo (*Vireo solitarius*)  
Song sparrow (*Melospiza melodia*)  
Spotted owl (*Strix occidentalis*)  
Spotted sandpiper (*Actitis macularia*)  
Stellar's jay (*Cyanocitta stelleri*)  
Surfbird (*Aphriza virgata*)  
Swamp sparrow (*Melanitta perspicillata*)  
Townsend's warbler (*Dendroica townsendi*)  
Vancouver Canada goose (*Branta canadensis fulva*)  
Varied thrush (*Ixoreus naevius*)  
Virginia rail (*Rallus limnicola*)  
Warbling vireo (*Vireo gilvus*)  
Western grebe (*Aechmophorus occidentalis*)  
Western sandpiper (*Calidris mauri*)  
Western screech-owl (*Otus denni cottii*)  
Western tanager (*Piranga ludoviciana*)  
White-crowned sparrow (*Zonotrichia leucophrys*)  
White-tailed ptarmigan (*Lagopus leucurus*)

White-throated sparrow (*Zonotrichia albicollis*)  
Willow ptarmigan (*Lagopus lagopus*)  
Wilson's warbler (*Wilsonia pusilla*)  
Winter wren (*Troglodytes troglodytes*)  
Yellow-rumped warbler (*Dendroica coronata*)  
Yellow warbler (*Dendroica petechia*)

### **Reptiles**

Garter snake (*Thamnophis sirtalis*)

### **Amphibians**

Boreal toad (*Bufo boreas*)  
Long-toed salamander (*Ambystoma macrodactylum*)  
Rough-skinned newt (*Taricha granulose*)  
Spotted frog (*Rana pretiosa*)  
Wood frog (*Rana sylvatica*)

### **Fish**

Chinook salmon (*Oncorhynchus tshawytscha*)  
Chum salmon (*Oncorhynchus keta*)  
Coho salmon (*Oncorhynchus Kisutch*)  
Dolly Varden charr (*Salvelinus malma*)  
Pink Salmon (*Oncorhynchus gorbuscha*)  
Rainbow trout (*Oncorhynchus mykiss*)  
Sockeye salmon (*Oncorhynchus nerka*)  
Steelhead trout (*Oncorhynchus mykiss*)  
Threespine stickleback (*Gasterosteus aculeatus*)

### **Mammals**

Arctic fox (*Alopex Lagopus*)  
Black bear (*Ursus americanus*)  
Brown bear (*Ursus arctos*)  
Bushy-tailed wood rat (*Neotoma cinerea*)  
Collared pika (*Ochotona collaris*)  
Columbina black-tailed deer (*Odocoileus hemionus columbianus*)  
Coronation Island vole (*Microtus coronaries*)  
Deer mouse (*Peromyscus keeni*)  
Dusky shrew (*Sorex monticolus*)

*Gapper's red-backed vole (Clethrionomys gapperi)*  
Hoary marmot (*Marmota calligata*)  
House mouse (*Mus musculus*)  
Jumping mouse (*Zapus hudsonicus*)  
Least weasel (*Mustela mivalis*)  
Little brown bat (*Myotis lucifugus*)  
Long-tailed vole (*Microtus longicaudus*)  
Lynx (*Lynx canadensis*)  
Marten (*Martes americana*)  
Masked shrew (*Sorex cinereus*)  
Meadow vole (*Microtus pennsylvanicus*)  
Mink (*Mustela vison*)  
Moose (*Alces alces*)  
Mule deer (*Odocoileus hemionus*)  
Muskrat (*Ondatra zibethicus*)  
Northern bog lemming (*Synaptomys borealis*)  
Northern flying squirrel (*Glaucomys sabrinus*)  
Northern red-backed vole (*Clethrionomys rutilus*)  
Porcupine (*Erethizon dorsatum*)  
Raccoon (*Procyon lotor*)  
Red fox (*Vulpes vulpes*)  
Red squirrel (*Tamiasciurus hudsonicus*)  
River otter (*Lontra canadensis*)  
Roosevelt elk (*Cervus elaphus*)  
Short-tailed weasel, ermine (*Mustela erminea*)  
Sitka black-tailed deer (*Odocoileus hemionus sitchensis*)  
Sitka mouse (*Peromyscus sitkensis*)  
Snowshoe hare (*Lepus americanus*)  
Tundra vole (*Microtus oeconomus*)  
Water shrew (*Sorex palustris*)  
Wolf (*Canis lupus*)  
Wolverine (*Gulo gulo*)