Wetland Delineation
and
Functional Assessment

for

AMATS: Mountain Air Drive Extension
Anchorage, Alaska

DOT&PF Project No. CFHWY00710
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Prepared for:

State of Alaska
Department of Transportation and Public Facilities
Central Region
P.O. Box 196900
Anchorage, Alaska 99519

Prepared by:

HDL Engineering Consultants, LLC
3335 Arctic Blvd., Ste. 100
Anchorage, AK   99503

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The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by DOT&PF pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated November 3, 2017, and executed by FHWA and DOT&PF.

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ABBREVIATIONS

ADF&G..Alaska Department of Fish and Game
AWAM.. Anchorage Wetlands Assessment Methodology
CWA...Clean Water Act
FAC .... facultative neutral plants
FACU .... facultative upland plants
FACW ....facultative wetland plants
FGDC.. Federal Geographic Data Committee
DOT&PF .... Alaska Department of Transportation and Public Facilities
GIS.. Geographic Information System
HDL...HDL Engineering Consultants, LLC
MOA...Municipality of Anchorage
NRCS...Natural Resources Conservation Service
NWI ....National Wetlands Inventory
OBL... obligate
TNW...Traditional Navigable Water
U ....upland
U.S. .... United States
USACE..U.S. Army Corps of Engineers
USEPA..U.S. Environmental Protection Agency
USFWS..U.S. Fish and Wildlife Service
USGS..U.S. Geological Survey

1.0   INTRODUCTION

HDL Engineering Consultants, LLC (HDL) is under contract with the Central Region Alaska Department of Transportation and Public Facilities (DOT&PF) to perform a wetland delineation and functional assessment for the federally-funded AMATS: Mountain Air Drive Extension project. The work performed for this wetland delineation includes field wetland determinations, classification and mapping of wetlands and waterbodies, preliminary jurisdictional determination, and a functions and values assessment.

This report is intended for use in preparation of National Environmental Policy Act documentation, to support planning for avoidance and minimization of wetland impacts during the project's design phase, and to provide the necessary wetland data to the U.S. Army Corps of Engineers (USACE) to make a formal jurisdictional determination under Section 404 of the Clean Water Act (CWA). This report was prepared following the guidelines for jurisdictional determination reports contained in Special Public Notice 2020-00399 (USACE 2020).

Executive Order 11990 requires federal agencies to "minimize the destruction, loss, or degradation of wetlands" for federally-funded transportation projects. The USACE defines wetlands as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987).

1.1   Project Location and Study Area

The study area for this project is located on the upper hillside in Anchorage, Alaska (Figure 1). The approximate center of the study area is located at latitude 59.64483°N, longitude 151.47774°W, and is within U.S. Geological Survey (USGS) Quadrangle *Anchorage A-8 SE*. The study area is approximately 174.5 acres in size and the study area boundary is shown on the preliminary wetland map in Appendix A.

The study area is divided into two units—a field survey unit and two desktop delineation units. A field survey was performed within the undeveloped portions of the study area, while the developed portions of the study area (residential areas north of Rabbit Creek Road, Fire Station 10, Bear Valley Elementary, and developed residential properties near the Mountain Air Drive/Sandpiper Drive intersection) were mapped using desktop methods.

The study area lies within the Cook Inlet Lowlands Major Land Resource Area (Natural Resources Conservation Service [NRCS] 2006). The surrounding landscape is characterized by gently sloping topography (east to west), is free from permafrost, and features large developed and undeveloped residential properties, schools, and parks.
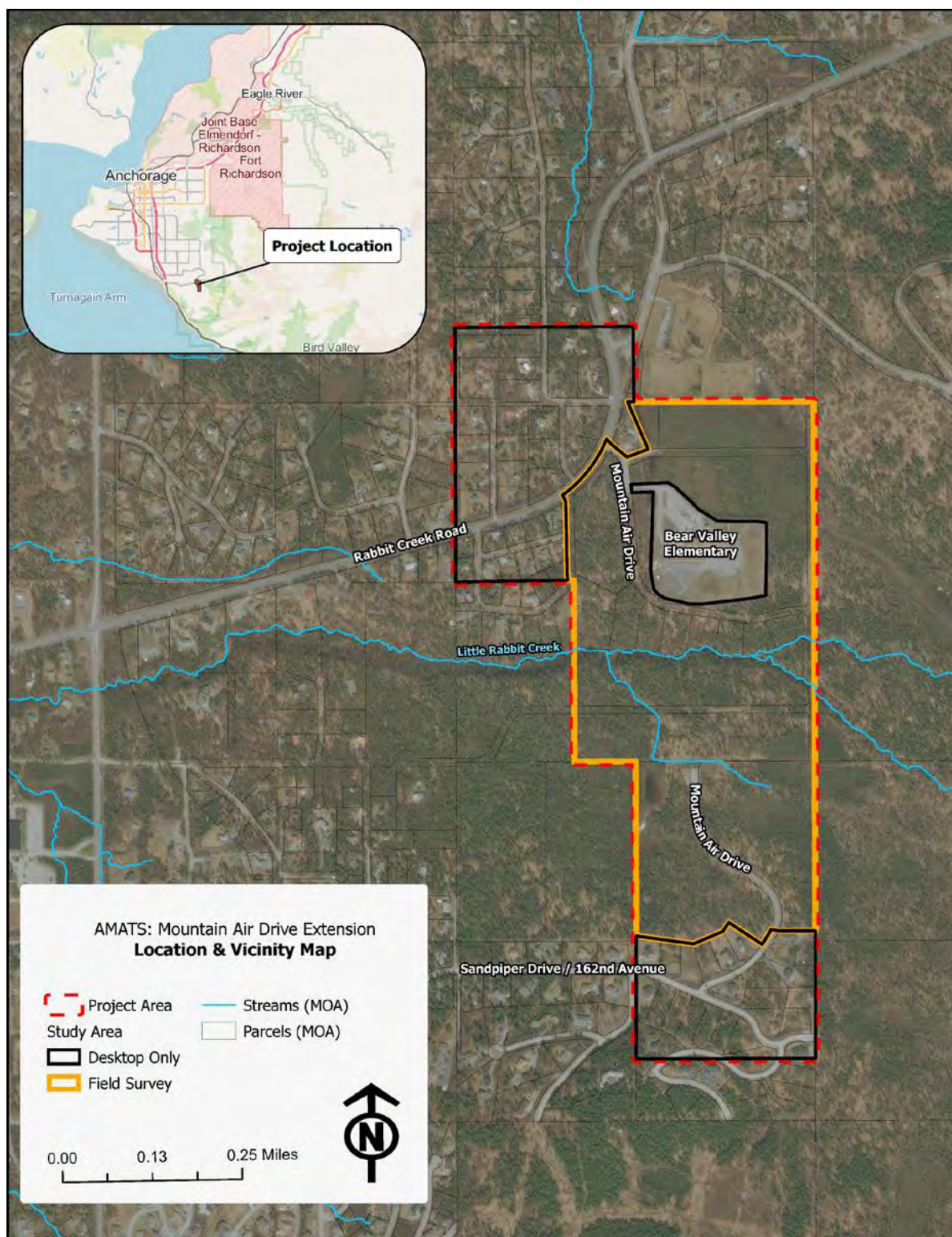
Figure 1: Location & Vicinity Map

2.0   METHODS

2.1   Preliminary Mapping and Desktop Review

HDL wetland scientists conducted initial research and inventory of wetlands by compiling existing environmental data and wetlands mapping available within the study area. This information was used to prepare maps of the project area using ArcMap Geographic Information Systems (GIS) containing known and potential wetland and waterbody locations (Appendix A). Sources of environmental data and other geographic information included the following:

- *Anchorage Wetlands Management Plan* (Municipality of Anchorage [MOA] 2014) and MOA Wetlands Mapping (MOA 2021).
- National Wetlands Inventory (NWI) (U.S. Fish and Wildlife Service [USFWS] 2008).
- Alaska Department of Fish and Game (ADF&G) Anadromous Waters Catalog (2021).
- USGS Quadrangle Map *Anchorage A-8 SE* (USGS 2021).
- GIS layers provided by the MOA (2021a) including streams, drainageways, and 2015 1-foot elevation contours.
- NRCS Web Soil Survey (2021).
- Aerial imagery including MOA Imagery (2015), Google Satellite Imagery (2020), ESRI World Imagery (2020).

Wetland scientists identified and planned sampling points at areas known, or having the potential, to contain wetlands using the resources presented above. Planned sampling point locations included areas with vegetation communities and geomorphology representative of the various habitats present in the study area.

2.2   Field Survey

HDL wetland scientists, Brooke Therrien and Owen Means, conducted a field study on September 8, 9, and 23, 2021. The field study consisted of a pedestrian survey of the study area to observe plant communities, geomorphology, hydrology characteristics, and to determine wetland status at planned and unplanned sampling point locations. Wetland determinations were primarily performed within known or suspected locations and on the upland side of wetland/upland boundaries.

At sampling point locations, information was collected on vegetation communities, soil characteristics, and hydrological conditions to support wetland determinations at the sites. Wetland determinations followed the three-parameter approach described in the *USACE Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region, Version 2.0* (USACE 2007). To be classified as wetland using USACE methods, a site must exhibit wetland hydrology, support hydrophytic vegetation, and have hydric soils. Data sheets following the USACE Routine Wetland Determination methodology were used to record vegetation, hydrologic, and soil characteristics observed at each determination site. Wetland determination data forms are included in Appendix B.

Vegetation was assessed by estimating percent live areal cover of plant species in the tree, shrub, and herbaceous vegetation stratums. Taxonomic nomenclature (common and scientific plant names) and wetland indicator status for all plant species followed the *2020 National Wetland Plant List* (USACE 2020a). Dominant species were determined for each stratum using standard USACE 50/20 methods. The dominance test and prevalence index indicators were used for each site to determine the presence of hydrophytic vegetation.

Soil characteristics were documented at sites where no standing water was observed by digging soil pits deep enough to observe hydric soil indicators or a restrictive layer—generally to a maximum of 22 inches below the soil surface. Soil layers and characteristics were described, including texture, color, saturation, depth to water table, and the presence of hydric soil indicators. Soil color was determined using *Munsell Soil Color Charts* (Munsell 2009).

Hydrology characteristics were assessed by recording the presence of wetland hydrology indicators, including but not limited to standing water, soil saturation, depth to water table, or the presence of hydrogen sulfide odor.

2.3   Habitat Classification and Final Wetland Mapping

Wetland boundaries identified during preliminary mapping were modified within the study areas based on wetland determinations and observations made at the site. Final wetland mapping is included in Appendix C and contains the locations of sampling points and the wetland/upland boundaries delineated.

Wetland scientists classified wetland and waterbody habitats according to the Cowardin Classification System (Federal Geographic Data Committee [FGDC] 2013), which is also the classification scheme used by the NWI. An evaluation of each habitat's landscape position, local geomorphology, plant community composition and structure, bottom substrate, and general hydrology characteristics provided information needed to determine the classification of each habitat. Palustrine habitats were classified to the subclass level, while Riverine habitats were classified to the class level. Water regime and special modifier codes were applied to all habitats where applicable following the code definitions in FGDC 2013 and the NWI Wetlands and Deepwater Map Code Diagram (NWI 2019).

Wetland boundaries identified during preliminary mapping were modified at sampling point locations based on wetland determinations and observations made at the site. Wetland boundaries were then extrapolated to the remainder of the wetland or wetland complex within the study area by interpreting color signature, visible water patterns, and topographic relief from aerial imagery and other spatial data, including 1-foot elevation contours. Wetland map polygons were drawn digitally and their acreages were calculated in GIS.

2.4   Preliminary Jurisdiction Determination

Wetlands and water bodies identified in the study area during the field study were preliminarily evaluated for jurisdiction under Section 404 of the CWA, which regulates the discharge of, dredged or fill water in to waters of the U.S. As of August 30, 2021, the USACE and U.S. Environmental Protection Agency (USEPA) have halted implementation of the Navigable Waters

Protection Rule, a previous rule that revised the definition of waters of the U.S. Currently, the USACE and USEPA are interpreting the definition of "waters of the U.S" to be consistent with the pre-2015 regulatory regime until further notice (USEPA 2021).

The evaluation for wetlands within the study area followed guidelines described in the joint USACE/USEPA June 2007 memorandum, *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* (USACE & USEPA 2007) and the USACE *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007a). Waters of the U.S. under USACE jurisdiction include the following:

- Traditional navigable waters (TNW).
- Wetlands adjacent to TNW.
- Relatively permanent non-navigable tributaries (Relatively Permanent Waters) of TNW typically flowing year-round or with at least seasonally continuous flow (e.g., typically three months duration).
- Wetlands directly abutting such tributaries.

For waters identified within the study area that do not fall under the criteria above, wetland scientists considered whether the water has a significant effect on the chemical, physical, or biological integrity of a downstream TNW and, therefore, a significant nexus. Significant nexus analyses included assessment of the hydrologic and ecological functions and services provided by the waters.

The following waters may fall under USACE jurisdiction following determination of a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent.
- Wetlands adjacent to such tributaries.
- Wetlands adjacent to, but not directly abutting, a relatively permanent non-navigable tributary.

2.5   Assessing Wetland Function and Value

Wetland scientists conducted an assessment of the function and value provided by waters preliminarily determined to be subject to USACE jurisdiction. The assessment used a best professional judgment characterization based on field observations and office-based research. The result of the assessment is categorization of all jurisdictional waters mapped in the study area in accordance with the wetland categories and mitigation ratios described in USACE Alaska District's May 2014 guidance (USACE 2014).

Wetlands with similar vegetation communities, landscape position, landform, and water regime were aggregated into unique assessment groups. In addition to these factors, the noted functions and values each group exhibits broadly define the group. A description of each wetland assessment group is provided in Section 4.2.1. The rated functions and values typically include hydrological function, water quality function, habitat function, and other functions including a combination of subsistence, recreational, educational, and scientific uses. Function and value

ratings for each group, and the rationale used to assign ratings, were recorded as best professional judgments shown on the Functional Assessment forms in Appendix D.

Waterbodies are rated generally for their degree of naturalization and capability to support fish. Waterbody ratings were recorded on waterbody assessment forms in Appendix D.

3.0   FIELD CONDITIONS

3.1   Site Observations

Wetlands within the study area were observed on broad, elevated terraces and slopes that gently trend toward Little Rabbit Creek and its tributaries. Little Rabbit Creek is approximately 15 feet wide by 1-5 feet deep, and flows from east to west through the center of the study area within a steep-walled ravine. Tributary streams within the study area ranged in width from 1 to 5 feet wide and in depth from 1 inch to 1 foot deep. Scrub–shrub wetlands were the primary wetland habitat type in the study area; however, both emergent and forested wetlands were also present. Scrub-shrub wetlands were comprised of black spruce, alder, bluejoint, horsetails, and sedge species. Standing water was also observed at many of the wetland locations.

3.2   Ground Disturbance

The study area contains both areas of residential development and undeveloped land. Wetland determinations were not competed in residential areas. A desktop review of aerial imagery, elevation contours, and existing MOA and USFWS wetland mapping tools did not identify any wetlands or water bodies with the existing residential areas. The remaining portion of the study area, that is undeveloped, is primarily undisturbed with the exception of a few existing all-terrain vehicle trails and a recently excavated linear drainage ditch. This ditch has been constructed in the wetland areas located in the southeast portion of the study area and has resulted in changes to the hydrologic regime in the area. Where possible, wetlands data and observations were gathered in undisturbed areas and extrapolated if there were no significant changes in topography or other factors.

3.3   Climatic Conditions

Climatic conditions that can influence the hydrology portion of field wetland determinations include above or below normal precipitation during the period preceding the field survey. Above normal precipitation can result in episaturated conditions or seasonal flooding of some wetlands or uplands that may not occur during normal conditions. Below normal precipitation can result in absence of surface water in stream channels. Either condition may result in inaccurately estimating the limits of wetland boundaries or the ordinary high water mark of streams, or incorrectly assessing the jurisdictional status of some waters.

In order to determine whether precipitation amounts were normal, above normal, or below normal for the time of year, and whether recent climatic conditions could have affected hydrology observations in the field, a comparison between the historical precipitation amounts for the previous ten-year period (2010-2020) and the current year (2021) for June, July, and August was completed following the methods outlined in the NRCS Engineering Field Handbook (NRCS

1997). The comparison uses a formula based on the average precipitation over the given time period, with a higher weight placed on the most recent preceding month and a lower weight placed on the least recent month used in the comparison (e.g., rainfall amounts during the month of August are a greater factor than June in determining whether hydrological conditions were normal during the September field effort).

Precipitation data was taken from the Anchorage Upper De Armoun weather station (NRCS 2021). Precipitation totals were below average in June, average in July, and above average in August (Figure 2).
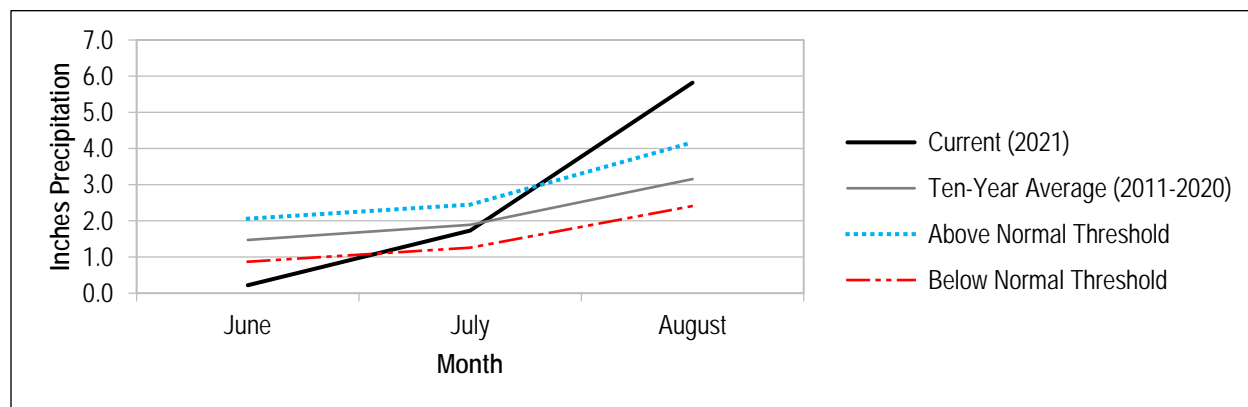
Figure 2: Current versus 10-year Monthly Precipitation Averages

Using the NRCS formula (Table 1) climatic conditions were determined to be normal during the field survey.

Table 1: Precipitation Worksheet

Month	Precipitation Thresholds (inches)					Current Precipitation	Condition	Condition Value	Month Weight	Condition x Weight
	Below		Normal		Above					
	< 0.87	0.87	-	2.06	> 2.06	0.22	Dry	1	1	1
	< 1.26	1.26	-	2.45	> 2.45	1.73	Normal	2	2	4
	< 2.41	2.41	-	4.17	> 4.17	5.82	Wet	3	3	9
	If sum is						Condition Value:	Dry=1 Normal=2 Wet=3	Sum	14
	6-9:	then period has been drier than normal								
	10-14:	then period has been normal								
	15-18:	then period has been wetter than normal								

Precipitation calculations per NRCS *Engineering Field Handbook,* Figure 19-7, Rainfall documentation worksheet (NRCS 1997).

3.4   Vegetation

Indicators of hydrophytic vegetation are the dominance or prevalence of plant species rated as obligate wetland plants (OBL), facultative wetland plants (FACW), and/or facultative plants (FAC). Plant species rated as facultative upland (FACU) or upland (U) are typically not present or are present in low cover values in wetlands.

Sampling point locations exhibiting hydrophytic vegetation were typically comprised of scrub-shrub and persistent emergent plant communities. Scrub-shrub communities were dominated by black spruce (*Picea mariana* [FACW]) and speckled alder (*Alnus incana* [FAC]). Persistent emergent plant communities within saturated or flooded areas were typically dominated by bluejoint (*Calamagrostis canadensis* [FAC]) and horsetails (*Equisetum* spp. [FAC/FACW]).

Adjacent forested areas within the study area were dominated by paper birch (*Betula papyrifera* [FACU]), white spruce (*Picea glauca* [FACU]), and speckled alder (*Alnus incana* [FAC]).

3.5   Soil

Indicators of hydric soil are physical or chemical conditions that occur when a soil experiences saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (U.S. Department of Agriculture 1994). The most common hydric soil indicators identified at sampling points within the study area included Histosol (A1), Histic Epipedon (A2), and/or Hydrogen Sulfide Odor (A4).

3.6   Hydrology

Indicators of wetland hydrology are intended to reflect a site's medium- to long-term hydrological history (USACE 2007). There was no surface water or inundation visible on aerial imagery; however, standing water in lowland areas along with drainage patterns were observed throughout the study area. The primary hydrology indicator, saturation (A3), was observed in most soils pits where wetlands occurred. Saturation was most commonly associated with histosols and a water table immediately below the saturated zone; however, the indicator was also observed in association with a clay restrictive layer immediately below the saturated zone.

Wetlands data, photos, and observations recorded in the field for each sampling point are included in data forms located in Appendix B.

4.0   RESULTS AND DISCUSSION

4.1   Desktop Study Area

A review of recent aerial imagery and online wetland mapping sources listed in Section 2.1 did not identify any wetlands within developed portions of the study area (i.e., the Desktop Study Area). Mapped drainages within the desktop study area include open, ephemeral channels, and vegetated drainageways that were either natural or constructed, none of which carry a relatively permanent flow of water, and are not considered waters of the U.S.

4.2   Wetland Habitat Classification

The sections below present the rationale for classifying wetlands and other waters found in the study area into their respective habitat types. Table 2 defines the habitat and vegetation classifications used in this report.

Table 2: Wetland and Waterbody Habitat Types found Within the Study Area

Cowardin/NWI Classification	
Code	Description
PEM1B	Palustrine; emergent/persistent; seasonally saturated
PSS4B	Palustrine; scrub-shrub/needle-leaved evergreen; seasonally saturated
PSS4Bd	Palustrine; scrub-shrub/needle-leaved evergreen; seasonally saturated; partly drained/ditched
PFO4B	Palustrine; forested/needle-leaved evergreen; seasonally saturated
PFO4/EM1B	Palustrine; forested/needle-leaved evergreen & emergent/persistent co-dominant; seasonally saturated
PSS1/EM1B	Palustrine; scrub-shrub/broad-leaved deciduous & emergent/persistent co-dominant; seasonally saturated
R3UBH	Riverine; upper perennial; unconsolidated bottom; permanently flooded
R3UBHx	Riverine; upper perennial; unconsolidated bottom; permanently flooded; excavated
R4SBC	Riverine; intermittent; streambed; seasonally flooded

4.2.1   Wetlands

Emergent Wetland

Emergent wetland habitats are mesic to wet marshes containing primarily herbaceous vegetation and were assigned the NWI code PEM1B (palustrine; emergent/persistent; seasonally saturated). Species found dominating these habitats were bluejoint (*Calamagrostis canadensis*) and unidentifiable sedge species (*Carex* sp.). Emergent wetlands exhibited saturation within twelve inches of ground surface or contained surface water. These wetlands were found on relatively flat or depressional landforms within broad terraces.

Scrub-Shrub Wetland

Scrub-shrub habitats are mesic to wet open meadows dominated by low shrubs and shrub-height trees and were assigned the NWI code PSS4B (palustrine; scrub-shrub/needle-leaved evergreen; seasonally saturated) and PSS4Bd (palustrine; scrub-shrub/needle-leaved evergreen; seasonally saturated; partly drained/ditched). Dominant vegetation observed in scrub-shrub wetlands included stunted black spruce (*Picea mariana*), white spruce (*Picea glauca*), speckled alder (*Alnus incana*), and Labrador tea (*Rhododendron groenlandicum*). These wetlands were found on the flat, broad terraces above Little Rabbit Creek.

Forested Wetland

Forested wetland habitats are mesic habitats containing trees at least six meters in height and were assigned the NWI code PFO4B (palustrine; forested/needle-leaved evergreen seasonally saturated). Dominant vegetation observed in forested wetlands was predominately comprised of stunted *Picea mariana, Picea glauca*, and *Alnus incana*. These wetlands were found on gentle slopes on the broad terrace south of Little Rabbit Creek.

Forested/Emergent Wetland

Wetlands with vegetation communities co-dominated by species in the tree and herbaceous stratums and were assigned the compound NWI code PFO4/EM1B (palustrine; forested/needle-

leaved evergreen & emergent/persistent co-dominant; seasonally saturated). The wetland/upland boundary between PFO4/EM1B wetlands and uplands typically lied where the vegetation community transitioned from the presence of open meadows of *Calamagrostis canadensis* to large *Betula papyrifera* and *Picea glauca*. These wetlands were found on convex landforms in the transitional zone between the broad terrace and the steep valley walls of Little Rabbit Creek. Slopes gradients of these types of wetlands were between two and ten percent.

Scrub-Shrub/Emergent Wetland

Wetlands with vegetation communities co-dominated by species in the herbaceous and shrub/sapling stratums were assigned the compound NWI code PSS1/EM1B (palustrine; scrub-shrub/ broad-leaved deciduous & emergent/persistent co-dominant; seasonally saturated). These wetlands were common throughout the study area where soil saturation exists. Dominant vegetation observed in scrub-shrub wetlands included *Calamagrostis canadensis*, *Alnus incana*, and alpine blueberry (*Vaccinium uliginosum*). These wetlands were found on slopes with a gradient between two and ten percent.

Upper Perennial Stream

Upper Perennial streams have flowing water year-round during normal hydrological conditions. The water table is located above the streambed for most of the year. Perennial streams in the study area include Little Rabbit Creek as well as other unnamed tributaries to Little Rabbit Creek (ADF&G 2021). Perennial stream channels within the study area are classified according to NWI/Cowardin as R3UBH (Riverine; upper perennial; unconsolidated bottom; permanently flooded) and R3UBHx (Riverine; upper perennial; unconsolidated bottom; permanently flooded; excavated). These stream channels transport surface water from palustrine wetlands to Little Rabbit Creek year round.

Intermittent Stream

Intermittent streams exhibit flowing water for only part of the year. Habitats judged to contain flowing water driven only by seasonal runoff or that had a discontinuous surface water connection, have been classified as intermittent streams. Intermittent stream channels within the study area are classified according to NWI/Cowardin as R4SBC (Riverine; intermittent; streambed; seasonally flooded). One intermittent stream channel was identified in the study area and transports water from palustrine wetlands to Little Rabbit Creek during seasonal runoff events.

4.3   Preliminary Jurisdictional Determination

Wetlands and waterbodies throughout the study area have a direct wetland connection to Little Rabbit Creek, and ultimately Cook Inlet—a territorial sea. For these reasons, all of the wetlands and waters mapped within the study area are subject to USACE's jurisdiction under Section 404 of the CWA.

4.4   Mapping Summary

The study area for this wetland delineation was 174.5 acres in size. The total area of jurisdictional waters in the study area—including wetlands—is 43.5 acres, comprising 25 percent of the study area. Waterbodies included 5,680 linear feet of stream channel. The remaining 131.0 acres are primarily undisturbed land comprised of non-jurisdictional uplands. Wetland boundaries were delineated in GIS using a combination of field observations as well as aerial imagery and LiDAR elevation data collected in 2015. A summary of wetland habitat acreage is shown in Table 3.

Table 3: Summary of Jurisdictional Waters, Uplands, and Habitat Types

Cowardin/NWI Classification		Associated Field Sampling Points	Area	
Subsystem or Class	Code			
Wetlands - Palustrine				
Emergent	PEM1B	5	1.72	ac
Scrub-shrub	PSS4B	1,2,3,4	30.64	ac
	PSS4Bd	16	0.69	ac
Forested	PFO4B	--	0.95	ac
Forested/Emergent	PFO4/EM1B	7,21	1.72	ac
Scrub-shrub/Emergent	PSS1/EM1B	19,22	6.47	ac
		Total wetlands	**42.20**	**ac**
Riverine				
Upper Perennial	R3UBH	--	1.34	ac
	R3UBHx	--	0.07	ac
Intermittent	R4SB3	--	0.01	ac
		Total waterbodies	**1.42**	**ac**
Upland				
Upland	U	6,8,9,10,11,12,13,14,15,17,18,20	131.00	ac
Summary				
		Total Jurisdiction Wetlands & Waterbodies	**43.5**	**ac**
		Total Study Area Acreage	174.5	ac
		Percent of Study are that is Wetlands	25.0	%
		Percent of Study Area that is Uplands	75.0	%

Final wetland mapping in Appendix C contains the locations of sampling points and the delineated wetland/upland boundaries.

4.5   Habitat Functions and Values

The function and value of all waters preliminarily determined to be subject to USACE's jurisdiction have been evaluated using a best professional judgment characterization. The result is categorization of those waters corresponding with the wetland categories and mitigation ratios outlined in USACE Alaska District's May 2014 mitigation guidance (USACE 2014) as well as the MOA's Wetland Management Plan (MOA 2014).

The MOA's Wetland Management Plan uses the Anchorage Wetlands Assessment Methodology (AWAM) and designates wetlands into A, B, C, D, or, P categories. A, B, and C wetlands are numerically scored based on hydrology, habitat, species occurrence, and social function. The numerical score assigned to each of the four categories as well as other parameters such as platting, zoning, existing of infrastructures, floodplain, and local existing drainage studies,

correlates to their overall wetland designation. Wetlands designed D or P are either have a designation pending or the site contains potential wetlands. In either case these wetlands require consultation with the USACE. Table 4 outlines the numerical threshold for wetlands designated A, B, and C (MOA 2014).

Table 4: MOA Anchorage Bowl Wetland Designation Thresholds

Wetland Designation	Hydrology Values	Habitat Values	Species Occurrence Values	Social Function Values
A	> 100 points	>85 points	>55 points	>55 points
B	85-100 points	65-85 points	25-55 points	35-55 points
C	< 85 points	< 65 points	<25 points	< 35 points

The study area contains wetlands in each of the three MOA designated wetland value categories. "A" designated wetlands are located east of the existing Mountain Air Drive in a preserved parcel known as the Shangri-La Estates East Tract B. "B" designated wetlands are located both along the northern edge of the field study area we all as within the south west quadrant of the field study area. "C" designated wetlands are adjacent to and surround Bear Valley Elementary school.

Ratings and rationale for waterbodies and wetlands are presented below and in Table 5, along with descriptions of the six assessment groups.

Waterbodies

Group 1

Assessment Group 1 consists of flowing waterbodies that support, or are likely to support, resident and other non-salmon fish species. These waterbodies have a surface water connection to Little Rabbit Creek, which ADF&G has identified as an anadromous water body downstream of the study area. Waters in assessment Group 1 have been assigned an overall qualitative rating of moderate and assigned a USACE mitigation category II.

Group 2

Assessment Group 2 is comprised of both permanent and intermittent streams that are not likely to support anadromous or resident fish species. Waters in assessment Group 2 have been assigned an overall qualitative rating of moderate and a USACE mitigation category III.

Wetlands

Group 3

Group 3 includes palustrine wetlands preserved by a restrictive covenant that maintain important habitat to large mammal movements, especially bears (MOA 2014). These wetlands, located on a flat, broad terrace, are comprised of bogs or lowlands that have a permanent connection, via surface water, to Little Rabbit Creek through other permanent tributaries. Wetlands in Group 3 are designated as "A" under the MOA's AWAM and have low to moderate hydrological and water

quality functions, high habitat value, and moderate socioeconomic value. Group 3 wetlands have been assigned an overall qualitative rating of high, and assigned mitigation category I.

<u>Group 4</u>

Group 4 includes palustrine wetlands located on a broad terrace, comprised of bogs or lowlands, with either a surface water connection, wetland connection, or an assumed near-surface groundwater connection to downstream waters. The MOA Wetland Management Plan classified wetlands in Group 4 as class B wetlands. These wetlands have low to moderate hydrological and water quality functions, high habitat value, and moderate socioeconomic value. Wetlands in assessment Group 4 have been rated moderate and assigned mitigation category II.

<u>Group 5</u>

Group 5 includes palustrine wetlands located on discharge slopes. These wetlands either discharge into streams or larger wetland complexes. These wetlands have low to moderate hydrological and water quality functions, high habitat value, and moderate socioeconomic value. The MOA Wetland Management Plan classified wetlands in Group 5 as class B wetlands. Wetlands in assessment Group 5 have been rated moderate and assigned mitigation category II.

<u>Group 6</u>

Group 6 includes palustrine wetlands located on a broad terrace, comprised of bogs or lowlands, with either a surface water connection, wetland connection, or an assumed near-surface groundwater connection to downstream waters. These wetlands typically have some degree of disturbance, but still maintain connectivity with a significant portion of their larger wetland complex. These wetlands have low to moderate hydrological and water quality functions, high habitat value, low species occurrence, and low socioeconomic value. The MOA Wetland Management Plan classified wetlands in Group 6 as class C wetlands. Wetlands in assessment Group 6 have been assigned an overall qualitative rating of low and assigned mitigation category III.

Table 5: Function and Value Ratings

Function	Assessment Groups					
	1	2	3	4	5	6
Flood Flow Regulation	-	-	Moderate	Moderate	Moderate	Low
Sediment, Nutrient, and Toxicant Removal	-	-	Low	Low	Low	Low
Erosion Control and Shoreline Stabilization	-	-	Not Rated	Not Rated	Not Rated	Not Rated
Production of Organic Matter and its Export	-	-	Low	Low	Low	Low
General Habitat Suitability	-	-	High	High	High	Moderate
General Fish Habitat	-	-	Not Rated	Not Rated	Not Rated	Not Rated
Native Plant Richness	-	-	High	High	High	Moderate
Educational, Scientific, Recreational, or Subsistence Use	-	-	Low	Low	Low	Low
Uniqueness and Special Status	-	-	Low	Low	Low	Low
Acres	0.87	0.55	6.55	10.89	8.67	16.09
Overall Qualitative Rating	Moderate	Low	High	Moderate	Moderate	Low
USACE Mitigation Category	II	III	I	II	II	III

Although the function and value ratings for Groups 3, 4, and 5 are the same there is a distinction between Groups 3 and 4 due to the restrictive covenant resulting in these wetlands being designated as "A" class wetlands under the MOA's AWAM. Groups 4 and 5 are in different functional assessment groups due to the difference in the landscape between the two groups. Group 5 wetlands are located on discharge slopes and have different position characteristics while Group 4 wetlands are located on a relatively flat, broad terrace.

Function and value ratings, and the rationale used to assign ratings, have been recorded on a best professional judgment form for each assessment group (Appendix D).

5.0   CONSLUSION AND SUMMARY

This report was prepared following the guidelines for jurisdictional determination reports contained in USACE Alaska District's Special Public Notice 2020-00399. Wetland determinations were performed in accordance with the *USACE Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region, Version 2.0*.

HDL wetland scientists conducted a field survey of the study area on September 8, 9, and 23, 2021. Hydrological conditions were normal for the time of year. Wetlands data and observations were collected at 22 sampling points. Following the field survey, wetlands were mapped in GIS and analyzed for their jurisdictional status under the CWA. The functions and values of those wetlands preliminarily determined to be subject to CWA jurisdiction were then assessed.

The total acreage of jurisdictional wetlands, including water bodies classified as waters of the U.S., was 43.5 acres, equaling 25 percent of the study area. The findings and conclusions in this report are considered preliminary until verified or modified by USACE in a formal Jurisdictional Determination.

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Appendix A

Preliminary Wetland Mapping

AMATS: Mountain Air Drive Extension
Preliminary Wetland Mapping

Study Area

Desktop Only

Field Survey

Parcels (MOA)

Streams (MOA)

National Wetland
Inventory

Wetlands (MOA)

A

B

C

D

Rabbit Creek Road

Mountain Air Drive

Bear Valley
Elementary

Little Rabbit Creek

Mountain Air Drive

Sandpiper Drive / 162nd Avenue

0   0.13   0.25 Miles

Appendix B

Data Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 1

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08604   Long: -149.74880   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PSS4B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	=Total Cover		
50% of total cover: _____ 20% of total cover: _____			

Sapling/Shrub Stratum			
1. *Picea mariana*	75	Yes	FACW
2. *Rhododendron groenlandicum*	30	Yes	FAC
3. *Dasiphora fruticosa*	15	No	FAC
4. *Myrica gale*	15	No	OBL
5. *Empetrum nigrum*	10	No	FAC
6. *Betula nana*	5	No	FAC
	182	=Total Cover	
50% of total cover: 91 20% of total cover: 37			

Herb Stratum			
1. *Iris setosa*	20	Yes	FAC
2. Carex sp. (unknown)	20	Yes	FAC
3. *Equisetum pratense*	15	Yes	FACW
4. *Equisetum fluviatile*	10	No	OBL
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
	65	=Total Cover	
50% of total cover: 33 20% of total cover: 13			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

% Cover of Wetland Bryophytes   100   Total Cover of Bryophytes _____

(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5   (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	91	x 2 =	182
FAC species	106	x 3 =	318
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	247 (A)		625 (B)

Prevalence Index = B/A =   2.53

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** __X__   **No** _____

Remarks:

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	_____ =Total Cover		
50% of total cover: _____	20% of total cover: _____		

Sapling/Shrub Stratum			
7. *Alnus incana*	2	No	FAC
8. *Vaccinium vitis-idaea*	2	No	FAC
9. *Vaccinium uliginosum*	2	No	FAC
10. *Salix myrtillifolia*	1	No	FACW
11. *Cornus canadensis*	25	No	FACU
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
	182 =Total Cover		
50% of total cover: 91	20% of total cover: 37		

Herb Stratum			
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
21. _____	_____	_____	_____
22. _____	_____	_____	_____
	65 =Total Cover		
50% of total cover: 33	20% of total cover: 13		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4							Peat	
4-22							Mucky Peat	

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   Yes _X_   No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)

- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ____	No _X_	Depth (inches): ____	
Water Table Present?	Yes _x_	No ____	Depth (inches): 20	
Saturation Present? (includes capillary fringe)	Yes _x_	No ____	Depth (inches): 0	

Wetland Hydrology Present?   Yes _X_   No ____

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

Remarks:
Standing water present in adjacent microtopographic lows.

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension	Sampling Date:	9/8/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities	Sampling Point:	1
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/8/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 2

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08588   Long: -149.74742   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PSS4B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	___	___	___
2. _____	___	___	___
3. _____	___	___	___
4. _____	___	___	___
	=Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum			
1. *Picea mariana*	75	Yes	FACW
2. *Empetrum nigrum*	5	No	FAC
3. *Myrica gale*	2	No	OBL
4. *Alnus incana*	2	No	FAC
5. *Rhododendron groenlandicum*	1	No	FAC
6. *Salix myrtillifolia*	1	No	FACW
	95	=Total Cover	
50% of total cover: 48 20% of total cover: 19			

Herb Stratum			
1. *Equisetum pratense*	20	Yes	FACW
2. Carex species (unknown)	5	No	
3. *Dasiphora fruticosa*	2	No	FAC
4. _____	___	___	___
5. _____	___	___	___
6. _____	___	___	___
7. _____	___	___	___
8. _____	___	___	___
9. _____	___	___	___
10. _____	___	___	___
	27	=Total Cover	
50% of total cover: 14 20% of total cover: 6			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground 0

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2   (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	97	x 2 =	194
FAC species	11	x 3 =	33
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	117 (A)		257 (B)
Prevalence Index = B/A =		2.20	

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** X   **No** ___

Remarks:
Rosa acicularis and Cornus canadensis found growing on microtopographic highs.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Sapling/Shrub Stratum

		Absolute % Cover	Dominant Species?	Indicator Status
7.	*Arctous alpinus*	1	No	FACU
8.	*Rosa acicularis*	1	No	FACU
9.	*Cornus canadensis*	5	No	FACU
10.	*Rubus chamaemorus*	1	No	FACW
11.	*Vaccinium uliginosum*	1	No	FAC
12.				
13.				
14.				
		95 =Total Cover		
	50% of total cover: 48	20% of total cover: 19		

Herb Stratum

	Absolute % Cover	Dominant Species?	Indicator Status
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	27 =Total Cover		
50% of total cover: 14	20% of total cover: 6		

Remarks:

SOIL   Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4							Peat	
4-14							Mucky Peat	

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

Hydric Soil Indicators:

	Indicators for Problematic Hydric Soils[3]:	
X Histosol or Histel (A1)	___ Depleted Below Dark Surface (A11)	___ Alaska Color Change (TA4)[4]
___ Histic Epipedon (A2)	___ Depleted Matrix (F3)	___ Alaska Alpine Swales (TA5)
___ Black Histic (A3)	___ Redox Dark Surface (F6)	___ Alaska Redox With 2.5Y Hue
X Hydrogen Sulfide (A4)	___ Depleted Dark Surface (F7)	___ Alaska Gleyed Without Hue 5Y or Redder
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	Underlying Layer
___ Alaska Gleyed (A13)	___ Red Parent Material (F21)	___ Other (Explain in Remarks)
___ Alaska Redox (A14)	___ Very Shallow Dark Surface (F22)	
___ Alaska Gleyed Pores (A15)		

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   **Yes** _X_   **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

		Secondary Indicators (2 or more required)
		___ Water-Stained Leaves (B9)
___ Surface Water (A1)	___ Inundation Visible on Aerial Imagery (B7)	X Drainage Patterns (B10)
___ High Water Table (A2)	___ Sparsely Vegetated Concave Surface (B8)	___ Oxidized Rhizospheres along Living Roots (C3)
X Saturation (A3)	___ Marl Deposits (B15)	___ Presence of Reduced Iron (C4)
___ Water Marks (B1)	X Hydrogen Sulfide Odor (C1)	___ Salt Deposits (C5)
___ Sediment Deposits (B2)	___ Dry-Season Water Table (C2)	X Stunted or Stressed Plants (D1)
___ Drift Deposits (B3)	___ Other (Explain in Remarks)	___ Geomorphic Position (D2)
___ Algal Mat or Crust (B4)		___ Shallow Aquitard (D3)
___ Iron Deposits (B5)		X Microtopographic Relief (D4)
___ Surface Soil Cracks (B6)		X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No _X_	Depth (inches): ____	
Water Table Present?	Yes _X_	No ____	Depth (inches): 20	
Saturation Present? (includes capillary fringe)	Yes _X_	No ____	Depth (inches): 0	

Wetland Hydrology Present?   Yes _X_   **No** ____

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

Remarks:

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/8/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	2
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/8/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 3

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08590   Long: -149.74523   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PSS4B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea mariana*	75	Yes	FACW
2.			
3.			
4.			
	75	=Total Cover	
50% of total cover: 38	20% of total cover: 15		

Sapling/Shrub Stratum			
1. *Picea mariana*	20	Yes	FACW
2. *Empetrum nigrum*	2	No	FAC
3. *Myrica gale*	2	No	OBL
4. *Alnus incana*	20	Yes	FAC
5. *Rhododendron groenlandicum*	8	No	FAC
6. *Sanguisorba canadensis*	10	No	FACW
	120	=Total Cover	
50% of total cover: 60	20% of total cover: 24		

Herb Stratum			
1. *Equisetum pratense*	20	Yes	FACW
2. Carex species (unknown)	5	No	FAC
3. *Dasiphora fruticosa*	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	27	=Total Cover	
50% of total cover: 14	20% of total cover: 6		

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That
Are OBL, FACW, or FAC: 80.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	126	x 2 =	252
FAC species	39	x 3 =	117
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	222 (A)		591 (B)

Prevalence Index = B/A =   2.66

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** __X__   **No** ____

Remarks:
Rosa acicularis and Cornus canadensis found growing on microtopographic highs.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	**Definitions of Vegetation Strata:**
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	**Sapling/Shrub** – Woody plants less than 3 in. DBH, regardless of height.
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	**Herb** – All herbaceous (non-woody) plants, regardless of size.
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	

75 =Total Cover

50% of total cover: __38__   20% of total cover: __15__

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
7. *Vaccinium vitis-idaea*	2	No	FAC
8. *Geocaulon lividum*	15	No	FACU
9. *Cornus canadensis*	40	Yes	FACU
10. *Rubus chamaemorus*	1	No	FACW
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____

120 =Total Cover

50% of total cover: __60__   20% of total cover: __24__

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____
16. _____	_____	_____	_____
17. _____	_____	_____	_____
18. _____	_____	_____	_____
19. _____	_____	_____	_____
20. _____	_____	_____	_____
21. _____	_____	_____	_____
22. _____	_____	_____	_____

27 =Total Cover

50% of total cover: __14__   20% of total cover: __6__

Remarks:

SOIL   Sampling Point:____3____

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

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

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

Hydric Soil Indicators:

	Indicators for Problematic Hydric Soils[3]:	
X Histosol or Histel (A1)	___ Depleted Below Dark Surface (A11)	___ Alaska Color Change (TA4)[4]
___ Histic Epipedon (A2)	___ Depleted Matrix (F3)	___ Alaska Alpine Swales (TA5)
___ Black Histic (A3)	___ Redox Dark Surface (F6)	___ Alaska Redox With 2.5Y Hue
___ Hydrogen Sulfide (A4)	___ Depleted Dark Surface (F7)	___ Alaska Gleyed Without Hue 5Y or Redder
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	Underlying Layer
___ Alaska Gleyed (A13)	___ Red Parent Material (F21)	___ Other (Explain in Remarks)
___ Alaska Redox (A14)	___ Very Shallow Dark Surface (F22)	
___ Alaska Gleyed Pores (A15)	[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology,	
	and an appropriate landscape position must be present unless disturbed or problematic.	
	[4]Give details of color change in Remarks.	

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   Yes __X__   No _____

Remarks:
No soil pit due to high water table.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

		Secondary Indicators (2 or more required)
		___ Water-Stained Leaves (B9)
X Surface Water (A1)	___ Inundation Visible on Aerial Imagery (B7)	X Drainage Patterns (B10)
X High Water Table (A2)	___ Sparsely Vegetated Concave Surface (B8)	___ Oxidized Rhizospheres along Living Roots (C3)
X Saturation (A3)	___ Marl Deposits (B15)	___ Presence of Reduced Iron (C4)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Salt Deposits (C5)
___ Sediment Deposits (B2)	___ Dry-Season Water Table (C2)	___ Stunted or Stressed Plants (D1)
___ Drift Deposits (B3)	___ Other (Explain in Remarks)	___ Geomorphic Position (D2)
___ Algal Mat or Crust (B4)		___ Shallow Aquitard (D3)
___ Iron Deposits (B5)		X Microtopographic Relief (D4)
___ Surface Soil Cracks (B6)		X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 1	
Water Table Present?	Yes X	No ___	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present? Yes _X_ No ___**

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/8/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	3
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 4

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08358   Long: -149.74533   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PSS4B

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed?   Are "Normal Circumstances" present?   Yes ____   No X

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	10	Yes	FACU
2.			
3.			
4.			
	10	=Total Cover	
50% of total cover: 5 20% of total cover: 2			
Sapling/Shrub Stratum			
1. *Picea glauca*	20	Yes	FACU
2. *Cornus canadensis*	3	No	FACU
3. *Betula papyrifera*	2	No	FACU
4. *Rosa acicularis*	2	No	FACU
5. *Viburnum edule*	2	No	FACU
6. *Alnus incana*	2	No	FAC
	31	=Total Cover	
50% of total cover: 16 20% of total cover: 7			
Herb Stratum			
1. *Equisetum arvense*	20	Yes	FAC
2. *Calamagrostis canadensis*	5	No	FAC
3. *Streptopus amplexifolius*	1	No	FACU
4. *Sanguisorba canadensis*	1	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	27	=Total Cover	
50% of total cover: 14 20% of total cover: 6			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0
% Cover of Wetland Bryophytes   90   Total Cover of Bryophytes ____
    (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That
Are OBL, FACW, or FAC: 33.3%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	27	x 3 =	81
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	68 (A)		243 (B)
Prevalence Index = B/A =	3.57		

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

X Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes X   **No** ____

Remarks:
FACU species growing on ground elevated above the primary soil level.

SOIL   Sampling Point: ___4___

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3							Peat	
3-16							Mucky Peat	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

X Histosol or Histel (A1)	___ Depleted Below Dark Surface (A11)	___ Alaska Color Change (TA4)[4]
___ Histic Epipedon (A2)	___ Depleted Matrix (F3)	___ Alaska Alpine Swales (TA5)
___ Black Histic (A3)	___ Redox Dark Surface (F6)	___ Alaska Redox With 2.5Y Hue
___ Hydrogen Sulfide (A4)	___ Depleted Dark Surface (F7)	___ Alaska Gleyed Without Hue 5Y or Redder
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	Underlying Layer
___ Alaska Gleyed (A13)	___ Red Parent Material (F21)	___ Other (Explain in Remarks)
___ Alaska Redox (A14)	___ Very Shallow Dark Surface (F22)	
___ Alaska Gleyed Pores (A15)	[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology,	
	and an appropriate landscape position must be present unless disturbed or problematic.	
	[4]Give details of color change in Remarks.	

Restrictive Layer (if observed):
  Type: _____
  Depth (inches): _____

Hydric Soil Present?   **Yes** _X_   **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		___ Water-Stained Leaves (B9)
___ Surface Water (A1)	___ Inundation Visible on Aerial Imagery (B7)	X Drainage Patterns (B10)
X High Water Table (A2)	___ Sparsely Vegetated Concave Surface (B8)	___ Oxidized Rhizospheres along Living Roots (C3)
X Saturation (A3)	___ Marl Deposits (B15)	___ Presence of Reduced Iron (C4)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Salt Deposits (C5)
___ Sediment Deposits (B2)	___ Dry-Season Water Table (C2)	___ Stunted or Stressed Plants (D1)
___ Drift Deposits (B3)	___ Other (Explain in Remarks)	___ Geomorphic Position (D2)
___ Algal Mat or Crust (B4)		___ Shallow Aquitard (D3)
___ Iron Deposits (B5)		___ Microtopographic Relief (D4)
___ Surface Soil Cracks (B6)		___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No _X_	Depth (inches): ___		
Water Table Present?	Yes _X_	No ___	Depth (inches): 9		
Saturation Present?	Yes _X_	No ___	Depth (inches): 6	**Wetland Hydrology Present? Yes** _X_ **No** ___
(includes capillary fringe)					

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

Remarks:
 Water table at or near surface in approximately 50% of the sampling point radius.

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/9/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	4
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 5

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08334   Long: -149.89732   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PEM1B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	_____ =Total Cover		
50% of total cover: _____	20% of total cover: _____		
Sapling/Shrub Stratum			
1. *Rubus arcticus*	2	No	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	2 =Total Cover		
50% of total cover: 1	20% of total cover: 1		
Herb Stratum			
1. *Calamagrostis canadensis*	99	Yes	FAC
2. *Polemonium acutiflorum*	2	No	FAC
3. *Heracleum maximum*	1	No	FACU
4. *Sanguisorba canadensis*	1	No	FACW
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
	103 =Total Cover		
50% of total cover: 52	20% of total cover: 21		

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0
% Cover of Wetland Bryophytes   90   Total Cover of Bryophytes _____
     (Where applicable)

Dominance Test worksheet:

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

Total Number of Dominant Species
Across All Strata: 1   (B)

Percent of Dominant Species That
Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	103	x 3 =	309
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	105 (A)		315 (B)

Prevalence Index = B/A =   3.00

Hydrophytic Vegetation Indicators:

 X Dominance Test is >50%

 X Prevalence Index is ≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes X   **No** _____

Remarks:

SOIL   Sampling Point: ___5___

| Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) ||||||||
| Depth | Matrix || Redox Features |||| Texture | Remarks |
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8							Peat	
8-18							Mucky Peat	
18-22							Sandy	Dense Gravel

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

X Histosol or Histel (A1)	___ Depleted Below Dark Surface (A11)
___ Histic Epipedon (A2)	___ Depleted Matrix (F3)
___ Black Histic (A3)	___ Redox Dark Surface (F6)
X Hydrogen Sulfide (A4)	___ Depleted Dark Surface (F7)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)
___ Alaska Gleyed (A13)	___ Red Parent Material (F21)
___ Alaska Redox (A14)	___ Very Shallow Dark Surface (F22)
___ Alaska Gleyed Pores (A15)	

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

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

Restrictive Layer (if observed):
   Type: _____
   Depth (inches): _____

Hydric Soil Present?   **Yes** _X_   **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)
___ Water-Stained Leaves (B9)
X Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
X Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No _X_	Depth (inches): _____	
Water Table Present?	Yes _X_	No ___	Depth (inches): 8	
Saturation Present?	Yes _X_	No ___	Depth (inches): 0	
(includes capillary fringe)				

Wetland Hydrology Present?   **Yes** _X_   **No** _____

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

Remarks:
Standing water present in adjacent microtopographic lows.

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension	Sampling Date:	9/9/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities	Sampling Point:	5
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 6

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.19002   Long: -149.89722   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	50	Yes	FACU
2. *Betula papyrifera*	10	No	FACU
3.			
4.			
	60	=Total Cover	
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. *Picea glauca*	20	Yes	FACU
2. *Alnus viridis*	3	No	FAC
3. *Cornus canadensis*	3	No	FACU
4. *Betula papyrifera*	1	No	FACU
5. *Rosa acicularis*	1	No	FACU
6. *Linnaea borealis*	1	No	FACU
	29	=Total Cover	
50% of total cover: 15 20% of total cover: 6			
Herb Stratum			
1. *Gymnocarpium dryopteris*	3	Yes	FACU
2. *Equisetum arvense*	1	Yes	FAC
3. *Chamaenerion angustifolium*	1	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5	=Total Cover	
50% of total cover: 3 20% of total cover: 1			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0
% Cover of Wetland Bryophytes   50   Total Cover of Bryophytes ____
    (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That
Are OBL, FACW, or FAC: 20.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	4	x 3 =	12
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	94 (A)		372 (B)
Prevalence Index = B/A =	3.96		

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes ____   No X

Remarks:

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1							Peat	
1-22	10YR 3/4	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type:
Depth (inches):

Hydric Soil Present?   **Yes** ____   **No** _X_

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present?   Yes ____   **No** _X_

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension	Sampling Date:	9/9/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities	Sampling Point:	6
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 7

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Gentle Slope

Local relief (concave, convex, none):   Convex   Slope (%): 8

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08252   Long: -149.75053   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PFO4/EM1B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus incana*	10	Yes	FAC
2.			
3.			
4.			
	10	=Total Cover	
50% of total cover: 5 20% of total cover: 2			

Sapling/Shrub Stratum

1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum

1. *Calamagrostis canadensis*	90	Yes	FAC
2. *Heracleum maximum*	15	No	FACU
3. *Athyrium filix-femina*	10	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	115	=Total Cover	
50% of total cover: 58 20% of total cover: 23			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

% Cover of Wetland Bryophytes   50   Total Cover of Bryophytes _____
  (Where applicable)

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2   (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	15	x 4 =	60
UPL species	10	x 5 =	50
Column Totals:	125 (A)		410 (B)

Prevalence Index = B/A =   3.28

Hydrophytic Vegetation Indicators:

X   Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** X   **No** _____

Remarks:

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6							Peat	
6-14	2.5Y 5/1	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- X Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: Clay
Depth (inches): 6

Hydric Soil Present?   Yes _X_   No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ____	No _X_	Depth (inches): ____	
Water Table Present?	Yes ____	No _X_	Depth (inches): ____	
Saturation Present? (includes capillary fringe)	Yes _X_	No ____	Depth (inches): 6	

Wetland Hydrology Present?   Yes _X_   No ____

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

Remarks:
The saturation indicator was applied due to the presence of a restrictive layer resulting in episaturated conditions.

ENG FORM 6116-SG, JUL 2018   Alaska – Version 2.0

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension	Sampling Date:	9/8/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities	Sampling Point:	7
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension Borough/City: MOA/Anchorage Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities Sampling Point: 8

Investigator(s): Brooke Therrien & Owen Means Landform (hillside, terrace, hummocks, etc.): Gentle Slope

Local relief (concave, convex, none): Concave Slope (%): 3

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands) Lat: 61.08255 Long: -149.75141 Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	30	Yes	FACU
2. *Betula papyrifera*	30	Yes	FACU
3.			
4.			
	60	=Total Cover	
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. *Viburnum edule*	15	Yes	FACU
2. *Cornus canadensis*	5	No	FACU
3. *Ribes triste*	5	No	FAC
4. *Rosa acicularis*	1	No	FACU
5. *Sorbus scopulina*	1	No	FACU
6.			
	27	=Total Cover	
50% of total cover: 14 20% of total cover: 6			
Herb Stratum			
1. *Calamagrostis canadensis*	50	Yes	FAC
2. *Gymnocarpium dryopteris*	25	Yes	FACU
3. *Dryopteris expansa*	15	No	FACU
4. *Equisetum arvense*	5	No	FAC
5. *Equisetum sylvaticum*	5	No	FAC
6. *Delphinium glaucum*	1	No	FACW
7. *Chamaenerion angustifolium*	1	No	FACU
8.			
9.			
10.			
	102	=Total Cover	
50% of total cover: 51 20% of total cover: 21			

Plot Size (radius, or length x width) 15 ft radius % Bare Ground 0

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	65	x 3 =	195
FACU species	123	x 4 =	492
UPL species	0	x 5 =	0
Column Totals:	189 (A)		689 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4							Peat	
4-8	10YR 4/3						Loamy/Clayey	
8-18	7.5YR 4/4						Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present?   Yes ____   No __X__

Remarks:
Refusal at 18" due to dense cobble.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present?   Yes ____   No __X__

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/9/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	8
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 9

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Gentle Slope

Local relief (concave, convex, none):   Convex   Slope (%): 3

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08330   Long: -149.75170   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	30	Yes	FACU
2. *Betula papyrifera*	20	Yes	FACU
3.			
4.			
	50	=Total Cover	
50% of total cover: 25 20% of total cover: 10			
Sapling/Shrub Stratum			
1. *Picea glauca*	10	Yes	FACU
2. *Alnus incana*	10	Yes	FAC
3. *Viburnum edule*	5	No	FACU
4. *Rosa acicularis*	3	No	FACU
5. *Trientalis europaea*	1	No	FACU
6. *Ribes triste*	1	No	FAC
	30	=Total Cover	
50% of total cover: 15 20% of total cover: 6			
Herb Stratum			
1. *Calamagrostis canadensis*	30	Yes	FAC
2. *Chamaenerion angustifolium*	1	No	FACU
3. *Streptopus amplexifolius*	1	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	32	=Total Cover	
50% of total cover: 16 20% of total cover: 7			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0
% Cover of Wetland Bryophytes   20   Total Cover of Bryophytes _____
    (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	41	x 3 =	123
FACU species	71	x 4 =	284
UPL species	0	x 5 =	0
Column Totals:	112 (A)		407 (B)

Prevalence Index = B/A =   3.63

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes _____   **No** X

Remarks:

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Loamy/Clayey	
4-5	2.5Y 2.5/1	100					Loamy/Clayey	
5-8	2.5Y 4/2	98	7.5YR 3/4	2	C	PL	Loamy/Clayey	
8-15	7.5YR 3/4	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   Yes _____   No __X__

Remarks:
Resfusal at 15" due to dense cobbles.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present?   Yes _____   No __X__

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/9/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	9
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 10

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08435   Long: -149.75193   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula papyrifera*	15	Yes	FACU
2. *Picea glauca*	15	Yes	FACU
3.			
4.			
	30	=Total Cover	
50% of total cover: 15 20% of total cover: 6			
Sapling/Shrub Stratum			
1. *Heracleum maximum*	15	Yes	FACU
2. *Alnus incana*	10	Yes	FAC
3. *Rubus idaeus*	10	Yes	FACU
4. *Gymnocarpium dryopteris*	1	No	FACU
5. *Rosa acicularis*	1	No	FACU
6.			
	37	=Total Cover	
50% of total cover: 19 20% of total cover: 8			
Herb Stratum			
1. *Calamagrostis canadensis*	40	Yes	FAC
2. *Equisetum arvense*	5	No	FAC
3. *Taraxacum officinale*	1	No	FACU
4. *Trifolium repens*	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	47	=Total Cover	
50% of total cover: 24 20% of total cover: 10			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground _____

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	59	x 4 =	236
UPL species	0	x 5 =	0
Column Totals:	114 (A)		401 (B)

Prevalence Index = B/A =   3.52

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** _____   **No** __X__

Remarks:

SOIL

Sampling Point: 10

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

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

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

Hydric Soil Indicators:

____ Histosol or Histel (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Thick Dark Surface (A12)
____ Alaska Gleyed (A13)
____ Alaska Redox (A14)
____ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

____ Depleted Below Dark Surface (A11)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Red Parent Material (F21)
____ Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   Yes ____   No _X_

Remarks:
Refusal at 2" due to dense gravel/cobble.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2)
____ Drift Deposits (B3)
____ Algal Mat or Crust (B4)
____ Iron Deposits (B5)
____ Surface Soil Cracks (B6)

____ Inundation Visible on Aerial Imagery (B7)
____ Sparsely Vegetated Concave Surface (B8)
____ Marl Deposits (B15)
____ Hydrogen Sulfide Odor (C1)
____ Dry-Season Water Table (C2)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present?   Yes ____   No _X_

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/8/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	10
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Alaska Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 11

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Ravine

Local relief (concave, convex, none):   Concave   Slope (%): 5

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08137   Long: -149.75013   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	_____ =Total Cover		
50% of total cover: _____ 20% of total cover: _____			

Sapling/Shrub Stratum			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	_____ =Total Cover		
50% of total cover: _____ 20% of total cover: _____			

Herb Stratum			
1. *Athyrium filix-femina*	50	Yes	UPL
2. *Calamagrostis canadensis*	30	Yes	FAC
3. *Chamaenerion angustifolium*	3	No	FACU
4. *Heracleum maximum*	3	No	FACU
5. *Sanguisorba canadensis*	1	No	FACW
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
	87 =Total Cover		
50% of total cover: 44 20% of total cover: 18			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2   (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	30	x 3 =	90
FACU species	6	x 4 =	24
UPL species	50	x 5 =	250
Column Totals:	87 (A)		366 (B)

Prevalence Index = B/A =   4.21

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes _____   No X

Remarks:

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1							Peat	
1-5	10YR 3/3	100					Loamy/Clayey	
5-10							Sandy	Gravel/Cobble Refusal

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

Hydric Soil Indicators:

Histosol or Histel (A1)
Histic Epipedon (A2)
Black Histic (A3)
Hydrogen Sulfide (A4)
Thick Dark Surface (A12)
Alaska Gleyed (A13)
Alaska Redox (A14)
Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

Depleted Below Dark Surface (A11)
Depleted Matrix (F3)
Redox Dark Surface (F6)
Depleted Dark Surface (F7)
Redox Depressions (F8)
Red Parent Material (F21)
Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type:
Depth (inches):

Hydric Soil Present?   Yes _____   No __X__

Remarks:
Relect streambed. Refusal at 10" due to gravel/cobble.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Surface Water (A1)
High Water Table (A2)
Saturation (A3)
Water Marks (B1)
Sediment Deposits (B2)
Drift Deposits (B3)
Algal Mat or Crust (B4)
Iron Deposits (B5)
Surface Soil Cracks (B6)

Inundation Visible on Aerial Imagery (B7)
Sparsely Vegetated Concave Surface (B8)
Marl Deposits (B15)
Hydrogen Sulfide Odor (C1)
Dry-Season Water Table (C2)
Other (Explain in Remarks)

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

Field Observations:

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

Wetland Hydrology Present?   Yes _____   No __X__

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	11
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 12

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08149   Long: -149.74670   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
	=Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum			
1. *Sambucus racemosa*	15	Yes	FACU
2. *Alnus incana*	15	Yes	FAC
3. *Picea glauca*	5	No	FACU
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
	35 =Total Cover		
50% of total cover: 18 20% of total cover: 7			

Herb Stratum			
1. *Calamagrostis canadensis*	95	Yes	FAC
2. *Gymnocarpium dryopteris*	10	No	FACU
3. *Equisetum sylvaticum*	4	No	FAC
4. *Equisetum arvense*	2	No	FAC
5. *Heracleum maximum*	4	No	FACU
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
	115 =Total Cover		
50% of total cover: 58 20% of total cover: 23			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

% Cover of Wetland Bryophytes   10   Total Cover of Bryophytes ____
    (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That
Are OBL, FACW, or FAC: 66.7%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	116	x 3 =	348
FACU species	34	x 4 =	136
UPL species	0	x 5 =	0
Column Totals:	150 (A)		484 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes X   No ____

Remarks:

SOIL   Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5							Peat	
5-10	10YR 3/2	100					Loamy/Clayey	
10-22	10YR 4/2	100					Loamy/Clayey	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol or Histel (A1)	___ Depleted Below Dark Surface (A11)	___ Alaska Color Change (TA4)[4]
___ Histic Epipedon (A2)	___ Depleted Matrix (F3)	___ Alaska Alpine Swales (TA5)
___ Black Histic (A3)	___ Redox Dark Surface (F6)	___ Alaska Redox With 2.5Y Hue
___ Hydrogen Sulfide (A4)	___ Depleted Dark Surface (F7)	___ Alaska Gleyed Without Hue 5Y or Redder
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	Underlying Layer
___ Alaska Gleyed (A13)	___ Red Parent Material (F21)	___ Other (Explain in Remarks)
___ Alaska Redox (A14)	___ Very Shallow Dark Surface (F22)	
___ Alaska Gleyed Pores (A15)		

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____   **Hydric Soil Present?   Yes _____   No _X_**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)   ___ Water-Stained Leaves (B9)

___ Surface Water (A1)	___ Inundation Visible on Aerial Imagery (B7)	_X_ Drainage Patterns (B10)
___ High Water Table (A2)	___ Sparsely Vegetated Concave Surface (B8)	___ Oxidized Rhizospheres along Living Roots (C3)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Presence of Reduced Iron (C4)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Salt Deposits (C5)
___ Sediment Deposits (B2)	___ Dry-Season Water Table (C2)	___ Stunted or Stressed Plants (D1)
___ Drift Deposits (B3)	___ Other (Explain in Remarks)	___ Geomorphic Position (D2)
___ Algal Mat or Crust (B4)		___ Shallow Aquitard (D3)
___ Iron Deposits (B5)		___ Microtopographic Relief (D4)
___ Surface Soil Cracks (B6)		___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?   Yes _____   No _X_   Depth (inches): _____

Water Table Present?   Yes _____   No _X_   Depth (inches): _____

Saturation Present?   Yes _____   No _X_   Depth (inches): _____   **Wetland Hydrology Present?   Yes _____   No _X_**

(includes capillary fringe)

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	12
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

<table>
<tr><td colspan="2">U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R</td><td>OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)</td></tr>
</table>

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/9/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 13

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Gentle Slope

Local relief (concave, convex, none):   Concave   Slope (%): 3

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08174   Long: -149.74455   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	70	Yes	FACU
2. *Alnus incana*	30	Yes	FAC
3. *Betula papyrifera*	10	No	FACU
4.			
	110	=Total Cover	
50% of total cover: 55 20% of total cover: 22			

Sapling/Shrub Stratum

	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ribes triste*	30	Yes	FAC
2. *Picea glauca*	10	Yes	FACU
3. *Alnus incana*	5	No	FAC
4.			
5.			
6.			
	45	=Total Cover	
50% of total cover: 23 20% of total cover: 9			

Herb Stratum

	Absolute % Cover	Dominant Species?	Indicator Status
1. *Gymnocarpium dryopteris*	50	Yes	FACU
2. *Heracleum maximum*	3	No	FACU
3. *Calamagrostis canadensis*	2	No	FAC
4. *Streptopus amplexifolius*	1	No	FACU
5. *Equisetum sylvaticum*	1	No	FAC
6.			
7.			
8.			
9.			
10.			
	57	=Total Cover	
50% of total cover: 29 20% of total cover: 12			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That
Are OBL, FACW, or FAC: 40.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	68	x 3 =	204
FACU species	144	x 4 =	576
UPL species	0	x 5 =	0
Column Totals:	212 (A)		780 (B)
Prevalence Index = B/A =	3.68		

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** _____   **No** X

Remarks:

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2							Peat	
2-4	10YR 4/3	100					Loamy/Clayey	
4-6	5Y 4/1	100					Loamy/Clayey	
6-22	2.5YR 3/2	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No __X__

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes _____ No __X__

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

Remarks:

ENG FORM 6116-SG, JUL 2018　　　　Alaska – Version 2.0

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/9/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	13
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 14

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08001   Long: -149.74971   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus incana*	8	Yes	FAC
2. *Picea glauca*	5	Yes	FACU
3.			
4.			
	13	=Total Cover	
50% of total cover: 7 20% of total cover: 3			
Sapling/Shrub Stratum			
1. *Alnus incana*	15	Yes	FAC
2. *Rosa acicularis*	8	Yes	FACU
3. *Rubus idaeus*	2	No	FACU
4.			
5.			
6.			
	25	=Total Cover	
50% of total cover: 13 20% of total cover: 5			
Herb Stratum			
1. *Calamagrostis canadensis*	90	Yes	FAC
2. *Equisetum arvense*	5	No	FAC
3. *Gymnocarpium dryopteris*	5	No	FACU
4. *Streptopus amplexifolius*	5	No	FACU
5. *Equisetum sylvaticum*	5	No	FAC
6. *Heracleum maximum*	2	No	FACU
7. *Mertensia paniculata*	1	No	FACU
8. *Galium trifidum*	1	No	FACW
9.			
10.			
	114	=Total Cover	
50% of total cover: 57 20% of total cover: 23			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That
Are OBL, FACW, or FAC: 60.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	123	x 3 =	369
FACU species	28	x 4 =	112
UPL species	0	x 5 =	0
Column Totals:	152 (A)		483 (B)
Prevalence Index = B/A =		3.18	

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** X   **No** _____

Remarks:

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3							Peat	
3-5	10YR 2/1	100					Loamy/Clayey	
5-9	7.5YR 2.5/1	100					Loamy/Clayey	
9-22	10YR 4/2	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   Yes _____   No __X__

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present?   Yes _____   No __X__

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

Remarks:

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	14
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 15

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.07995   Long: -149.74794   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	50	Yes	FACU
2.			
3.			
4.			
	50	=Total Cover	

50% of total cover: 25   20% of total cover: 10

Sapling/Shrub Stratum			
1. *Alnus incana*	35	Yes	FAC
2. *Cornus canadensis*	30	Yes	FACU
3.			
4.			
5.			
6.			
	65	=Total Cover	

50% of total cover: 33   20% of total cover: 13

Herb Stratum			
1. *Equisetum arvense*	80	Yes	FAC
2. *Spinulum annotinum*	80	Yes	FACU
3. *Calamagrostis canadensis*	30	No	FAC
4. *Heracleum maximum*	2	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	192	=Total Cover	

50% of total cover: 96   20% of total cover: 39

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

% Cover of Wetland Bryophytes   50   Total Cover of Bryophytes ____
     (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That
Are OBL, FACW, or FAC: 40.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	145	x 3 =	435
FACU species	162	x 4 =	648
UPL species	0	x 5 =	0
Column Totals:	307 (A)		1083 (B)

Prevalence Index = B/A =   3.53

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic
Vegetation
Present?**   Yes ____   No __X__

Remarks:

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8		100					Peat	
8-22	10YR 2/1	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?　　Yes ____　　No _X_

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ____	No _X_	Depth (inches): ____	
Water Table Present?	Yes ____	No _X_	Depth (inches): ____	
Saturation Present? (includes capillary fringe)	Yes _X_	No ____	Depth (inches): 0	

Wetland Hydrology Present?　　Yes ____　　No _X_

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

Remarks:
Water table is not present. Saturation due to precipitation.

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	15
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 16

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Broad Terrace

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.07980   Long: -149.74563   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PSS4Bd

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	_____ =Total Cover		
50% of total cover: _____ 20% of total cover: _____			
Sapling/Shrub Stratum			
1. *Picea mariana*	30	Yes	FACW
2. *Dasiphora fruticosa*	5	No	FAC
3. *Rhododendron groenlandicum*	2	No	FAC
4. *Betula nana*	3	No	FAC
5. *Myrica gale*	2	No	OBL
6. *Empetrum nigrum*	2	No	FAC
	48 =Total Cover		
50% of total cover: 24 20% of total cover: 10			
Herb Stratum			
1. *Calamagrostis canadensis*	20	Yes	FAC
2. *Equisetum pratense*	1	No	FACW
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
	21 =Total Cover		
50% of total cover: 11 20% of total cover: 5			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2   (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	31	x 2 =	62
FAC species	36	x 3 =	108
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	69 (A)		172 (B)

Prevalence Index = B/A =   2.49

Hydrophytic Vegetation Indicators:

 X Dominance Test is >50%

 X Prevalence Index is ≤3.0[1]

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

 _____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** X   **No** _____

Remarks:

VEGETATION Continued – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5. _____	____	____	____
6. _____	____	____	____
7. _____	____	____	____
8. _____	____	____	____
9. _____	____	____	____
10. _____	____	____	____
11. _____	____	____	____
12. _____	____	____	____
	____ =Total Cover		
50% of total cover: _____	20% of total cover: _____		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
7. *Vaccinium uliginosum*	2	No	FAC
8. *Vaccinium vitis-idaea*	2	No	FAC
9. _____	____	____	____
10. _____	____	____	____
11. _____	____	____	____
12. _____	____	____	____
13. _____	____	____	____
14. _____	____	____	____
	48 =Total Cover		
50% of total cover: 24	20% of total cover: 10		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
11. _____	____	____	____
12. _____	____	____	____
13. _____	____	____	____
14. _____	____	____	____
15. _____	____	____	____
16. _____	____	____	____
17. _____	____	____	____
18. _____	____	____	____
19. _____	____	____	____
20. _____	____	____	____
21. _____	____	____	____
22. _____	____	____	____
	21 =Total Cover		
50% of total cover: 11	20% of total cover: 5		

Remarks:

SOIL

Sampling Point: 16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22							Peat	

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

Hydric Soil Indicators:

X Histosol or Histel (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Thick Dark Surface (A12)
___ Alaska Gleyed (A13)
___ Alaska Redox (A14)
___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

___ Depleted Below Dark Surface (A11)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   **Yes** X   **No** ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)
___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)

___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
___ Water-Stained Leaves (B9)
X Drainage Patterns (B10)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Salt Deposits (C5)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
X Microtopographic Relief (D4)
X FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present?   Yes X   **No** ____

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

Remarks:
Saturation/water table are not observed due to recent ditch excavation approximately 25 feet south of wetland complex. Artifical drainage occuring.

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension	Sampling Date:	9/8/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities	Sampling Point:	16
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil (left). Excavated linear ditch (left).

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 17

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Hillslope

Local relief (concave, convex, none): Concave   Slope (%): 5

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.07935   Long: -149.75028   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	10	Yes	FACU
2.			
3.			
4.			
	10	=Total Cover	
50% of total cover: 5 20% of total cover: 2			
Sapling/Shrub Stratum			
1. *Alnus incana*	3	Yes	FAC
2. *Rosa acicularis*	2	Yes	FACU
3. *Betula papyrifera*	1	No	FACU
4. *Ribes triste*	1	No	FAC
5. *Populus balsamifera*	1	No	FACU
6.			
	8	=Total Cover	
50% of total cover: 4 20% of total cover: 2			
Herb Stratum			
1. *Calamagrostis canadensis*	60	Yes	FAC
2. *Equisetum arvense*	15	No	FAC
3. *Heracleum maximum*	2	No	FACU
4. *Mertensia paniculata*	1	No	FACU
5. *Sanguisorba canadensis*	1	No	FACW
6.			
7.			
8.			
9.			
10.			
	79	=Total Cover	
50% of total cover: 40 20% of total cover: 16			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	79	x 3 =	237
FACU species	17	x 4 =	68
UPL species	0	x 5 =	0
Column Totals:	97 (A)		307 (B)

Prevalence Index = B/A =   3.16

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes ____   No X

Remarks:

SOIL　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Sampling Point: __17__

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5							Peat	
5-22	2.5Y 4/3	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?　　**Yes** _____　　**No** _X_

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present?　**Yes** _____　**No** _X_

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

Remarks:

ENG FORM 6116-SG, JUL 2018　　　　　　　　　　　　　　　　　　　Alaska – Version 2.0

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	17
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 18

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Hillslope

Local relief (concave, convex, none):   None   Slope (%):   3

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.07852   Long: -149.74899   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

Are Vegetation_____ , Soil_____ , or Hydrology_____ significantly disturbed?   Are "Normal Circumstances" present?   Yes X   No _____

Are Vegetation_____ , Soil_____ , or Hydrology_____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	20	Yes	FACU
2.			
3.			
4.			
	20	=Total Cover	
50% of total cover: 10 20% of total cover: 4			
Sapling/Shrub Stratum			
1. *Vaccinium uliginosum*	7	Yes	FAC
2. *Empetrum nigrum*	5	Yes	FAC
3. *Alnus incana*	3	Yes	FAC
4. *Picea glauca*	3	Yes	FACU
5. *Vaccinium vitis-idaea*	2	No	FAC
6. *Betula papyrifera*	2	No	FACU
	26	=Total Cover	
50% of total cover: 13 20% of total cover: 6			
Herb Stratum			
1. *Calamagrostis canadensis*	5	Yes	FAC
2. *Chamaenerion angustifolium*	1	No	FACU
3. *Pyrola grandiflora*	1	No	FAC
4. *Orthilia secunda*	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	8	=Total Cover	
50% of total cover: 4 20% of total cover: 2			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0
% Cover of Wetland Bryophytes   10   Total Cover of Bryophytes _____
    (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	24	x 3 =	72
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	54 (A)		192 (B)

Prevalence Index = B/A =   3.56

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

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

_____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes X   No _____

Remarks:
Rosa acicularis and Cornus canadensis growing on microtopographic highs.

VEGETATION Continued – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 =Total Cover		

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

Sapling/Shrub Stratum			
7. *Cornus canadensis*	1	No	FACU
8. *Geocaulon lividum*	1	No	FACU
9. *Salix bebbiana*	1	No	FAC
10. *Rosa acicularis*	1	No	FACU
11.			
12.			
13.			
14.			
	26 =Total Cover		

50% of total cover: 13   20% of total cover: 6

Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	8 =Total Cover		

50% of total cover: 4   20% of total cover: 2

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Remarks:

SOIL

Sampling Point: 18

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4							Peat	
4-7	2.5Y 5/2	100					Loamy/Clayey	
7-17	10YR 3/4	100					Loamy/Clayey	Gravelly

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   Yes _____   No __X__

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present?   Yes _____   No __X__

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	18
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 19

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Hillslope

Local relief (concave, convex, none): None   Slope (%): 5

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.07765   Long: -149.74870   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PSS1/EM1B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	____	____	____
2. _____	____	____	____
3. _____	____	____	____
4. _____	____	____	____
	=Total Cover		
50% of total cover: ____	20% of total cover: ____		

Sapling/Shrub Stratum			
1. *Alnus incana*	50	Yes	FAC
2. *Salix bebbiana*	3	No	FAC
3. *Betula papyrifera*	1	No	FACU
4. _____	____	____	____
5. _____	____	____	____
6. _____	____	____	____
	54 =Total Cover		
50% of total cover: 27	20% of total cover: 11		

Herb Stratum			
1. *Calamagrostis canadensis*	60	Yes	FAC
2. *Sanguisorba canadensis*	1	No	FACW
3. *Equisetum pratense*	20	Yes	FACW
4. _____	____	____	____
5. _____	____	____	____
6. _____	____	____	____
7. _____	____	____	____
8. _____	____	____	____
9. _____	____	____	____
10. _____	____	____	____
	81 =Total Cover		
50% of total cover: 41	20% of total cover: 17		

Plot Size (radius, or length x width) 15 ft radius   % Bare Ground 0

% Cover of Wetland Bryophytes 50   Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	21	x 2 =	42
FAC species	113	x 3 =	339
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	135 (A)		385 (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 19

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9							Peat	
9-14	10YR 2/1	100					Loamy/Clayey	
14-22							Peat	

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- _X_ Histic Epipedon (A2)
- ___ Black Histic (A3)
- _X_ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type: ___Silty Clay Loam___
Depth (inches): ___9___

Hydric Soil Present?   Yes _X_   No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- _X_ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)

- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Marl Deposits (B15)
- _X_ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No _X_	Depth (inches): ___		
Water Table Present?	Yes ___	No _X_	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes _X_	No ___	Depth (inches): _0_		

Wetland Hydrology Present?   Yes _X_   No ___

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	**19**
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 20

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Hillslope

Local relief (concave, convex, none):   None   Slope (%):   3

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.07729   Long: -149.74622   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: Upland

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	20	Yes	FACU
2.			
3.			
4.			
	20	=Total Cover	
50% of total cover: 10 20% of total cover: 4			
Sapling/Shrub Stratum			
1. *Empetrum nigrum*	40	Yes	FAC
2. *Cornus canadensis*	25	Yes	FACU
3. *Vaccinium vitis-idaea*	25	Yes	FAC
4. *Betula papyrifera*	10	No	FACU
5. *Men Fru*	10	No	
6. *Picea glauca*	1	No	FACU
	112	=Total Cover	
50% of total cover: 56 20% of total cover: 23			
Herb Stratum			
1. *Calamagrostis canadensis*	20	Yes	FAC
2. *Gymnocarpium dryopteris*	10	Yes	FACU
3. *Orthilia secunda*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	35	=Total Cover	
50% of total cover: 18 20% of total cover: 7			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

% Cover of Wetland Bryophytes   25   Total Cover of Bryophytes ____
    (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	86	x 3 =	258
FACU species	71	x 4 =	284
UPL species	0	x 5 =	0
Column Totals:	157 (A)		542 (B)

Prevalence Index = B/A =   3.45

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** ____   **No** X

Remarks:
Rosa acicularis and Cornus canadensis growing on microtopographic highs.

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Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 =Total Cover		
50% of total cover: 10	20% of total cover: 4		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
7. *Rhododendron groenlandicum*	1	No	FAC
8.			
9.			
10.			
11.			
12.			
13.			
14.			
	112 =Total Cover		
50% of total cover: 56	20% of total cover: 23		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	35 =Total Cover		
50% of total cover: 18	20% of total cover: 7		

Remarks:

SOIL

Sampling Point: 20

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3							Peat	
3-5	7.5YR 5/2	80	7.5YR 4/4	20	C	M	Loamy/Clayey	
5-8	2.5YR 3/4	100					Loamy/Clayey	
8-22	5YR 3/4	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type:
Depth (inches):

Hydric Soil Present?   Yes ____   No __X__

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- Water-Stained Leaves (B9)
- X Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present?   Yes ____   No __X__

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension		Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities		Sampling Point:	20
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed	

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 21

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Flat

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.08281   Long: -149.74873   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PFO4/EM1B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	2	No	FACU
2.			
3.			
4.			
	2	=Total Cover	
50% of total cover: 1 20% of total cover: 1			
Sapling/Shrub Stratum			
1. *Alnus incana*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5 20% of total cover: 2			
Herb Stratum			
1. *Calamagrostis canadensis*	70	Yes	FAC
2. *Polemonium acutiflorum*	1	No	FAC
3. *Sanguisorba canadensis*	1	No	FACW
4. *Heracleum maximum*	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	73	=Total Cover	
50% of total cover: 37 20% of total cover: 15			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

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

Dominance Test worksheet:

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

Total Number of Dominant Species
Across All Strata: 2   (B)

Percent of Dominant Species That
Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	81	x 3 =	243
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	85 (A)		257 (B)
Prevalence Index = B/A =	3.02		

Hydrophytic Vegetation Indicators:

 X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   Yes X   **No** ____

Remarks:
Picea glauca and Ribes triste growing on microtopographic highs.

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SOIL   Sampling Point: ___21___

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9							Peat	
9-12	10YR 2/1	100					Loamy/Clayey	

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

Hydric Soil Indicators:

___ Histosol or Histel (A1)	**Indicators for Problematic Hydric Soils[3]:**	
_X_ Histic Epipedon (A2)	___ Depleted Below Dark Surface (A11)	___ Alaska Color Change (TA4)[4]
___ Black Histic (A3)	___ Depleted Matrix (F3)	___ Alaska Alpine Swales (TA5)
___ Hydrogen Sulfide (A4)	___ Redox Dark Surface (F6)	___ Alaska Redox With 2.5Y Hue
___ Thick Dark Surface (A12)	___ Depleted Dark Surface (F7)	___ Alaska Gleyed Without Hue 5Y or Redder
___ Alaska Gleyed (A13)	___ Redox Depressions (F8)	Underlying Layer
___ Alaska Redox (A14)	___ Red Parent Material (F21)	___ Other (Explain in Remarks)
___ Alaska Gleyed Pores (A15)	___ Very Shallow Dark Surface (F22)	

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present?   Yes _X_   No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)   Secondary Indicators (2 or more required)

		___ Water-Stained Leaves (B9)
_X_ Surface Water (A1)	___ Inundation Visible on Aerial Imagery (B7)	_X_ Drainage Patterns (B10)
_X_ High Water Table (A2)	___ Sparsely Vegetated Concave Surface (B8)	___ Oxidized Rhizospheres along Living Roots (C3)
_X_ Saturation (A3)	___ Marl Deposits (B15)	___ Presence of Reduced Iron (C4)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Salt Deposits (C5)
___ Sediment Deposits (B2)	___ Dry-Season Water Table (C2)	_X_ Stunted or Stressed Plants (D1)
___ Drift Deposits (B3)	___ Other (Explain in Remarks)	___ Geomorphic Position (D2)
___ Algal Mat or Crust (B4)		___ Shallow Aquitard (D3)
___ Iron Deposits (B5)		_X_ Microtopographic Relief (D4)
___ Surface Soil Cracks (B6)		___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _X_	No ____	Depth (inches): _0_	
Water Table Present?	Yes _X_	No ____	Depth (inches): _11_	
Saturation Present? (includes capillary fringe)	Yes _X_	No ____	Depth (inches): _0_	**Wetland Hydrology Present? Yes _X_ No ____**

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

Remarks:
Surface water present in micro lows, white spruce expressing thin branch spacing, site visited two weeks apart to verify hydrology.

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Project/Site:	AMATS: Mountain Air Drive Extension	Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities	Sampling Point:	21
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: AMATS: Mountain Air Drive Extension   Borough/City: MOA/Anchorage   Sampling Date: 9/23/2021

Applicant/Owner: Alaska Department of Transportation & Public Facilities   Sampling Point: 22

Investigator(s): Brooke Therrien & Owen Means   Landform (hillside, terrace, hummocks, etc.): Lowland

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands)   Lat: 61.07930   Long: -149.75079   Datum: NAD83

Soil Map Unit Name: Doroshin Pean, 0 to 7% slopes   NWI classification: PSS1/EM1B

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea mariana*	15	Yes	FACW
2.			
3.			
4.			
	15	=Total Cover	
50% of total cover: 8 20% of total cover: 3			
Sapling/Shrub Stratum			
1. *Vaccinium uliginosum*	20	Yes	FAC
2. *Picea mariana*	8	Yes	FACW
3. *Rubus arcticus*	8	Yes	FAC
4. *Empetrum nigrum*	5	No	FAC
5. *Vaccinium vitis-idaea*	5	No	FAC
6. *Salix pulchra*	2	No	FACW
	52	=Total Cover	
50% of total cover: 26 20% of total cover: 11			
Herb Stratum			
1. *Calamagrostis canadensis*	80	Yes	FAC
2. *Equisetum pratense*	10	No	FACW
3. *Equisetum arvense*	10	No	FAC
4. Carex sp. (Unknown)	20	No	
5.			
6.			
7.			
8.			
9.			
10.			
	120	=Total Cover	
50% of total cover: 60 20% of total cover: 24			

Plot Size (radius, or length x width)   15 ft radius   % Bare Ground   0

% Cover of Wetland Bryophytes   25   Total Cover of Bryophytes _____
     (Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5   (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0%   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	130	x 3 =	390
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	167 (A)		468 (B)

Prevalence Index = B/A =   2.80

Hydrophytic Vegetation Indicators:

 X Dominance Test is >50%

 X Prevalence Index is ≤3.0[1]

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

 _____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present?   **Yes** X   **No** _____

Remarks:

VEGETATION Continued – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 =Total Cover		
50% of total cover: 8	20% of total cover: 3		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
7. *Betula nana*	2	No	FAC
8. *Betula papyrifera*	2	No	FACU
9.			
10.			
11.			
12.			
13.			
14.			
	52 =Total Cover		
50% of total cover: 26	20% of total cover: 11		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	120 =Total Cover		
50% of total cover: 60	20% of total cover: 24		

Remarks:

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16							Peat	

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- X Hydrogen Sulfide (A4)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- Depleted Below Dark Surface (A11)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)

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

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

Restrictive Layer (if observed):
Type:
Depth (inches):

Hydric Soil Present?   Yes X   No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- X High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)

- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- Water-Stained Leaves (B9)
- X Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):	
Water Table Present?	Yes X	No	Depth (inches):	4
Saturation Present?	Yes X	No	Depth (inches):	0
(includes capillary fringe)				

Wetland Hydrology Present?   Yes X   No

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

Remarks:

PHOTO DOCUMENTATION FORM

Project/Site:	AMATS: Mountain Air Drive Extension	Sampling Date:	9/23/21
Applicant/Owner:	Alaska Department of Transportation & Public Facilities	Sampling Point:	22
Investigator(s):	Brooke Therrien & Owen Means	Watershed/Stream:	Rabbit Creek Watershed

Remarks:

Subject: Vegetation, Plot Area.

Subject: Soil.

Appendix C

Final Wetland Mapping
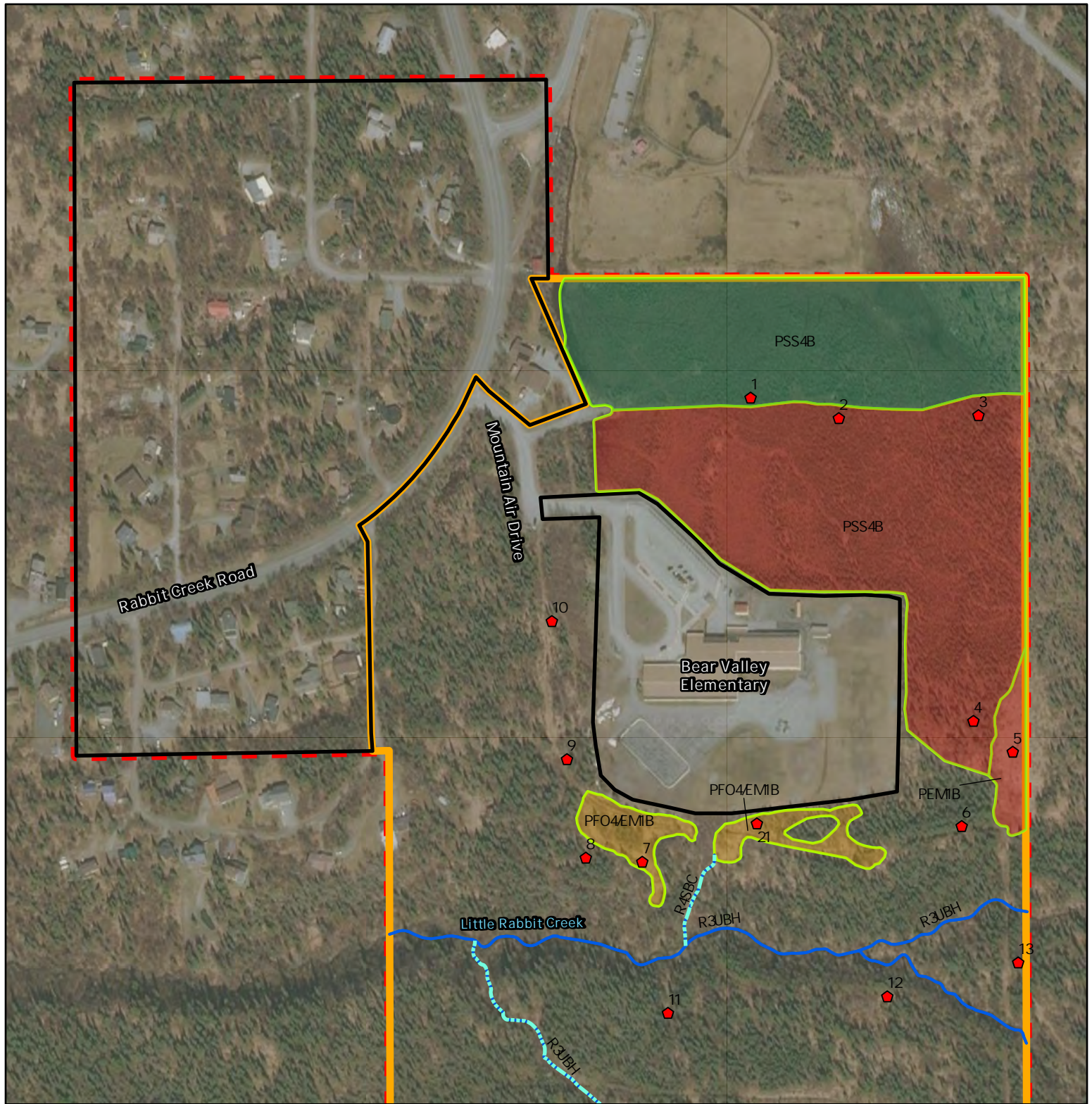
Legend

Project Area

Study Area

Desktop Only

Field Survey

Sampling Points

Riverine

Palustrine

Functional Assessment
- Group 1
- Group 2
- Group 3
- Group 4
- Group 5
- Group 6

N

0   250   500 Feet

AMATS: Mountain Air Drive Extension

Final Wetland Mapping

Page 1 of 2
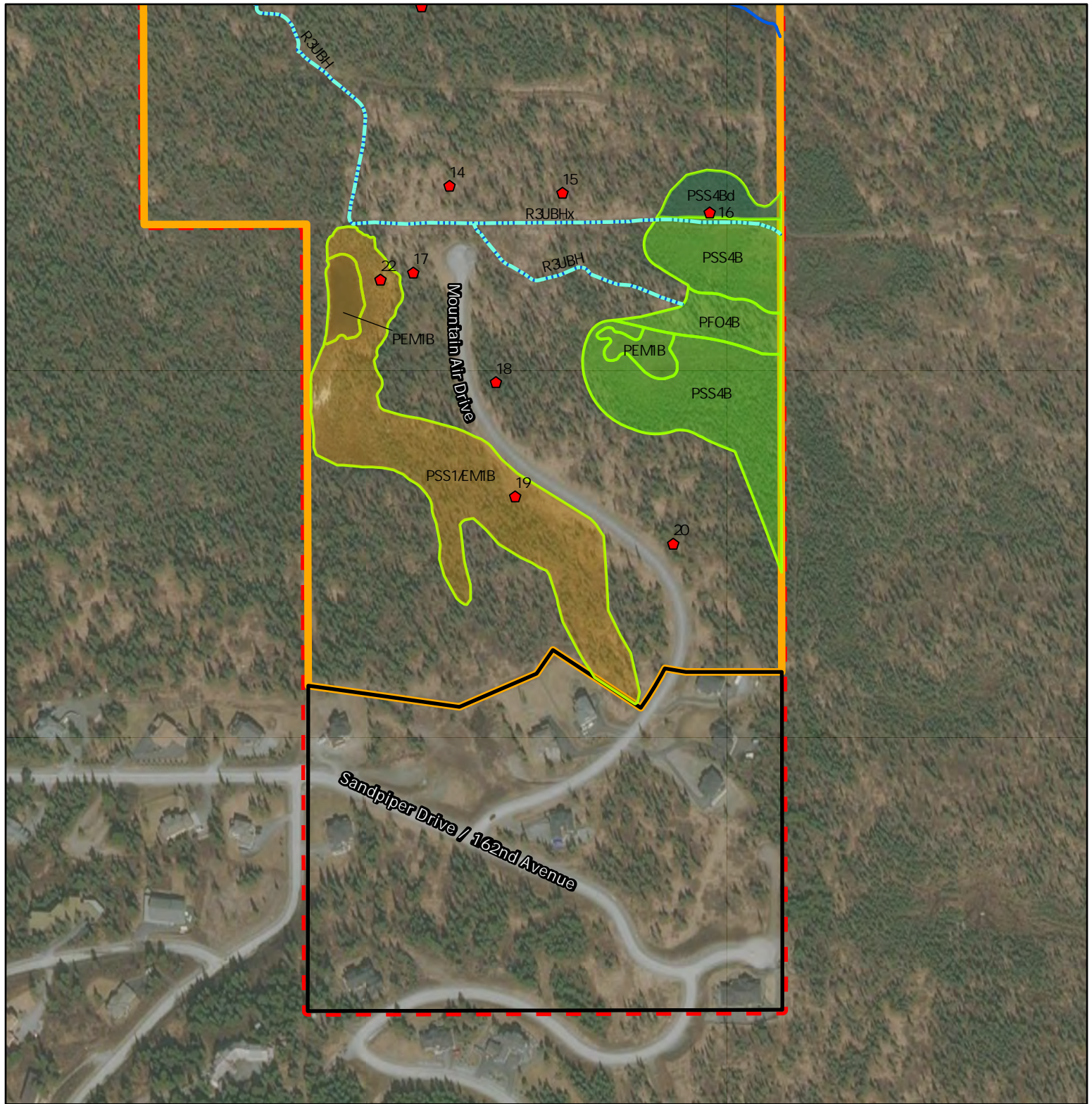
Map labels: PSS4B, PSS4B, PFO4/EM1B, PFO4/EM1B, PEM1B, R4SBC, R3UBH, R3UBH, R3UBH, Little Rabbit Creek, Rabbit Creek Road, Mountain Air Drive, Bear Valley Elementary

Sampling points: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 21

Map labels:
- R3UBH
- 14
- 15
- R3UBHx
- PSS4Bd
- 16
- PSS4B
- R3UBH
- 22
- 17
- PFO4B
- PEM1B
- PEM1B
- Mountain Air Drive
- 18
- PSS1/EM1B
- PSS4B
- 19
- 20
- Sandpiper Drive / 162nd Avenue

Legend:

Project Area

Study Area

Desktop Only

Field Survey

Sampling Points

Riverine

Palustrine

Functional Assessment
- Group 1
- Group 2
- Group 3
- Group 4
- Group 5
- Group 6

N

0   250   500 Feet

AMATS: Mountain Air Drive Extension

Final Wetland Mapping

Page 2 of 2

Appendix D

Waterbody Characterization and Functional Assessment Forms

Project: AMATS: Mountain Air Drive Extension Date: September 2021 Wetland Assessment Group ID: 1 Assessor: B. Therrien					
Approximate Location: Upper Hillside, Anchorage Alaska					
Watershed/Stream(s): Rabbit Creek Watershed.					
Notes: Stream channel with gravel/cobble substrate. Known to support fish resident fish species.					

Waterbody Type	Waterbody Characteristics				Category	
Flowing Waterbody	Any flowing waterbody that has a special status designation (i.e., component of the National Wild and Scenic Rivers System).				1	☐
	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species.				1	☐
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary critical habitat for other species of concern.				2	☐
	Stream	Open Channel; perennial, seasonal intermittent, temporary, or ephemeral	Natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	Supports Salmon	1	☐
				Supports resident and other non-salmon fish species	2	☒
				Not known or thought to support fish	3	☐
			Channelized and not naturalized	Supports salmon	1	☐
				Does not support salmon	3	☐
		Originally a stream; now in a culvert/pipe	Fish passage rating of "no impact on fish passage"	Supports salmon	2	☐
				Does not support salmon	3	☐
			Fish passage rating of "may impact fish passage" or "likely impacts fish passage"	Supports salmon	3	☐
				Does not support salmon	4	☐
	Ditch (originally formed by excavation; did not originally replace a stream)	Open channel; supports salmon			2	☐
		Naturalized; does not support salmon			3	☐
		Not naturalized; does not support salmon			4	☐
	Inactive (abandoned channel)	Seasonally or more often connected to active channel			Same as active channel	☐
		Irregularly (less than annually) connected to active channel that is:	Category 1		1	☐
			Category 2		2	☐
			Category 3		3	☐
			Category 4		4	☐
		No existing connection to an active channel, even at high water			4	☐
Still Waterbody	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species.				1	☐
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary critical habitat for other species of concern.				2	☐
	Other still waterbodies	Supports salmon	Spawning or rearing habitat		1	☐
			Migratory route only		2	☐
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing habitat		1	☐
			Migratory route only		2	☐
		Supports fish not used by humans			3	☐
		Not known or thought to support fish			3	☐

Project: AMATS: Mountain Air Drive Extension **Date:** September 2021 **Wetland Assessment Group ID:** 2 **Assessor:** B. Therrien
Approximate Location:_ Upper Hillside, Anchorage, Alaska
Watershed/Stream(s): Rabbit Creek Watershed.
Notes: Permanent and intermittent streams with gravel/cobble substrate. Not known to support salmon or resident fish species.

Waterbody Type	Waterbody Characteristics				Category	
Flowing Waterbody	Any flowing waterbody that has a special status designation (i.e., component of the National Wild and Scenic Rivers System).				1	☐
	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species.				1	☐
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary critical habitat for other species of concern.				2	☐
	Stream	Open Channel; perennial, seasonal intermittent, temporary, or ephemeral	Natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	Supports Salmon	1	☐
				Supports resident and other non-salmon fish species	2	☐
				Not known or thought to support fish	3	☒
			Channelized and not naturalized	Supports salmon	1	☐
				Does not support salmon	3	☐
		Originally a stream; now in a culvert/pipe	Fish passage rating of "no impact on fish passage"	Supports salmon	2	☐
				Does not support salmon	3	☐
			Fish passage rating of "may impact fish passage" or "likely impacts fish passage"	Supports salmon	3	☐
				Does not support salmon	4	☐
	Ditch (originally formed by excavation; did not originally replace a stream)	Open channel; supports salmon			2	☐
		Naturalized; does not support salmon			3	☐
		Not naturalized; does not support salmon			4	☐
	Inactive (abandoned channel)	Seasonally or more often connected to active channel			Same as active channel	☐
		Irregularly (less than annually) connected to active channel that is:	Category 1		1	☐
			Category 2		2	☐
			Category 3		3	☐
			Category 4		4	☐
		No existing connection to an active channel, even at high water			4	☐
Still Waterbody	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species.				1	☐
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary critical habitat for other species of concern.				2	☐
	Other still waterbodies	Supports salmon	Spawning or rearing habitat		1	☐
			Migratory route only		2	☐
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing habitat		1	☐
			Migratory route only		2	☐
		Supports fish not used by humans			3	☐
		Not known or thought to support fish			3	☐

Wetland Functions Data Form – Alaska Regulatory Best Professional Judgment Characterization
(Modified by HDL, September 2015)

Project: AMATS: Mountain Air Drive Extension **Date:** September 2021 **Wetland Assessment Group ID:** 3 **Assessor:** B. Therrien
Approximate Location: South of Site 16; Shangrila Estates East **Watershed/Nearest Stream:** Rabbit Creek Watershed
Approximate Size (acres): 7.24 **Percent (%) Wetland/Waterbody:** 99% / 1%

A. Flood Flow Regulation (storage and desynchronization)	Rating: MODERATE
1. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 2. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 3. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 4. Wetland has dense (>40% cover) woody vegetation. 5. Wetland receives floodwater from an adjacent water course at least once every 10 years. 6. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☒ N☐ 5. Y☐ N☒ 6. Y☒ N☐ # of Attributes: 2 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function AWAM hydrology value is 80 (Designed C Wetlands).

B. Sediment, Nutrient (N and P), Toxicant Removal	Rating: LOW
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☒ N☐ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function

C. Erosion Control and Shoreline Stabilization (only assess if wetland directly abuts permanent or relatively permanent water)	Rating: Not Rated
1. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 2. An at least moderately dense herbaceous layer is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ # of Attributes: _____ 1-2 attributes (Y)—High Function None—Low Function

D. Production of Organic Matter and its Export	Rating: LOW
1. Wetland has at least 30% cover of herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is at least moderate. 5. Wetland is flooded at least once every 10 years. 6. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years.**	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☐ N☒ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function **If Function 5 or 6 is N, then automatically Low function Automatically low function due to #5 & #6 ratings.

Wetland Functions Data Form – Alaska Regulatory Best Professional Judgment Characterization
(Modified by HDL, September 2015)

E. General Habitat Suitability	Rating: HIGH
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (>5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having >10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☒ N☐ 3. Y☒ N☐ 4. Y☒ N☐ 5. Y☒ N☐ 6. Y☒ N☐ # of Attributes: 6 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function	AWAM habitat value is 112 (Designated A Wetlands); Species Occurance value is 54 & Social Function is 40 (Desingated B Wetlands).

F. General Fish Habitat (must be associated with a fish-bearing water)	Rating: Not Rated
1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Fish are present or are known to be present. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds 6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ 3. Y☐ N☐ 4. Y☐ N☐ 5. Y☐ N☐ 6. Y☐ N☐ # of Attributes: _____ > 4 attributes (Y)—High Function 3-4 attributes (Y)—Moderate Function 0-2 attributes (Y)—Low Function

G. Native Plant Richness	Rating: HIGH
1. At least 20 native plant species occur in the wetland. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☒ N☐ 3. Y☒ N☐ # of Attributes: 3 > 2 attributes (Y)—High Function 1-2 attributes (Y)—Moderate Function None—Low Function	Riverine habitat has been expanded/constructed through ditch construction.

H. Educational, Scientific, Recreational, or Subsistence Use	Rating: LOW
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function	AWAM social function value is 55 (Desingated B Wetlands

I. Uniqueness and Special Status	Rating: LOW
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.** 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service. 3. Wetland has biological, geological, or other features that are determined to be rare. 4. Wetland has been determined significant because it provides functions scarce for the area.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function **If attribute 1 is Y, then automatically High Function

Wetland Functions Data Form – Alaska Regulatory Best Professional Judgment Characterization
(Modified by HDL, September 2015)

Project: AMATS: Mountain Air Drive Extension Date: September 2021 Wetland Assessment Group ID: 4 Assessor: B. Therrien
Approximate Location: Site 1, 16 Watershed/Nearest Stream: Rabbit Creek Watershed
Approximate Size (acres): 10.89 Percent (%) Wetland/Waterbody: 99% / 1%

A. Flood Flow Regulation (storage and desynchronization)	Rating: MODERATE
1. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 2. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 3. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 4. Wetland has dense (>40% cover) woody vegetation. 5. Wetland receives floodwater from an adjacent water course at least once every 10 years. 6. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☒ N☐ 5. Y☐ N☒ 6. Y☒ N☐ # of Attributes: 2 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function AWAM hydrology value is 80 (Designed C Wetlands).

B. Sediment, Nutrient (N and P), Toxicant Removal	Rating: LOW
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (>50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☒ N☐ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function

C. Erosion Control and Shoreline Stabilization (only assess if wetland directly abuts permanent or relatively permanent water)	Rating: Not Rated
1. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 2. An at least moderately dense herbaceous layer is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ # of Attributes: _____ 1-2 attributes (Y)—High Function None—Low Function

D. Production of Organic Matter and its Export	Rating: LOW
1. Wetland has at least 30% cover of herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is at least moderate. 5. Wetland is flooded at least once every 10 years. 6. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years.**	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☐ N☒ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function **If Function 5 or 6 is N, then automatically Low function Automatically low function due to #5 & #6 ratings.

Wetland Functions Data Form – Alaska Regulatory Best Professional Judgment Characterization
(Modified by HDL, September 2015)

E. General Habitat Suitability	Rating: MODERATE
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (>5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having >10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☒ N☐ 3. Y☒ N☐ 4. Y☒ N☐ 5. Y☒ N☐ 6. Y☒ N☐ # of Attributes: 6 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function AWAM habitat value is 112 (Designated A Wetlands); species occurance value is 54 (Desingated B Wetlands)..
F. General Fish Habitat (must be associated with a fish-bearing water)	Rating: Not Rated
1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Fish are present or are known to be present. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds 6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ 3. Y☐ N☐ 4. Y☐ N☐ 5. Y☐ N☐ 6. Y☐ N☐ # of Attributes: _____ > 4 attributes (Y)—High Function 3-4 attributes (Y)—Moderate Function 0-2 attributes (Y)—Low Function
G. Native Plant Richness	Rating: HIGH
1. At least 20 native plant species occur in the wetland. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☒ N☐ 3. Y☒ N☐ # of Attributes: 3 > 2 attributes (Y)—High Function 1-2 attributes (Y)—Moderate Function None—Low Function
H. Educational, Scientific, Recreational, or Subsistence Use	Rating: LOW
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function AWAM social function value is 40 (Desingated B Wetlands).
I. Uniqueness and Special Status	Rating: LOW
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.** 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service. 3. Wetland has biological, geological, or other features that are determined to be rare. 4. Wetland has been determined significant because it provides functions scarce for the area.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function **If attribute 1 is Y, then automatically High Function

Wetland Functions Data Form – Alaska Regulatory Best Professional Judgment Characterization
(Modified by HDL, September 2015)

Project: AMATS: Mountain Air Drive Extension **Date:** September 2021 **Wetland Assessment Group ID:** 5 **Assessor:** B. Therrien
Approximate Location: Site 7, 19, 21, 22 **Watershed/Nearest Stream:** Rabbit Creek Watershed
Approximate Size (acres): 8.67 **Percent (%) Wetland/Waterbody:** 1% / 99%

A. Flood Flow Regulation (storage and desynchronization)	Rating: LOW
1. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 2. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 3. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 4. Wetland has dense (>40% cover) woody vegetation. 5. Wetland receives floodwater from an adjacent water course at least once every 10 years. 6. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☒ N☐ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function AWAM hydrology value is 80 (Designed C Wetlands).

B. Sediment, Nutrient (N and P), Toxicant Removal	Rating: LOW
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (>50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☒ N☐ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function

C. Erosion Control and Shoreline Stabilization (only assess if wetland directly abuts permanent or relatively permanent water)	Rating: Not Rated
1. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 2. An at least moderately dense herbaceous layer is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ # of Attributes: _____ 1-2 attributes (Y)—High Function None—Low Function

D. Production of Organic Matter and its Export	Rating: LOW
1. Wetland has at least 30% cover of herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is at least moderate. 5. Wetland is flooded at least once every 10 years. 6. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years.**	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☐ N☒ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function **If Function 5 or 6 is N, then automatically Low function Automatically low function due to #5 & #6 ratings.

E. General Habitat Suitability	Rating: HIGH
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (>5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having >10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☒ N☐ 3. Y☒ N☐ 4. Y☒ N☐ 5. Y☒ N☐ 6. Y☒ N☐ # of Attributes: 6 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function AWAM habitat value is 112 (Designated A Wetlands); species occurance value is 54 (Desingated B Wetlands).
F. General Fish Habitat (must be associated with a fish-bearing water)	Rating: Not Rated
1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Fish are present or are known to be present. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds 6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ 3. Y☐ N☐ 4. Y☐ N☐ 5. Y☐ N☐ 6. Y☐ N☐ # of Attributes: _____ > 4 attributes (Y)—High Function 3-4 attributes (Y)—Moderate Function 0-2 attributes (Y)—Low Function
G. Native Plant Richness	Rating: HIGH
1. At least 20 native plant species occur in the wetland. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☒ N☐ 3. Y☒ N☐ # of Attributes: 3 > 2 attributes (Y)—High Function 1-2 attributes (Y)—Moderate Function None—Low Function
H. Educational, Scientific, Recreational, or Subsistence Use	Rating: LOW
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function AWAM social function value is 40 (Desingated B Wetlands).
I. Uniqueness and Special Status	Rating: LOW
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.** 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service. 3. Wetland has biological, geological, or other features that are determined to be rare. 4. Wetland has been determined significant because it provides functions scarce for the area.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function **If attribute 1 is Y, then automatically High Function

Wetland Functions Data Form – Alaska Regulatory Best Professional Judgment Characterization
(Modified by HDL, September 2015)

Project: AMATS: Mountain Air Drive Extension **Date:** September 2021 **Wetland Assessment Group ID:** 6 **Assessor:** B. Therrien
Approximate Location: Site 2, 3, 4, 5 **Watershed/Nearest Stream:** Rabbit Creek Watershed
Approximate Size (acres): 16.09 **Percent (%) Wetland/Waterbody:** 99% / 1%

A. Flood Flow Regulation (storage and desynchronization)	Rating: LOW
1. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 2. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 3. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 4. Wetland has dense (>40% cover) woody vegetation. 5. Wetland receives floodwater from an adjacent water course at least once every 10 years. 6. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☒ N☐ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function AWAM hydrology value is 80 (Designed C Wetlands).

B. Sediment, Nutrient (N and P), Toxicant Removal	Rating: LOW
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☒ N☐ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☒ 6. Y☐ N☒ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function

C. Erosion Control and Shoreline Stabilization (only assess if wetland directly abuts permanent or relatively permanent water)	Rating: Not Rated
1. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 2. An at least moderately dense herbaceous layer is present.	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ # of Attributes: _____ 1-2 attributes (Y)—High Function None—Low Function

D. Production of Organic Matter and its Export	Rating: LOW
1. Wetland has at least 30% cover of herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is at least moderate. 5. Wetland is flooded at least once every 10 years. 6. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years.**	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ 5. Y☐ N☐ 6. Y☐ N☒ # of Attributes: 1 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function **If Function 5 or 6 is N, then automatically Low function Automatically low function due to #5 & #6 ratings.

E. General Habitat Suitability	Rating: MODERATE
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (>5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having >10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☐ N☒ 3. Y☒ N☐ 4. Y☒ N☐ 5. Y☒ N☐ 6. Y☒ N☐ # of Attributes: 5 > 4 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function	Overall rating is Moderate due to AWAM species occurance value rating of 18 (Desingated C Wetlands). AWAM habitat value is 89 (Designated A Wetlands)

F. General Fish Habitat (must be associated with a fish-bearing water)	Rating: Not Rated
1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Fish are present or are known to be present. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds 6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).	Likely or not likely to Provide (Y or N) 1. Y☐ N☐ 2. Y☐ N☐ 3. Y☐ N☐ 4. Y☐ N☐ 5. Y☐ N☐ 6. Y☐ N☐ # of Attributes: _____ > 4 attributes (Y)—High Function 3-4 attributes (Y)—Moderate Function 0-2 attributes (Y)—Low Function

G. Native Plant Richness	Rating: HIGH
1. At least 20 native plant species occur in the wetland. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	Likely or not likely to Provide (Y or N) 1. Y☒ N☐ 2. Y☒ N☐ 3. Y☒ N☐ # of Attributes: 3 > 2 attributes (Y)—High Function 1-2 attributes (Y)—Moderate Function None—Low Function

H. Educational, Scientific, Recreational, or Subsistence Use	Rating: LOW
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function	AWAM social function value is 55 (Desingated B Wetlands)

I. Uniqueness and Special Status	Rating: LOW
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.** 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service. 3. Wetland has biological, geological, or other features that are determined to be rare. 4. Wetland has been determined significant because it provides functions scarce for the area.	Likely or not likely to Provide (Y or N) 1. Y☐ N☒ 2. Y☐ N☒ 3. Y☐ N☒ 4. Y☐ N☒ # of Attributes: 0 > 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function **If attribute 1 is Y, then automatically High Function