



Jurisdictional Determination Report

Port Lions Airport Improvements Project (Z527960000)

Alaska Department of Transportation and Public Facilities – Southcoast Region

Port Lions, Alaska
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Prepared for:
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Abbreviations and Acronyms

ADF&G	Alaska Department of Fish and Game
CWA	Clean Water Act
DEM	Digital Elevation Model
DOT&PF	Alaska Department of Transportation and Public Facilities
GIS	Geographic Information System
GPS	global positioning system
HDR	HDR, Inc.
HGM	hydrogeomorphic
HUC	hydrologic unit code
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PEM	palustrine emergent [wetland]
PFO	palustrine forested [wetland]
PSS	palustrine scrub-shrub [wetland]
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
WOUS	Waters of the U.S.

1.0 Introduction and Purpose

The State of Alaska Department of Transportation and Public Facilities (DOT&PF) Southcoast Region is proposing to realign and lengthen the Port Lions Airport runway safety area and conduct other improvements that would address functional, operational, and safety needs to bring the airport into compliance with Federal Aviation Administration and DOT&PF standards. This project requires authorization from the U.S. Army Corps of Engineers (USACE) for work in wetlands or waterbodies. To assist in regulatory permitting activities required for construction, DOT&PF contracted HDR, Inc. (HDR) to conduct wetland and waterbody mapping for the project.

This report identifies wetlands and waterbodies within the study area. Wetlands and waterbodies identified in this report are potentially subject to jurisdiction of the USACE under the authority of Section 404 of the Clean Water Act (CWA) of 1972 (as amended) or Section 10 of the Rivers and Harbors Act of 1899.

The study area is located in the community of Port Lions on the north coast of Kodiak Island, 19 miles west-northwest of the City of Kodiak (Figure 1). The study area is situated on the shore of Settler Cove in Kizhuyak Bay at the base of Mount Ellison (Inset 1). The 331-acre study area includes the existing airport and the proposed airport realignment boundary, as well as potential material sites and waste areas.

The study area is located within the Alaska Peninsula Mountains ecoregion (USACE 2007). The approximate center of the study area is at 57.884954° North latitude and 152.847819° West longitude (NAD83) and is found on the Kodiak D-3 U.S. Geological Survey (USGS) quadrangle, within Township 26 South, Range 22 West, Sections 27, 28, 33, and 34 (Seward Meridian). The study area is within 12-digit hydrologic unit code (HUC) watershed 190807011305, Settler Cove-Frontal Kizhuyak Bay (USGS 2018).



Inset 1. Study Area Location

2.0 Methods

2.1. Field Work

A wetland delineation was previously completed for a portion of the study area in 2006 based on a field survey conducted on October 8 and 9, 2003 (HDR 2006). This field survey collected information using standard Wetland Determination Forms from the 1987 *Wetlands Delineation Manual* (USACE 1987). This data was reevaluated prior to the 2018 field work using the updated methods in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (2007 Regional Supplement)*, USACE 2007); all conclusions of the previously completed Wetland Determination Forms are supported using the current wetland delineation methodology. However, sufficient data was collected in 2018 to characterize the current conditions of the study area and, as a result, the 2003 data are not included in this report.

On May 7, 2018, Mac Salway (Professional Wetland Scientist No. 1762) of HDR conducted a preliminary reconnaissance of the study area. During this field survey information was primarily collected on streams. A biologist from the Alaska Department of Fish and Game (ADF&G) also visited the site on May 7, 2018, and sampled three streams near the airport for fish (ADF&G 2018a).

From July 19 to 24, 2018, Mac Salway, Mike Duffy of Michael Duffy Biological Consulting Services, and Emily Haynes of DOT&PF conducted an on-site investigation of wetlands and waterbodies in the study area. Soil conditions, hydrology, and plant communities were studied using methods described in the 1987 *Wetlands Delineation Manual* and the 2007 *Regional Supplement* (USACE 1987, 2007). The field work occurred within the USACE's recommended growing season for the Alaska Peninsula Mountains ecoregion in which the study area is located (May 15 to October 1; USACE 2007). Additional data on wetland functions and services was also collected during the field investigation and is included in the Wetland and Waterbody Functional Assessment Report for the project (HDR 2019).

Wetlands were identified where wetland scientists observed indicators of hydrophytic vegetation, wetland hydrology, and hydric soils. If any of the three requirements were not met under normal conditions, the site did not meet the USACE criteria for being classified as a wetland. Sites were characterized by completing standard USACE Wetland Determination Forms (*2007 Regional Supplement*). Photographs and observational data were collected at additional locations (Observation Points) to document sites that exhibited characteristics similar to those of areas where a data form had already been completed, or to document the presence (or absence) of a waterbody or stream.

Where feasible, wetland/upland boundaries were determined in the field by completing paired data plots. This process involved completing Wetland Determination Forms near observable transition zones between wetter and drier areas. A Wetland Determination Form was completed in the wetter area to verify its wetland status, and then a second Wetland Determination Form was completed in the drier area to verify its upland status. The wetland/upland boundary between the two data plots was then identified and marked on field maps.

Wetland Determination Forms were completed at 22 sites (Appendix A). Observation Points were collected at an additional 56 locations (Appendix B). Locations of Wetland Determination Form sites and Observation Points were logged into a handheld global positioning system (GPS) unit. In total, field data was collected at 78 locations during the 1-day site reconnaissance in May and the 6-day site visit in July.

2.2. Wetland Mapping and Classification

Upon returning from the field, scientists analyzed field-collected data and reviewed the following datasets in a Geographic Information System (GIS) to delineate and classify wetlands and waterbodies in the study area:

- Color digital ortho-rectified aerial photography at a 0.25-foot ground pixel resolution, provided by DOT&PF (DOT&PF 2018a)
- Digital Elevation Model (DEM) raster dataset at a 1-foot ground pixel resolution, provided by DOT&PF (DOT&PF 2018b)
- National Hydrography Dataset (USGS 2018)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping for USGS quadrangle Kodiak D-3 (USFWS 2018; Figure 2)
- ADF&G Port Lions Airport Trip Report (ADF&G 2018a)
- ADF&G *Anadromous Waters Catalog* (ADF&G 2018b)

Detailed soil survey mapping from the Natural Resources Conservation Service (NRCS) is not available for the study area location.

GPS locations of field-visited sites were overlaid on the aerial photography and other data layers in GIS to identify and classify wetlands and waterbodies present within the study area. Aerial photography vegetation signatures from these field-visited sites were then extrapolated to similar locations throughout the study area, and wetland/upland boundaries were digitized into GIS. Delineating wetlands from aerial photography includes the following methods:

- *Vegetation clues:* Scientists examine aerial photographs for saturation-adapted vegetation communities, indicative canopy structure and height, and presence of hydrophytic plant species.
- *Evidence of soil saturation:* A site's proximity to streams, open water habitat, and marshes can be indicative of shallow subsurface water. Scientists therefore look for visible evidence of wetland hydrology, including surface water and darker areas of photos that indicate surface saturation.
- *Topography:* Evidence of topographic high points and sloped surfaces that would allow soils to drain supports the classification of those areas as upland. Topographic depressions, toes of slopes, and flat topography serve as indicators of potentially poor soil drainage.

Wetlands were classified based on a review of field notes, data forms, and site photographs. Mapped polygons identifying homogeneous wetland and waterbody areas in the GIS-based mapping were attributed with NWI mapping codes based on the USFWS' *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin et al. 1979). Mapped polygons were

also assigned a hydrogeomorphic (HGM) class based on landscape position (Brinson 1993). Streams were mapped as polygons when a stream channel was visible on aerial imagery; otherwise, streams were mapped as line features.

The study area includes portions of the nearshore estuarine waters of Settler Cove. The highest high tide measured at the Port Lions tidal station was 12.18 feet above mean lower-low water (NOAA 2018). The limit of estuarine waters was delineated using the 12-foot elevation contour derived from the DEM dataset provided by DOT&PF.

3.0 Summary of Wetland Indicators

The vegetation, hydrology, and soil conditions described below are based on the field investigation described in Section 2.1. Wetland conditions were documented at 11 of the 22 Wetland Determination Form sites visited. The remaining 11 sites were determined to be upland. Many of these upland sites met the criteria for hydrophytic vegetation, but lacked hydric soil and/or wetland hydrology indicators. The completed Wetland Determination Forms, photographs taken at each site, and tables summarizing the data collected at each site are included in Appendix A.

A total of 56 Observation Points were also documented. Observational data collected at these points includes the wetland or upland status, a description of field indicators of wetland functions, a description of the vegetation community, and/or documentation of the presence of a waterbody or stream. A table summarizing the data collected at each Observation Point and photographs are included in Appendix B. Locations of all sites visited in the field are shown on Figures 2 and 3.

3.1. Vegetation

Vegetation in the study area consists primarily of open Sitka spruce and mixed Sitka spruce-Kenai birch forests, willow and alder dominated scrub, and mesic herb meadows. Table 1 lists the dominant plant species observed at the 22 sites where Wetland Determination Forms were completed. Synonyms of plant species names that were recorded in the field on Wetland Determination Forms are also included in Table 1. The dominant plant species were identified using the “50/20 Rule” from the 2007 *Regional Supplement* (USACE 2007). The Viereck Level III (Viereck et al. 1992) vegetation communities documented at the Wetland Determination Form sites are included in Appendix A. A complete list of all plant species identified at Wetland Determination Form sites is also included in Appendix A.

A total of 18 sites where Wetland Determination Forms were completed had plant communities dominated by hydrophytes. A total of 9 sites were determined to have hydrophytic vegetation based on both the Dominance Test and Prevalence Index, while 9 were determined to be hydrophytic based on the Dominance Test alone.



Table 1. Dominant Plants at Wetland Determination Form Sites

Species	Common Name	Indicator Status ^a	Species	Common Name	Indicator Status ^a
<i>Alnus sinuata</i>	Sitka alder	FAC	<i>Equisetum arvense</i>	Field horsetail	FAC
<i>Arnica chamissonis</i>	Leafy leopardbane	FACW	<i>Gymnocarpium dryopteris</i>	Northern oak fern	FACU
<i>Athyrium cyclosorum</i> (<i>Athyrium felix-femina</i>)	Western lady fern	FAC	<i>Myrica gale</i>	Sweetgale	OBL
<i>Betula kenaica</i>	Kenai birch	FACU	<i>Oplopanax horridus</i>	Devil's-club	FACU
<i>Calamagrostis canadensis</i>	Bluejoint reedgrass	FAC	<i>Picea sitchensis</i>	Sitka spruce	FACU
<i>Carex disperma</i>	Soft-leaf sedge	FACW	<i>Rosa nutkana</i>	Nootka rose	FACU
<i>Carex limosa</i>	Mud sedge	OBL	<i>Rubus spectabilis</i>	Salmonberry	FACU
<i>Carex lyngbyei</i>	Lyngbye's sedge	OBL	<i>Salix barclayi</i>	Barclay's willow	FAC
<i>Circaea alpina</i>	Small enchanter's-nightshade	FACW	<i>Salix pulchra</i>	Diamond-leaf willow	FACW
<i>Comarum palustre</i>	Marsh five-finger	OBL	<i>Salix sitchensis</i>	Sitka willow	FAC
<i>Deschampsia cespitosa</i> ssp. <i>beringensis</i>	Bering's tufted hairgrass	FAC	<i>Sanguisorba canadensis</i>	Canadian burnet	FACW
<i>Dryopteris expansa</i>	Spreading wood fern	FACU	<i>Swertia perennis</i>	Felwort	FACW

^a Wetland Indicator Status (Lichvar et al. 2016). FAC (Facultative): species equally likely to occur in wetlands and non-wetlands; FACU (Facultative Upland): species usually occurs in non-wetlands; FACW (Facultative Wetland): species usually occurs in wetlands; OBL (Obligate): species almost always occurs under natural conditions in wetlands.

3.2. Soils

Detailed NRCS soil mapping does not exist for the study area location. Site-specific soil characteristics were documented at each of the 22 Wetland Determination Form sites. Hydric and non-hydric soils documented in the study area contain thick horizons of ash (ranging from 5 to 12 inches) deposited after the 1912 Novarupta-Katmai volcanic eruption. Hydric soils were found at 11 of the 22 sites. All locations with hydric soil indicators were determined to be wetland. Hydric soil indicators observed at each site are summarized in Appendix A. The most common hydric soil indicator observed was the presence of hydrogen sulfide odor (10 sites), followed by Alaska Redox (9 sites).

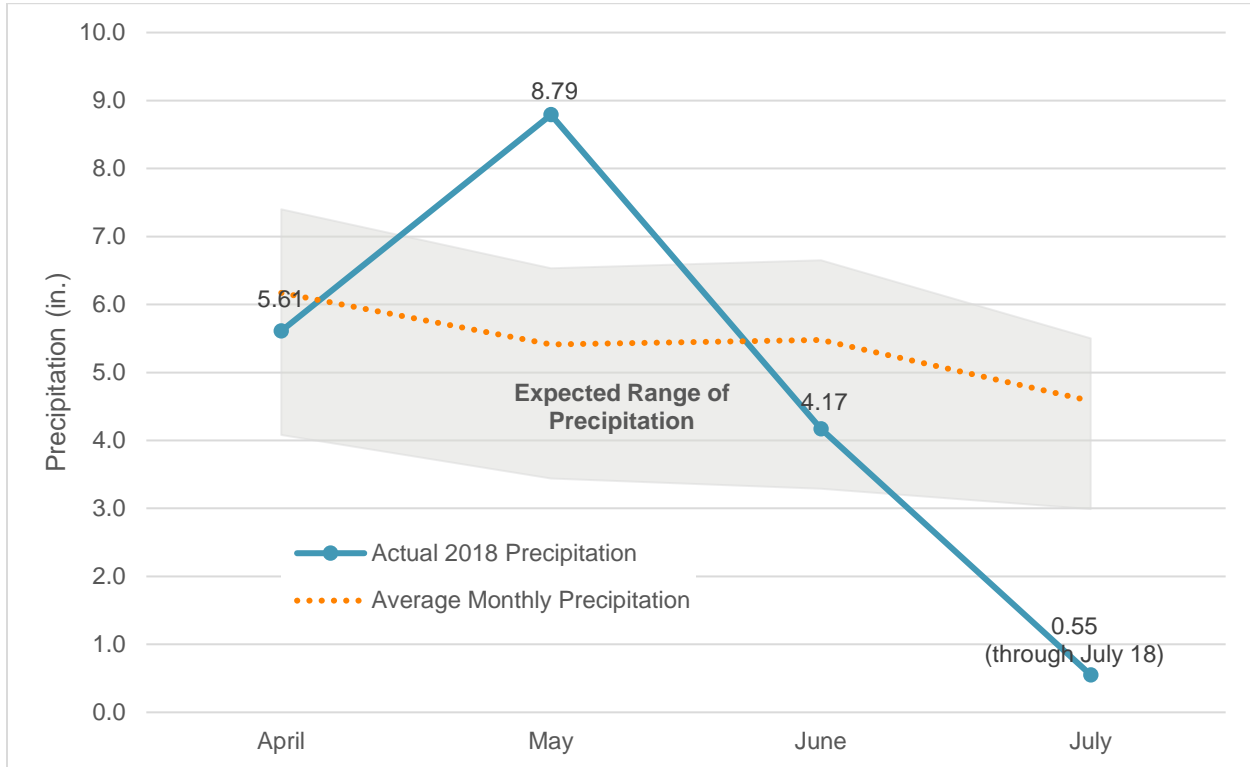
3.3. Hydrology

Precipitation data for the 3 months prior to the field investigation was reviewed to determine the degree to which recent weather (e.g., abnormal wet or dry conditions) had influenced field hydrology. Climate data for the surrounding region was obtained for the Kodiak Airport station, located approximately 19 miles east-southeast from the study area (NRCS 2018). This station has been collecting precipitation data since 1931. The monthly precipitation totals for the 3 months



preceding the July field visit were compared to monthly totals for 1987 to 2017 to establish an expected range of precipitation, per the NRCS *Engineering Field Handbook* method (NRCS 1997). The lower limit of the expected range of precipitation includes the lowest 30 percent of monthly precipitation values, while the upper limit includes the highest 30 percent of monthly precipitation values for the past 30 years. The results of this comparison are shown in Inset 2.

Inset 2. 2018 Monthly Precipitation at Kodiak Airport Compared to Expected Range of Precipitation



Using the NRCS method, it was determined that the precipitation during the 3 months prior to the July field investigation was within the expected range of precipitation. Precipitation in May was above the upper limit of expected precipitation, but precipitation levels in April and June were close to the monthly averages. Less than 2 inches of precipitation fell in the 4 weeks preceding the July fieldwork, less than normal for the region, which may have influenced the lack of primary hydrology indicators observed at some of the sites.

At six sites (Sites 004, 009, 011, 016, 032, and 035), hydrogen sulfide odor was detected in unsaturated soils, and at five of these sites (all except Site 009) the hydrogen sulfide odor was detected deeper than 12 inches in the soil profile.¹ Hydrogen sulfide odor must be detected within 12 inches of the soil surface to apply the primary wetland hydrology indicator.² At these five sites,

¹ Measured from the top of the mineral soil surface or the top of any organic soil layer, whichever is shallower.

² The requirements for the hydrogen sulfide odor hydrology indicator vary slightly from the hydrogen sulfide odor hydric soil indicator. These requirements are defined in the 2007 *Regional Supplement* (USACE 2007). To meet the hydrogen sulfide odor hydric soil indicator, hydrogen sulfide odor must be detected within 12 inches of the soil surface as measured from the top of the first mineral layer (underneath any and all organic

the hydrogen sulfide odor was noted at the interface of the ash (mineral) and buried organic soil horizons. Hydrogen sulfide is more likely to occur in organic soils and less likely to occur in fine volcanic ash, which rapidly conveys water. The soils at these sites were likely recently inundated for sufficient duration for reducing conditions to develop, and the drier than normal antecedent precipitation likely influenced the conditions observed during the field visit. At all six sites, wetland hydrology was determined to be positive through the presence of other primary hydrology indicators, or at least two secondary hydrology indicators.

Wetland hydrology (at least one primary hydrology indicator or at least two secondary hydrology indicators) was present at 12 of the 22 sites where Wetland Determination Forms were completed. Of the 12 sites determined to have wetland hydrology, primary hydrology indicators were observed at 7 sites, while secondary indicators alone were observed at 5 sites. Hydrology indicators observed at each site are summarized in Appendix A.

4.0 Wetland and Waterbody Mapping Results

Approximately 12.2 acres of wetlands were identified within the 330.7-acre study area. Wetland types include forested, scrub-shrub, and emergent wetlands. An additional 38.3 acres were identified as estuarine waters, 0.2 acre as tidally influenced streams, and 0.2 acre as perennial streams. The remaining 279.9 acres of the study area were determined to be upland. Wetland and waterbody classes found within the study area and acreages of each NWI classification are provided in Table 2. Additionally, 25,797 linear feet of perennial and intermittent streams were mapped as line features, summarized in Table 3.

Figure 3 displays wetland, upland, and waterbody boundaries; the boundaries between different wetland and waterbody types; and the linear paths of streams identified in the study area. Locations of the Wetland Determination Form sites and Observation Points are also shown.

material). To meet the hydrogen sulfide odor hydrology indicator, hydrogen sulfide odor must be detected within 12 inches of the soil surface as measured from the mineral soil surface or the top of any organic soil layer, whichever is shallower. Six of the ten sites where hydrogen sulfide odor was detected satisfy the depth requirements to meet the hydrogen sulfide odor hydric soil indicator, but not the hydrogen sulfide odor hydrology indicator.



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Table 2. Mapping Summary

NWI Code ^a	Description	Representative Data Form Sites	Representative Observation Points	Acres ^b
Forested Wetlands				3.18
PFO1/4B	Saturated broad-leaved deciduous/needle-leaved evergreen forested wetland	035	-	1.48
PFO4/1B	Saturated needle-leaved evergreen/broad-leaved deciduous forested wetland	038	-	1.11
PFO4B	Saturated needle-leaved evergreen forested wetland	004	-	0.59
Scrub-Shrub Wetlands				8.07
PSS1/EM1B	Saturated broad-leaved deciduous scrub-shrub/persistent emergent wetland	016, 032	-	0.57
PSS1/EM1C	Seasonally flooded broad-leaved deciduous scrub-shrub/persistent emergent wetland	006, 009, 031	-	4.57
PSS1C	Seasonally flooded broad-leaved deciduous scrub-shrub wetland	003, 011	-	2.59
PSS4/EM1B	Saturated needle-leaved evergreen scrub-shrub/persistent emergent wetland	-	-	0.34
Emergent Wetlands				0.91
PEM1F	Semi-permanently flooded persistent emergent wetland	039	-	0.91
			Total Wetlands	12.16
Estuarine Waters				38.25
E1UBL	Subtidal estuarine water with an unconsolidated bottom	-	-	18.64
E2USP	Irregularly flooded intertidal estuarine unconsolidated shore	-	-	19.61
Streams				0.43
R1UBV	Permanently flooded tidal stream with an unconsolidated bottom	-	596, 597	0.22
R3UBH	Permanently flooded upper perennial stream with an unconsolidated bottom	-	025, 594, 595	0.21
			Total Waterbodies	38.68
			Total Wetlands and Waterbodies	50.84
Uplands				
U	Upland	001, 007, 010, 012, 013, 014, 021, 022, 023, 037, 040	005, 018, 041, 042, 561b, 576, 585, 587	279.91
			Total Uplands	279.91
			Total Mapped Area	330.74

^a Cowardin et al. 1979

^b Total acreage presented may not reflect the sum of the individual cells due to rounding.



Table 3. Stream Mapping Summary

NWI Code^a	Description	Representative Observation Points	Linear Feet^b
R3UBH	Permanently flooded perennial stream with an unconsolidated bottom	029, 036, 579, 580, 586, 591, 592, 597, 599	9,998 ^c
R3UBH - culverted	Permanently flooded perennial stream routed through a culvert	593, 594, 598	178
R4SBC	Seasonally flooded intermittent streambed	002, 015, 017, 019, 020, 024, 026, 026b, 027, 028, 030, 033, 034, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 573, 574, 575, 588, 590	15,594
R4SBC - culverted	Seasonally flooded intermittent stream routed through a culvert	008	27
Total Streams			25,797

^a Cowardin et al. 1979

^b Total linear feet presented may not reflect the sum of the individual cells due to rounding.

^c Does not include length of streams mapped as polygons presented in Table 2.

5.0 Wetland and Waterbody Classification

The following wetland classes and waterbody types were documented within the study area.

5.1. Palustrine Forested Wetlands

Palustrine forested (PFO) wetlands are found in the large slope wetland complex at the base of Mount Ellison, to the north and northeast of the airport runway. Forested wetlands were documented at three Wetland Determination Form locations (Sites 004, 035, and 038) and comprise 3.2 acres (1.0 percent of the study area). Documented communities include open Sitka spruce forest and open mixed needle-leaf and broadleaf forests co-dominated by Sitka spruce and Kenai birch. These communities have understories with sparse shrub cover and herbaceous species including bluejoint reedgrass, field horsetail, Lyngbye's sedge, and mud sedge. All forested wetlands within the study area have a saturated hydrologic regime. Hydrogen sulfide odor was noted at all three sites, and at two sites (Sites 035 and 038) a histic epipedon and the Alaska Redox hydric soil indicators were also present.

5.2. Palustrine Scrub-Shrub Wetlands

Palustrine scrub-shrub (PSS) wetlands are the most common wetland type mapped within the study area (8.1 acres, 2.4 percent of the study area). These communities were mapped in the large slope wetland complex at the base of Mount Ellison, and in small swales on the steep hillsides above the airport. Documented communities include open willow and willow-alder shrub, and sweetgale-sedge bogs. Trees are typically absent, or their cover is less than 25 percent. Vegetation in the shrub stratum is dominated by Barclay's willow, diamondleaf willow, Sitka alder, or sweetgale. Common emergent vegetation in the herbaceous stratum includes Lyngbye's sedge, marsh five-finger, bluejoint reedgrass, and Bering's tufted hairgrass.

The mapped scrub-shrub wetlands predominantly have a seasonally flooded hydrologic regime, indicated by the presence of multiple seeps and stream channels. The most commonly documented hydric soil indicators at scrub-shrub wetland sites were hydrogen sulfide odor and Alaska Redox.

5.3. Palustrine Emergent Wetlands

One palustrine emergent (PEM) wetland was mapped within the study area (0.9 acre, 0.3 percent of the study area) and represents the wettest portion of the large slope wetland complex. Trees and shrubs are absent, and vegetation is dominated by Lyngbye's sedge. The wetland has a semi-permanently flooded hydrologic regime. Multiple streams cross the wetland and flow to Settler Cove through a culvert under the road east of the runway. A histic epipedon, hydrogen sulfide odor, and Alaska Redox were documented as hydric soil indicators at this site (Site 039).

5.4. Streams

Three tidal streams were mapped where perennial flow enters Settler Cove (0.2 acre, 0.1 percent of the study area). These streams are tidally influenced channels with cobble and gravel substrates.

One larger perennial stream known locally as Airport Creek was mapped as a polygon (0.2 acre, 0.1 percent of the study area). This stream is 10 to 15 feet wide with cobble substrate and is included in the ADF&G *Anadromous Waters Catalog* as spawning habitat for pink salmon (ADF&G 2018b). The stream enters the study area from the west approximately 375 feet north of Airport Road and flows for approximately 1,300 feet before flowing through a culvert under Airport Road, ultimately discharging into Settler Cove. ADF&G biologists captured three young-of-year pink salmon in a pool below the culvert (ADF&G 2018a). All fish bearing streams are identified in the Wetland and Waterbody Functional Assessment Report (HDR 2019).

Multiple upper perennial and intermittent streams drain from the slopes of Mount Ellison through the study area to Settler Cove. Perennial streams (R3UBH) range from less than 1 foot to 10 feet wide, typically with cobble and gravel substrates. Approximately 10,176 linear feet of perennial streams were mapped (including streams routed through culverts). Intermittent streams (R4SBC) include small seep-fed channels with muck substrates and snow-melt fed channels ranging from 1 to 5 feet wide with cobble and gravel substrates. Approximately 15,621 linear feet of intermittent channels were mapped (including streams routed through culverts). Several intermittent streams were observed to end at the slope break at the base of Mount Ellison. Flow from these streams likely infiltrates into the thick layers of fine volcanic ash that was documented throughout the area, and likely continues as shallow subsurface flow before entering larger perennial streams, wetland complexes, or Settler Cove.

5.5. Estuarine Waters

The study area includes subtidal and intertidal estuarine areas of Settler Cove (38.2 acres, 11.6 percent of the study area). Subtidal areas (E1UBL) are permanently inundated waters that are flooded at all tides. Intertidal areas (E2USP) are mapped as irregularly flooded unconsolidated shore, and consist of unvegetated gravel and cobbles.

5.6. Uplands

Uplands (U) comprise the majority of the study area (280.1 acres, 84.7 percent of the study area). Mapped uplands include the steep hillsides and footslopes of Mount Ellison as well as filled areas of the airport runway and Airport Road. Vegetation communities in undisturbed uplands include open Sitka spruce forest, open Kenai birch forest, closed alder and/or willow shrub, and herbaceous meadows. Ten of the eleven uplands documented with Wetland Determination Forms lacked both wetland hydrology and hydric soils. Soil textures range from silty loams to gravels.

A small pond was documented north of the runway during the 2003 wetland field survey at the location where Sites 021 and 576 are currently located (HDR 2006). Photographs taken in 2003 show the area as inundated tall willows; however no wetland determination forms were completed. The area was visited twice in 2018, during both the May and July field surveys. The area was disturbed with the ash layer completely removed and overburden piles surrounding the area. The soil consisted of compacted gravel. No primary indicators of hydrology were observed during either site visit. A Wetland Determination Form (Site 021) was completed during the July field survey and the area was determined upland with hydrophytic vegetation and wetland hydrology, but no hydric soil indicators.

6.0 Jurisdictional Determination

The regulatory authority of Section 404 of the CWA, as administered by the USACE, has been subject to several lengthy legal reviews. In a 2006 decision on the consolidated cases *Rapanos v. United States* and *Carabell v. United States*, the U.S. Supreme Court addressed where the federal government can apply the CWA, specifically by determining whether a wetland or tributary is a Water of the U.S. (WOUS). On June 6, 2007, the U.S. Environmental Protection Agency (USEPA) and the USACE issued joint guidance to implement the court's decision. The USEPA and the USACE issued revised guidance on December 2, 2008 ("Rapanos guidance"; USEPA and USACE 2008). The Rapanos guidance is now used by USEPA regions and USACE districts to determine whether aquatic resources such as lakes, streams, and wetlands are WOUS subject to regulation under the CWA.

Under the Rapanos guidance, relatively permanent tributaries of navigable waters, and wetlands that directly abut such tributaries, are considered jurisdictional under Section 404 of the CWA. Jurisdiction over tributaries of navigable waters that are not relatively permanent and over wetlands that abut such tributaries is determined based on whether those areas have a significant nexus with a navigable water. Under the CWA, navigable waters are defined to include territorial seas (which are all ocean waters extending to 3 miles from the coastline).

The study area is within the Settler Cove-Frontal Kizhuyak Bay 12-digit HUC watershed and includes portions of Settler Cove, which is ocean waters included within the definition of territorial seas. Most of the wetlands and waterbodies mapped within the study area have a direct perennial or seasonal surface connection to Settler Cove and are likely to be considered WOUS subject to USACE jurisdiction.

Five intermittent streams within the study area are not directly connected to downstream wetlands or navigable waters. These streams are fed by snow melt and/or seeps, and flowing surface water is likely present for extended periods in the early growing season but absent by the end of the season. These streams end at the slope break at the base of Mount Ellison. One mapped wetland (described at Site 016) is contiguous to one of the intermittent streams.

One of these intermittent streams terminates at the material site north of the airport. The flow ends at Site 571 at an overburden pile at the edge of the material site where it infiltrates into the ground. The flow then re-channelizes at Site 573 into another intermittent stream immediately below the material site and flows east along the northern edge of the runway until it reaches a disturbance area, where it again infiltrates into the subsurface. Subsurface flow continues east until it reaches the wetland complex that has a direct connection to Settler Cove. These two intermittent streams were likely connected and likely flowed directly into Settler Cove prior to construction of the material site and airport runway.

The other three intermittent streams terminate at the slope break to the west of the large slope wetland complex. These streams likely infiltrate into the volcanic ash layer that is prevalent throughout the study area. Flow from these streams likely continues as shallow subsurface flow through the ash layer for approximately 250 to 400 feet before reemerging and forming the intermittent and perennial streams at the west end of the wetland complex. Information on the

connectivity of these three streams prior to the 1912 Novarupta-Katmai volcanic eruption that deposited ash throughout the area is not available.

Although five intermittent streams within the study area lack a direct connection to Settler Cove, there is evidence that they are connected to other relatively permanent tributaries of Settler Cove via shallow subsurface flow through the porous ash layer. This flow likely represents a significant nexus because it allows water to move readily between the intermittent streams and Settler Cove. All five streams also terminate within approximately 1,100 feet of Settler Cove. Because of the adjacency of these streams to Settler Cove, they would likely be considered “neighboring” a WOUS and therefore under USACE jurisdiction. The wetland contiguous to one of the intermittent streams would thus also likely be considered a WOUS.

All wetlands and waterbodies mapped within the study area, totaling 12.2 acres of wetlands and 38.2 acres of waterbodies (streams and estuarine areas), as well as 25,797 linear feet of perennial and intermittent streams, are preliminarily identified as jurisdictional under Section 404 of the CWA; however, the final determination of jurisdictional status lies with the USACE.

7.0 References

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Figures

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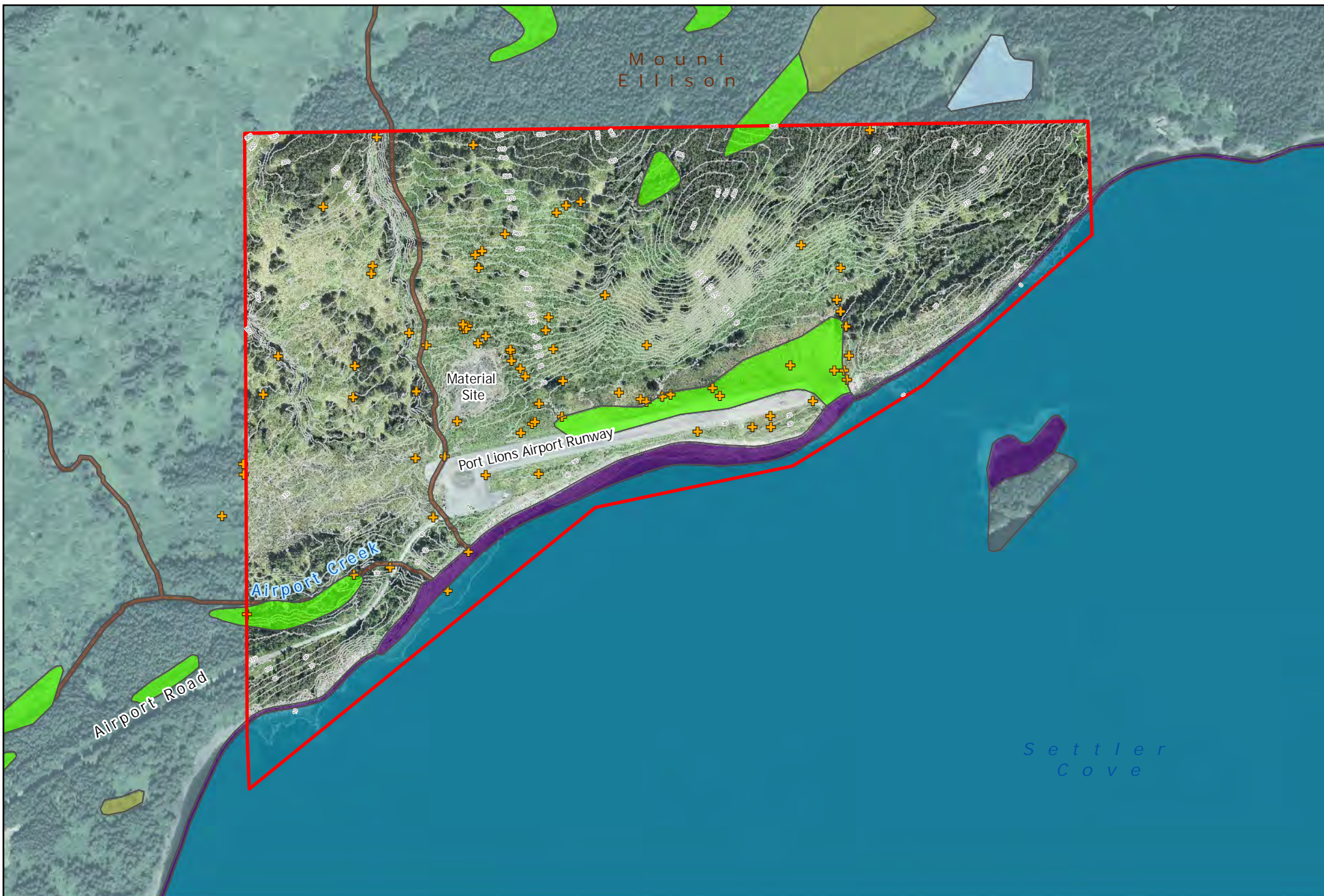
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- Study Area
- City



Figure 1: Vicinity Map
 Port Lions Airport Improvements
 Jurisdictional Determination Report

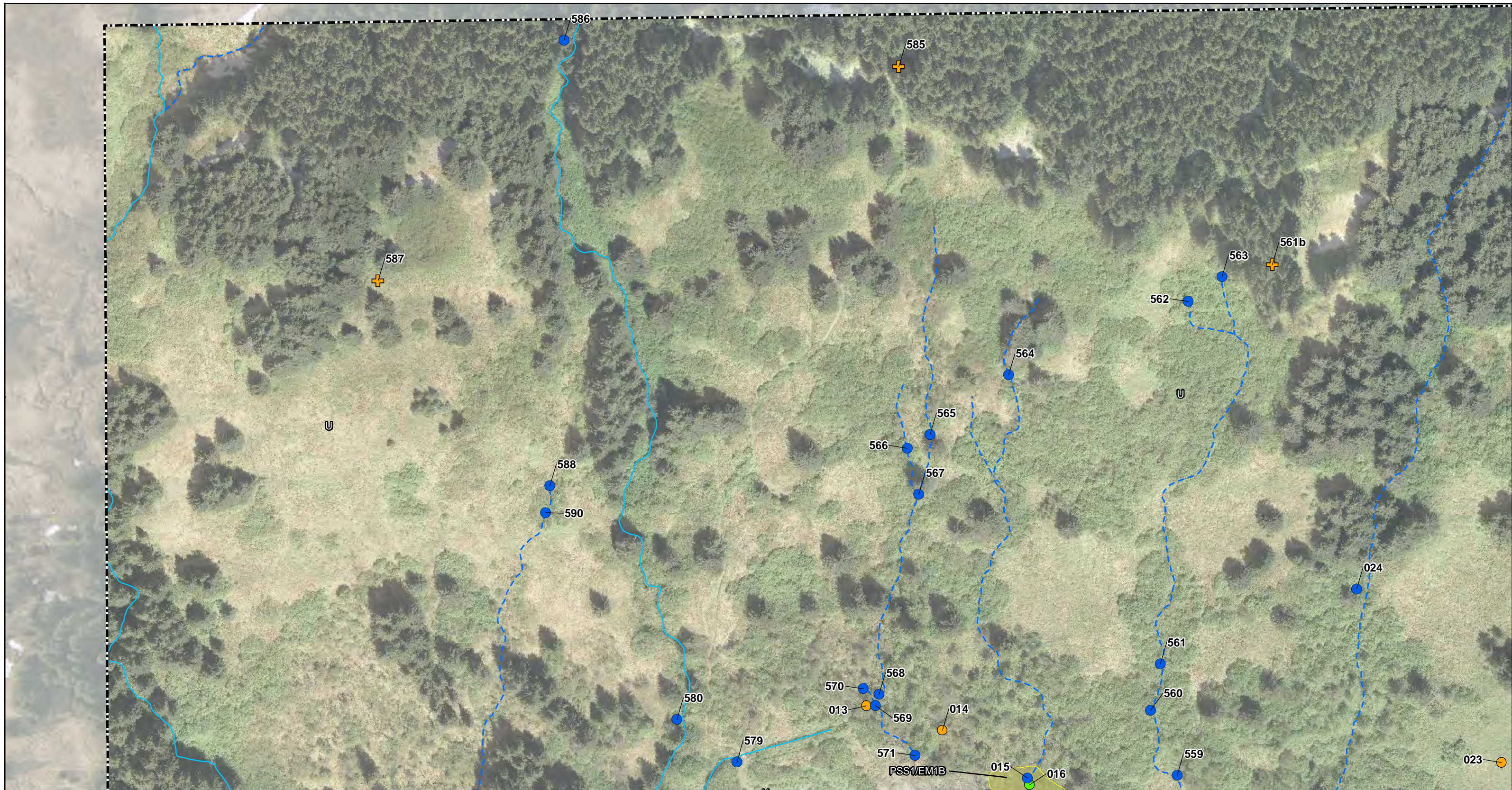
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- | | | |
|---------------------------|--|-----------------------------------|
| Study Area | NWI Wetland and Waterbody Mapping | Freshwater Forested/Shrub Wetland |
| 10 ft. Contours | Estuarine and Marine Deepwater | Freshwater Pond |
| 2018 Data Collection Site | Estuarine and Marine Shore | Stream |
| | Freshwater Emergent Wetland | |

Figure 2: Study Area Overview and NWI Mapping
 Port Lions Airport Improvements
 Jurisdictional Determination Report





- Study Area
- Mapped Wetland
- Mapped Waterbody
- Mapped Perennial Stream (R3UBH)
- Mapped Intermittent Stream (R4SBC)
- Wetland Determination Form, Upland
- Wetland Determination Form, Wetland
- Stream Crossing
- Observation Point, Upland

NWI Descriptions

R3UBH - Permanently flooded upper perennial stream with an unconsolidated bottom

R4SBC - Seasonally flooded intermittent streambed

PSS1/EM1B - Saturated broad-leaved deciduous scrub-shrub/persistent emergent wetland

U - Upland

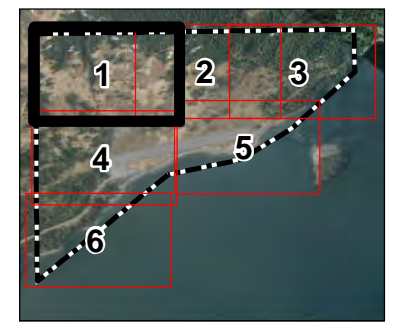
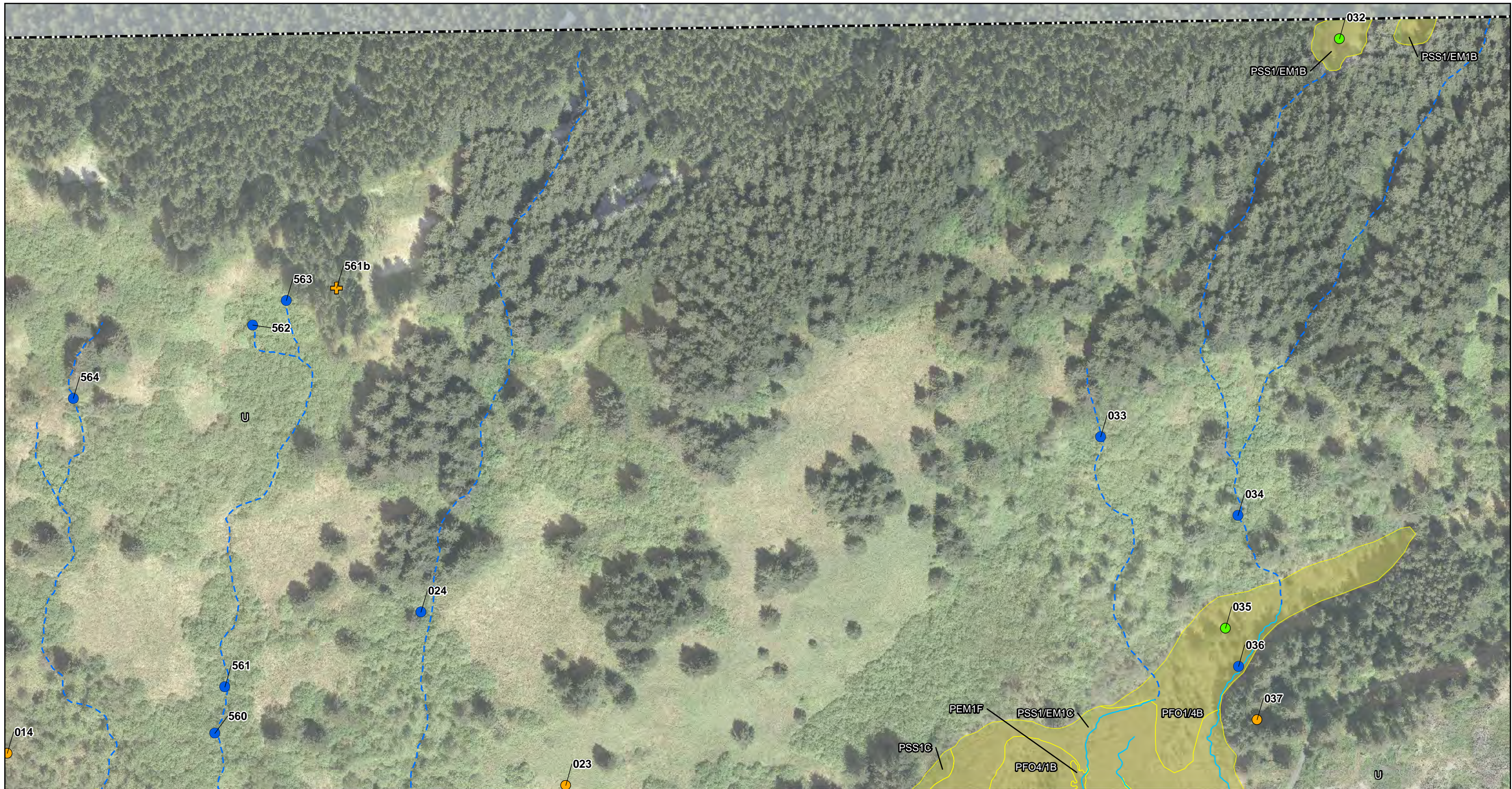


Figure 3: Wetland and Waterbody Mapping

Port Lions Airport Improvements
Jurisdictional Determination Report

Tile: 1 of 6

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- Study Area
- Mapped Wetland
- Mapped Waterbody
- Mapped Perennial Stream (R3UBH)
- Mapped Intermittent Stream (R4SBC)
- Wetland Determination Form, Upland
- Wetland Determination Form, Wetland
- Stream Crossing
- Observation Point, Upland

NWI Descriptions

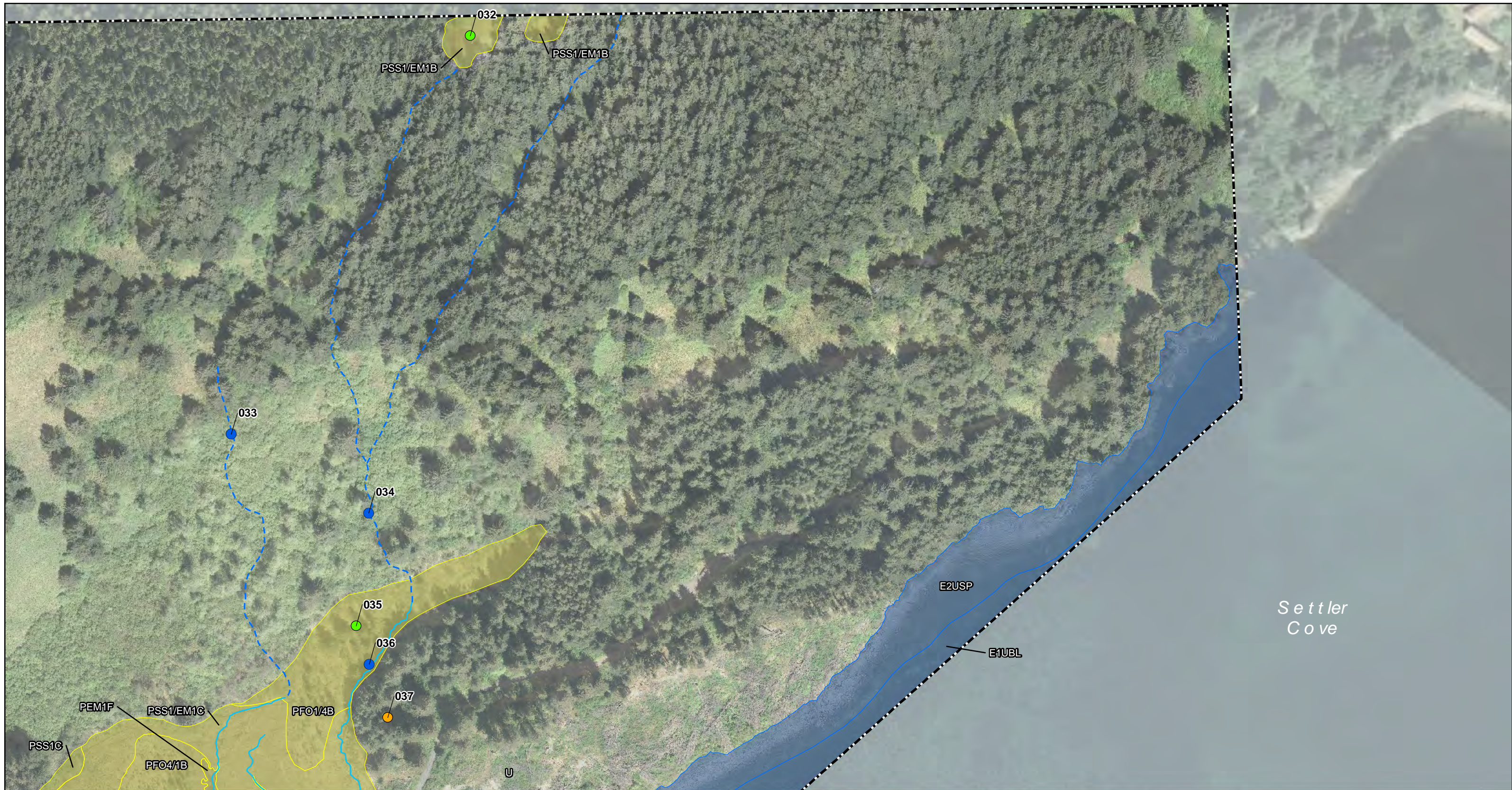
R3UBH - Permanently flooded upper perennial stream with an unconsolidated bottom
 R4SBC - Seasonally flooded intermittent streambed
 PEM1F - Semi-permanently flooded persistent emergent wetland
 PFO1/4B - Saturated broad-leaved deciduous/needle-leaved evergreen forested wetland
 PFO4/1B - Saturated needle-leaved evergreen/broad-leaved deciduous forested wetland

PSS1/EM1B - Saturated broad-leaved deciduous scrub-shrub/persistent emergent wetland
 PSS1/EM1C - Seasonally flooded broad-leaved deciduous/persistent emergent wetland
 PSS1C - Seasonally flooded broad-leaved deciduous scrub-shrub wetland
 U - Upland



Figure 3: Wetland and Waterbody Mapping
 Port Lions Airport Improvements
 Jurisdictional Determination Report
 Tile: 2 of 6

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- Study Area
- Mapped Wetland
- Mapped Waterbody
- Mapped Perennial Stream (R3UBH)
- Mapped Intermittent Stream (R4SBC)
- Wetland Determination Form, Upland
- Wetland Determination Form, Wetland
- Stream Crossing

NWI Descriptions

R3UBH - Permanently flooded upper perennial stream with an unconsolidated bottom
 R4SBC - Seasonally flooded intermittent streambed
 E1UBL - Subtidal estuarine water with an unconsolidated bottom
 E2USP - Irregularly flooded intertidal estuarine unconsolidated shore
 PEM1F - Semi-permanently flooded persistent emergent wetland
 PFO1/4B - Saturated broad-leaved deciduous/needle-leaved evergreen forested wetland

PFO4/1B - Saturated needle-leaved evergreen/broad-leaved deciduous forested wetland
 PSS1/EM1B - Saturated broad-leaved deciduous scrub-shrub/persistent emergent wetland
 PSS1/EM1C - Seasonally flooded broad-leaved deciduous/persistent emergent wetland
 PSS1C - Seasonally flooded broad-leaved deciduous scrub-shrub wetland
 U - Upland



Figure 3: Wetland and Waterbody Mapping
 Port Lions Airport Improvements
 Jurisdictional Determination Report
 Tile: 3 of 6

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- Study Area
- Mapped Wetland
- Mapped Waterbody
- Mapped Perennial Stream (R3UBH)
- Mapped Intermittent Stream (R4SBC)
- Wetland Determination Form, Upland
- Wetland Determination Form, Wetland
- Stream Crossing
- Observation Point, Upland

NWI Descriptions

R3UBH - Permanently flooded upper perennial stream with an unconsolidated bottom
R4SBC - Seasonally flooded intermittent streambed
E1UBL - Subtidal estuarine water with an unconsolidated bottom
E2USP - Irregularly flooded intertidal estuarine unconsolidated shore
PSS1/EM1B - Saturated broad-leaved deciduous scrub-shrub/persistent emergent wetland
PSS1/EM1C - Seasonally flooded broad-leaved deciduous/persistent emergent wetland
PSS1C - Seasonally flooded broad-leaved deciduous scrub-shrub wetland
R1UBV - Permanently flooded tidal stream with an unconsolidated bottom
R3UBH - Upper perennial stream with permanently flooded unconsolidated bottom
U - Upland



Figure 3: Wetland and Waterbody Mapping
Port Lions Airport Improvements
Jurisdictional Determination Report
Tile: 4 of 6

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- Study Area
- Mapped Wetland
- Mapped Waterbody
- Mapped Perennial Stream (R3UBH)
- Mapped Intermittent Stream (R4SBC)
- Wetland Determination Form, Upland
- Wetland Determination Form, Wetland
- Stream Crossing
- Observation Point, Upland

NWI Descriptions

R3UBH - Permanently flooded upper perennial stream with an unconsolidated bottom
 R4SBC - Seasonally flooded intermittent streambed
 E1UBL - Subtidal estuarine water with an unconsolidated bottom
 E2USP - Irregularly flooded intertidal estuarine unconsolidated shore
 PEM1F - Semi-permanently flooded persistent emergent wetland
 PFO1/4B - Saturated broad-leaved deciduous/needle-leaved evergreen forested wetland
 PFO4/1B - Saturated needle-leaved evergreen/broad-leaved deciduous forested wetland

PFO4B - Saturated needle-leaved evergreen forested wetland
 PSS1/EM1C - Seasonally flooded broad-leaved deciduous/persistent emergent wetland
 PSS1C - Seasonally flooded broad-leaved deciduous scrub-shrub wetland
 PSS4/EM1B - Saturated needle-leaved evergreen/persistent emergent wetland
 R1UBV - Permanently flooded tidal stream with an unconsolidated bottom
 U - Upland



Figure 3: Wetland and Waterbody Mapping
 Port Lions Airport Improvements
 Jurisdictional Determination Report
 Tile: 5 of 6

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- Study Area
- Mapped Wetland
- Mapped Waterbody
- Stream Crossing

NWI Descriptions

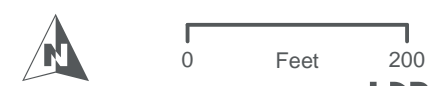
- E1UBL - Subtidal estuarine water with an unconsolidated bottom
- E2USP - Irregularly flooded intertidal estuarine unconsolidated shore
- R1UBV - Permanently flooded tidal stream with an unconsolidated bottom
- R3UBH - Upper perennial stream with permanently flooded unconsolidated bottom
- U - Upland



Figure 3: Wetland and Waterbody Mapping

Port Lions Airport Improvements
Jurisdictional Determination Report

Tile: 6 of 6



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Appendix A

Wetland Determination Forms and Photographs

July 19 and 22-23, 2018

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Appendix A: Summary of Wetland Determination Form Sites

Site	Latitude	Longitude	NWI Code ^a	HGM Class ^b	Viereck Level III Code ^c
1	57.88550	-152.84679	U	N/A	IIB1
3	57.88557	-152.84576	PSS1C	Slope	IIB1
4	57.88567	-152.84432	PFO4B	Slope	IA2
6	57.88596	-152.83980	PSS1/EM1C	Slope	IIC2
7	57.88623	-152.83963	U	N/A	IIB2
9	57.88514	-152.84236	PSS1/EM1C	Slope	IIC2
10	57.88495	-152.84235	U	N/A	IIB1
11	57.88495	-152.84297	PSS1C	Slope	IIB1
12	57.88489	-152.84486	U	N/A	IIIA2
13	57.88683	-152.85281	U	N/A	IB2
14	57.88670	-152.85208	U	N/A	IIIB2
16	57.88640	-152.85123	PSS1/EM1B	Slope	IB3
21	57.88507	-152.85054	U	N/A	IIIB2
22	57.88519	-152.84950	U	N/A	IIB1
23	57.88648	-152.84656	U	N/A	IIIB2
31	57.88562	-152.85666	PSS1/EM1C	Slope	IIB2
32	57.89034	-152.83878	PSS1/EM1B	Slope	IIC2
35	57.88725	-152.84001	PFO1/4B	Slope	IC2
37	57.88676	-152.83971	U	N/A	IA2
38	57.88607	-152.84164	PFO4/1B	Slope	IC2
39	57.88613	-152.83981	PEM1F	Slope	IIIA3
40	57.88562	-152.84753	U	N/A	IIIA2

^a NWI: National Wetlands Inventory. Cowardin et al. 1979. See Table 3 for full descriptions.

^b HGM: Hydrogeomorphic. Brinson 1993

^c Viereck et al. 1992



Appendix A: Summary of Wetland Indicators at Data Form Sites

Site	NWI Code ^a	Vegetation			Soil					Hydrology										Wetland Hydrology Present?	Is the Site in a Wetland?			
		Hydrophytic Dominants is > 50%	Prevalence Index is ≤ 3.0	Hydrophytic Vegetation Present?	Histosol or Histel (A1)	Histic Epipedon (A2)	Hydrogen Sulfide (A4)	Alaska Redox (A14)	Hydric Soil Present?	Primary Indicators					Secondary Indicators									
										Surface Water (A1)	High Water Table (A2)	Saturation (A3)	Water Marks (B1)	Algal Mat (B4)	Iron Deposits (B5)	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)	Oxidized Rhizospheres (C3)	Presence of Reduced Iron (C4)			Geomorphic Position (D2)	Positive FAC-Neutral Test (D5)	
001	U	X		Y					N														N	N
003	PSS1C	X	X	Y				X	Y							X	X		X	X			Y	Y
004	PFO4B	X		Y			X		Y							^b		X		X			Y	Y
006	PSS1/EM1C	X	X	Y		X	X	X	Y	X	X	X			X	X	X	X	X	X	X	X	Y	Y
007	U	X		Y					N														N	N
009	PSS1/EM1C	X	X	Y			X	X	Y			X			X		X	X		X			Y	Y
010	U	X		Y					N								X						N	N
011	PSS1C	X		Y			X	X	Y			X			^b		X	X					Y	Y
012	U	X		Y					N								X						N	N
013	U			N					N														N	N
014	U			N					N														N	N
016	PSS1/EM1B	X		Y			X	X	Y						^b	X	X			X			Y	Y
021	U	X	X	Y					N							X			X	X			Y	N
022	U	X	X	Y					N										X				N	N
023	U			N					N														N	N
031	PSS1/EM1C	X	X	Y	X		X		Y	X	X	X			X	X	X		X	X			Y	Y
032	PSS1/EM1B	X		Y			X	X	Y						^b		X	X					Y	Y
035	PFO1/4B	X	X	Y		X	X	X	Y					X	^b		X	X	X				Y	Y
037	U			N					N														N	N
038	PFO4/1B	X	X	Y		X	X	X	Y	X	X	X			X		X	X	X	X	X	X	Y	Y
039	PEM1F	X	X	Y		X	X	X	Y	X	X	X			X	X	X	X	X	X	X	X	Y	Y
040	U	X		Y					N														N	N
TOTAL		18	9	18	1	4	10	9	11	4	4	4	1	1	4	5	6	12	7	8	9	12	11	

^a NWI: National Wetlands Inventory, Cowardin et al. 1979. See Table 3 for full descriptions.

^b Hydrogen sulfide odor detected deeper than 12 inches below the soil surface (beginning at any organic soil layer); site meets the requirement of the hydrogen sulfide odor hydric soil indicator but not the hydrogen sulfide odor primary hydrology indicator.

Appendix A: Plant List

Species	Common Name	Indicator Status ^a
<i>Achillea millefolium</i>	Common yarrow	FACU
<i>Actaea rubra</i>	Red baneberry	FACU
<i>Agrostis exarata (Agrostis alaskensis)</i>	Spiked bent	FACW
<i>Alnus viridis (Alnus sinuata)</i>	Sitka alder	FAC
<i>Angelica genuflexa</i>	Kneeling angelica	FACW
<i>Anthoxanthum hirtum</i>	Northern sweet vernal grass	FACW
<i>Anthoxanthum nitens (Hierochloa odorata)</i>	Sweetgrass	NL
<i>Arnica chamissonis</i>	Leafy leopardbane	FACW
<i>Athyrium cyclosorum (Athyrium felix-femina)</i>	Western lady fern	FAC
<i>Betula kenaica</i>	Kenai birch	FACU
<i>Boschniakia rossica</i>	Northern groundcone	FACU
<i>Calamagrostis canadensis</i>	Bluejoint	FAC
<i>Cardamine umbellata</i>	Umbell's bittercress	FACW
<i>Carex anthoxanthea</i>	Grassy-slope Arctic sedge	FACW
<i>Carex brunnescens</i>	Brownish sedge	FAC
<i>Carex canescens</i>	Hoary sedge	FACW
<i>Carex disperma</i>	Soft-leaf sedge	FACW
<i>Carex limosa</i>	Mud sedge	OBL
<i>Carex lyngbyei</i>	Lyngbye's sedge	OBL
<i>Carex macrochaeta</i>	Alaska long-awn sedge	FACW
<i>Carex pauciflora</i>	Few-flower sedge	OBL
<i>Carex tenuiflora</i>	Sparse-flower sedge	OBL
<i>Castilleja unalaschcensis</i>	Alaska Indian-paintbrush	FAC
<i>Chamaenerion angustifolium</i>	Narrow-leaf fireweed	FACW
<i>Circaea alpina</i>	Small enchanter's-nightshade	FACW
<i>Comarum plaustre</i>	Purple marshlocks	OBL
<i>Deschampsia cespitosa ssp. beringensis</i>	Bering's tufted hairgrass	FAC
<i>Drosera rotundifolia</i>	Round-leaf sundew	OBL
<i>Dryopteris expansa</i>	Spreading wood fern	FACU
<i>Eleocharis palustris</i>	Common spike-rush	OBL
<i>Elymus trachycaulus</i>	Slender wild rye	FACU
<i>Empetrum nigrum</i>	Black crowberry	FAC
<i>Epilobium ciliatum</i>	Fringed willow herb	FAC
<i>Epilobium palustre</i>	Marsh willow herb	OBL
<i>Equisetum arvense</i>	Field horsetail	FAC
<i>Erigeron peregrinus</i>	Subalpine fleabane	FACW
<i>Festuca altaica</i>	Rough fescue	FAC
<i>Festuca rubra</i>	Red fescue	FAC
<i>Galium boreale</i>	Northern bedstraw	FACU
<i>Galium trifidum</i>	Three-petal bedstraw	FACW
<i>Galium triflorum</i>	Fragrant bedstraw	FAC
<i>Geranium erianthum</i>	Woolly crane's-bill	FACU

Appendix A: Plant List

Species	Common Name	Indicator Status ^a
<i>Geum macrophyllum</i>	Large-leaf avens	FAC
<i>Heracleum maximum</i>	American cow-parsnip	FACU
<i>Hodreum brachyantherum</i>	Meadow barley	FACW
<i>Iris setosa</i>	Beach-head iris	FAC
<i>Juncus alpinoarticulatus</i>	Northern green rush	OBL
<i>Juncus filiformis</i>	Thread rush	FACW
<i>Lathyrus palustris</i>	Marsh vetchling	OBL
<i>Leymus mollis</i>	American lyme grass	FAC
<i>Lupinus nootkatensis</i>	Nootka lupine	FACU
<i>Luzula multiflora</i>	Common wood-rush	FACU
<i>Moehringia lateriflora</i>	Blunt-leaf grove-sandwort	FACU
<i>Moneses uniflora</i>	Single-delight	FACU
<i>Myrica gale</i>	Sweetgale	OBL
<i>Neottia cordata</i> (<i>Listera cordata</i>)	Heart-leaf twayblade	FACU
<i>Oplopanax horridus</i>	Devil's-club	FACU
<i>Orthilia secunda</i>	Sidebells	FACU
<i>Parnassia palustris</i>	Marsh grass-of-Parnassus	FACW
<i>Picea glauca</i>	White spruce	FACU
<i>Picea sitchensis</i>	Sitka spruce	FACU
<i>Piperia dilatata</i> (<i>Platanthera dilatata</i>)	Scentbottle	FACW
<i>Poa arctica</i>	Arctic blue grass	FAC
<i>Poa palustris</i>	Fowl blue grass	FAC
<i>Poa pratensis</i> ssp. <i>alpigena</i>	Kentucky blue grass	FACU
<i>Poa</i> sp.	Unidentified blue grass	-
<i>Polemonium acutiflorum</i>	Tall Jacob's-ladder	FAC
<i>Populus balsamifera</i>	Balsam poplar	FACU
<i>Potamogeton</i> sp.	Unidentified pondweed	-
<i>Prenanthes alata</i>	Western rattlesnakeroot	NL
<i>Pyrola asarifolia</i>	Pink wintergreen	FACU
<i>Pyrola minor</i>	Snowline wintergreen	FAC
<i>Ranunculus uncinatus</i>	Woodland buttercup	FAC
<i>Rhinanthus minor</i>	Little yellow-rattle	FACU
<i>Rhododendron tomentosum</i>	Marsh Labrador-tea	FACW
<i>Rorippa palustris</i> (<i>Rorippa islandica</i>)	Bog yellowcress	FAC
<i>Rosa nutkana</i>	Nootka rose	FACU
<i>Rubus chamaemorus</i>	Cloudberry	FACW
<i>Rubus spectabilis</i>	Salmon raspberry	FACU
<i>Rumex occidentalis</i>	Western dock	OBL
<i>Salix barclayi</i>	Barclay's willow	FAC
<i>Salix fuscescens</i>	Alaska bog willow	FACW
<i>Salix pulchra</i>	Diamond-leaf willow	FACW
<i>Salix richardsonii</i>	Richardson's willow	FACW

Appendix A: Plant List

Species	Common Name	Indicator Status ^a
<i>Salix sitchensis</i>	Sitka willow	FAC
<i>Sambucus racemosa</i>	Red elder	FACU
<i>Sanguisorba canadensis</i>	Canadian burnet	FACW
<i>Senecio triangularis</i>	Arrow-leaf ragwort	FACW
<i>Solidago lepida</i>	Western Canada goldenrod	FACU
<i>Sorbus sitchensis</i>	Sitka mountain-ash	FACU
<i>Sparganium natans</i> (<i>Sparganium minimum</i>)	Arctic burr-reed	OBL
<i>Spinulum annotinum</i> (<i>Lycopodium annotinum</i>)	Interrupted club-moss	FACU
<i>Spiraea stevenii</i>	Steven's meadowsweet	FACU
<i>Stellaria borealis</i> ssp. <i>sitchana</i>	Sitka starwort	FACW
<i>Swertia perennis</i>	Felwort	FACW
<i>Symphotrichum subspicatum</i> (<i>Aster subspicatum</i>)	Leafy-bract American-aster	FAC
<i>Taraxacum officinale</i>	Common dandelion	FACU
<i>Thalictrum sparsiflorum</i>	Few-flower meadow-rue	FACU
<i>Trichophorum alpinum</i>	Alpine leafless-bulrush	OBL
<i>Trientalis europaea</i>	Arctic starflower	FACU
<i>Triglochin palustris</i>	Marsh arrow-grass	OBL
<i>Trisetum cernuum</i>	Tall false oat	FACU
<i>Vaccinium oxycoccus</i>	Small cranberry	OBL
<i>Vaccinium vitis-idaea</i>	Northern mountain-cranberry	FAC
<i>Veratrum viride</i>	American false hellebore	FAC
<i>Viburnum edule</i>	Squashberry	FACU
<i>Viola glabella</i>	Pioneer violet	FACW
<i>Viola langsдорffii</i>	Aleutian violet	FACW
<i>Viola palustris</i> (<i>Viola epipsila</i>)	Alpine-marsh violet	FACW

^a Wetland Indicator Status (Lichvar et al. 2016). FAC (Facultative): species equally likely to occur in wetlands and non-wetlands; FACU (Facultative Upland): species usually occurs in non-wetlands; FACW (Facultative Wetland): species usually occurs in wetlands; OBL (Obligate): species almost always occurs under natural conditions in wetlands; NL: not listed.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lanes Airport Borough/City: Kodiak Island Borough Date: 7/19/18
 Applicant/Owner: DOT/DPF Southcoast Region Sampling Point #: 1
 Investigator(s): MS, FH, MD Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.88502 Long: -152.846786± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 5
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: flat Slope (%): - Aspect: 7
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: Upland
 Photo nos./descriptions: iPad - Panny Camera #: X Veg Type (Viereck Level 4 or other): CLWTS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: -
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the sampled area within a wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Remarks (e.g., marginal?):

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 Indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:	
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	
1. <u>-</u>				5. <u>-</u>				<u>2</u>	(A)
2. <u>-</u>				6. <u>-</u>				<u>2</u>	(B)
3. <u>-</u>				7. <u>-</u>					
4. <u>-</u>				8. <u>-</u>				Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u>	(A/B)
Total Tree Cover: <u>-</u>									
50% of total cover: <u>-</u> 20% of total cover: <u>-</u>								Prevalence Index worksheet:	
Sapling/Shrub Stratum (woody plants < 3" dbh)								Total % Cover of:	
	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.		Multiply by:
1. <u>Sal bar</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	7. <u>-</u>				OBL species	<u>-</u> X1= <u>-</u>
2. <u>Sal pul</u>	<u>5</u>		<u>FACW</u>	8. <u>-</u>				FACW species	<u>17</u> X2= <u>34</u>
3. <u>Sal rich</u>	<u>5</u>		<u>FACW</u>	9. <u>-</u>				FAC species	<u>127</u> X3= <u>381</u>
4. <u>-</u>				10. <u>-</u>				FACU species	<u>18</u> X4= <u>72</u>
5. <u>-</u>				11. <u>-</u>				UPL + NL species	<u>-</u> X5= <u>-</u>
6. <u>-</u>				12. <u>-</u>				Column Totals:	<u>167</u> (A) <u>487</u> (B)
Total Sapling/Shrub Cover: <u>90</u>								Prevalence Index = B/A = <u>3.01</u>	
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>									
Herb Stratum								Hydrophytic Vegetation Indicators:	
	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.		
1. <u>Cal can</u>	<u>55</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	12. <u>-</u>				<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <u>Cha ang</u>	<u>8</u>		<u>FACU</u>	13. <u>-</u>				<input type="checkbox"/> Prevalence Index is ≤3.0	
3. <u>Ang gen</u>	<u>5</u>		<u>FACW</u>	14. <u>-</u>				<input checked="" type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Ach mill</u>	<u>5</u>		<u>FACU</u>	15. <u>-</u>				<input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <u>Sol lep</u>	<u>2</u>		<u>FACU</u>	16. <u>-</u>				¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
6. <u>San can</u>	<u>2</u>		<u>FACW</u>	17. <u>-</u>					
7. <u>Gal triflorum</u>	<u>1</u>		<u>PAC</u>	18. <u>-</u>					
8. <u>Fan arv</u>	<u>1</u>		<u>FAC</u>	19. <u>-</u>					
9. <u>Tri enr</u>	<u>3</u>		<u>FACU</u>	20. <u>-</u>					
10. <u>-</u>				21. <u>-</u>					
11. <u>-</u>				22. <u>-</u>					
Total Herb Cover: <u>82</u>								Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
50% of total cover: <u>41</u> 20% of total cover: <u>16.4</u>									
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u>-</u> % of bare ground: <u>0</u>									
% Cover of Wetland Bryophytes <u>-</u> % Total Cover of Bryophytes <u>10</u> % (where applicable) <u>BER</u>									
Remarks: <u>Vib edn, ros noo, rub spe, fes rub, des sit, Poa sp, Tri cer, Gal bar, Ep cil, Lat pal, Ran unc, Gen mac, ste sit, Ach fel, Cir alp, Vio ep</u>									

NOTE - FIXED THOSE THAT SAID DES SIT - SHOULD BE DES BER, WHICH IS!
 DES CRAMPSIA CESPITOSA SSP BERINGENSIS
 A6

SOIL

Sampling Point #: 1

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a,a dip. (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	Qi								
6-7	Ash	10YR 6/1						Fsal	
7-11	B/C	10YR 5/6						Fsa	
11-15	B/C	10YR 5/2						Fsa	
15-20	Oab	7.5YR 2.5/2							

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface, @ _____" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present) Type: <u>None</u> Depth (inches) _____	Drainage Class: <u>wd</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes _____ No <u>X</u>
---	--	--

Comments:
1. 9" of Ash over buried organic. Well drained ash layers
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. a,a or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present?	Yes _____ No <u>X</u>	Depth of water (in.) _____
Water Table Present?	Yes _____ No <u>X</u>	Depth to water (in.) _____
Seeping in at that depth but not yet filled?: _____		
Saturation Present?	Yes _____ No <u>X</u>	Depth to sat. (in.) _____
(includes capillary fringe) Epi Endo Unknown		

Wetland Hydrology Present? Yes _____ No X

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

Remarks:



Site 001: Soil. Photo taken July 19, 2018.



Site 001: Soil. Photo taken July 19, 2018.



Site 001: Northern view of vegetation. Photo taken July 19, 2018.



Site 001: Western view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/19/18
 Applicant/Owner: DOT & PF SC Sampling Point #: 3

Investigator(s): Mac Salway, Mike Duffy, Emily Hayes Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.885574 Long. -152.845764 ± ' NAD 83 Recorded on GPS #: X Marked on map? X Field Map #: 5

Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -

Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSSIC

Photo nos./descriptions: iPad - penay Camera #: X Veg Type (Viereck Level 4 or other): CWTS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: - If no, explain. HGM type: Slope

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No -
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>-</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u>-</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u>-</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>-</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total > 100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:																																																																																																																																																																																																																																																											
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Yes <u>X</u> No <u>-</u> </td> </tr> <tr> <td colspan="8">% Cover of Wetland Bryophytes <u>3</u> % Total Cover of Bryophytes <u>15</u> % (where applicable) <u>Sphagnum</u> <u>Feather moss</u></td> <td colspan="2"></td> </tr> <tr> <td colspan="10">Remarks: <u>Trunc: Rub spe, Pen pal, Gal can, Car can, Epa pal, Ang gen, Sol lap, Gal trifid, Ath, Fel</u></td> </tr> </tbody> </table>								Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	1. <u>Bet ken</u>	<u>10</u>		<u>FACU</u>	7. _____				2. <u>Gal bar</u>	<u>65</u>	<u>X</u>	<u>FAC</u>	8. _____				3. <u>Sal pal</u>	<u>2</u>		<u>FACW</u>	9. _____				4. _____				10. _____				5. _____				11. _____				6. _____				12. _____				Total Sapling/Shrub Cover: <u>77</u>								OBL species	<u>38</u> X1= <u>38</u>	50% of total cover: <u>38.5</u>								FACW species	<u>2</u> X2= <u>4</u>	20% of total cover: <u>15.4</u>								FAC species	<u>93</u> X3= <u>279</u>	Herb Stratum <table border="1"> <thead> <tr> <th>Species</th> <th>Abs. 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SOIL

Sampling Point #: 3

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a,a dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	O _i								
5-7	B ₁ C	2.5Y6/2	85	7.5YR4/6	15	C	PL,RC	f _{sa} 1	
7-10	B ₁ C	5Y7/1	85	5YR4/6	15	C	PL,RC	f _{sa}	
10-13	B ₁ C	5Y7/1	90	5YR4/6	10	C	PL,RC	f _{sa} 1	
13-16	B ₁ L	10YR6/3						f _{sa} 1	
16-19	B ₁ L	10YR4.5/1						sa	variegated moist
19-22	O _{ab}								

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:	Indicators for Problematic Hydric Soils³:	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.
<input type="checkbox"/> Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)	<input type="checkbox"/> Alaska Color Change ⁴ (TA4)	
<input type="checkbox"/> Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)	<input type="checkbox"/> Alaska Alpine Swales (TA5)	
<input type="checkbox"/> Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)	<input type="checkbox"/> Alaska Redox with 2.5Y Hue	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Alaska Gleyed without Hue 5Y or Redder Underlying Layer	
<input type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)	
<input checked="" type="checkbox"/> Alaska Redox (A14)		
<input type="checkbox"/> Alaska Gleyed Pores (A15)		

Restrictive Layer (if present) Type: <u>None</u> Depth (inches) _____	Drainage Class: <u>SWPD</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Comments:
1. B₁C is Ash
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):	Secondary Indicators (at least 2 are required)
Primary Indicators (any one indicator is sufficient)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2) (w/in 12")	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3) (w/in 12")	<input checked="" type="checkbox"/> Oxid'd Rhizospheres on Living Roots (C3) (within 12")
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Salt Deposits (C5)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3) (w/in 24", can perch H ₂ O w/in 12")
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Microtopographic Relief (D4) (caused by water)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> FAC Neutral Test (D5) (# OBL+ FACW dominants > # FACU+UPL dominants)
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Marl Deposits (B15)	
<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) (w/in 12")	
<input checked="" type="checkbox"/> Dry-Season Water Table (C2) (w/in 24")	
<input type="checkbox"/> Other (explain) _____	

Field Observations (in. from ground surface):	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth of water (in.) _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth to water (in.) _____ Seeping in at that depth but not yet filled?: <input type="checkbox"/>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth to sat. (in.) _____ (includes capillary fringe) Epi Endo Unknown	

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

Remarks: Multiple channels through area. Small dark depressions which hold surface water during the growing season (currently dry)



Site 003: Soil. Photo taken July 19, 2018.



Site 003: Soil. Photo taken July 19, 2018.



Site 003: Northern view of vegetation. Photo taken July 19, 2018.



Site 003: Eastern view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/19/18
 Applicant/Owner: DOT + PF Southcoast Region Sampling Point #: 4

Investigator(s): MS MD EIT Firm: HDR Alaska, Inc.

Lat. (dec.) 57.985674 Long. -152.844315 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: S

Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -

Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PF04B

Photo nos./descriptions: iPad - penny Camera #: Veg Type (Viereck Level 4 or other): O55F

Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: Slope

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	Is the sampled area within a wetland? Yes <input checked="" type="checkbox"/> No <u> </u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	

Open Sitten Sparus Feras

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover) % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u>Pice sit</u>	<u>35</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>3</u>	(A)		
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across All Strata:	<u>4</u>	(B)	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>75</u>	(A/B)	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet:			
Total Tree Cover: <u>35</u>								Total % Cover of:		Multiply by:	
50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>								OBL species	<u>1</u>	X1=	<u>1</u>
Sapling/Shrub Stratum (woody plants < 3" dbh)								FACW species	<u> </u>	X2=	<u> </u>
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.						
1. <u>Aln sin</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	7. <u> </u>	<u> </u>	FAC species	<u>72</u>	X3=	<u>216</u>		
2. <u>Sal bar</u>	<u>2</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	8. <u> </u>	<u> </u>	FACU species	<u>38</u>	X4=	<u>152</u>		
3. <u>Bet lan</u>	<u>1</u>	<u> </u>	<u>FACU</u>	9. <u> </u>	<u> </u>	UPL + NL species	<u> </u>	X5=	<u> </u>		
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	10. <u> </u>	<u> </u>	Column Totals:	<u>111</u>	(A)	<u>369</u>	(B)	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	11. <u> </u>	<u> </u>	Prevalence Index = B/A = <u>3.32</u>					
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	12. <u> </u>	<u> </u>						
Total Sapling/Shrub Cover: <u>8</u>								Hydrophytic Vegetation Indicators:			
50% of total cover: <u>4</u> 20% of total cover: <u>1.6</u>								<input checked="" type="checkbox"/> Dominance Test is >50%			
Herb Stratum								<u> </u> Prevalence Index is ≤3.0			
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.	<u> </u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)					
1. <u>Car lya</u>	<u>1</u>	<u> </u>	<u>OBL</u>	12. <u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)					
2. <u>Cha can</u>	<u>2</u>	<u> </u>	<u>FACU</u>	13. <u> </u>	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.					
3. <u>Egn aru</u>	<u>65</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	14. <u> </u>	<u> </u>						
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	15. <u> </u>	<u> </u>						
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	16. <u> </u>	<u> </u>						
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	17. <u> </u>	<u> </u>						
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	18. <u> </u>	<u> </u>						
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	19. <u> </u>	<u> </u>						
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	20. <u> </u>	<u> </u>						
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	21. <u> </u>	<u> </u>						
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	22. <u> </u>	<u> </u>						
Total Herb Cover: <u>68</u>								Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u> </u>			
50% of total cover: <u>34</u> 20% of total cover: <u>13.6</u>											
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u> </u> % of bare ground: <u>0</u>											
% Cover of Wetland Bryophytes <u>35</u> % Total Cover of Bryophytes <u>97</u> % (where applicable) <u>Sphagnum</u> <u>Sittl</u>											

Remarks: Trace: Pice glau, Rub spec, Spi ste, Myr gal, Sal scog, Car sit, Sal pul, Vac vit, Euphris, Des sit, Car lim, Hyg ala, Sax can, Pyra sa, Orth sec, Bos ros, Cin alp, Trieur, Dro rot

SOIL

Sampling Point #: 4

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a,a dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	O _i								
5-5t	A _{sh}	2.5Y6/1						Fsal	
5-10	A _{sh}	10YR5/4	80	5YR4/6	80	C	PL,RC	Fsal	
10-15	A _{sh}	2.5Y6/1	90	7.5YR4/6	10	C	PL,RC	Fsa	
15-24	O _{eb}								

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ 15" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: None
Depth (inches): _____

Drainage Class: swpd

Soil Map Unit Name: _____

Hydric Soil Present? Yes No

Comments:

1. H₂S at 15" (with 12" of mineral surface)
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes No Depth of water (in.) _____
 Water Table Present? Yes No Depth to water (in.) _____
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes No Depth to sat. (in.) _____
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks: This is the driest part of entire polygon. Wetland at base of large slopes to the north and east.

*Technically does not meet this indicator because H₂S is not w/in 12" of soil surface. However, the presence of H₂S at the Ash/organic interface @ 15" as well as secondary indicators show that saturation is typical at or above this level. H₂S is less likely to occur in the Ash the previous 3 weeks have been drier than normal.

US Army Corps of Engineers

Alaska Version 2.0 Modified by HDR



Site 004: Soil. Photo taken July 19, 2018.



Site 004: Soil. Photo taken July 19, 2018.



Site 004: Northern view of vegetation. Photo taken July 19, 2018.



Site 004: Eastern view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/19/18
 Applicant/Owner: DOT+PF SR Firm: HDR Alaska, Inc.
 Investigator(s): MS, MD, EIT Sampling Point #: 6

Lat. (dec.) 57° 8' 59.56" Long. -152° 59' 99.8" ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 5
 Subregion (circle one): SE SouthCentral Western Aleutian Interior Northern Landform: Flat Slope (%): — Aspect: —

Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS/EMK
 Photo nos./descriptions: ilad = penny Camera #: Veg Type (Viereck Level 4 or other): Sweetgale - reds

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No If no, explain.
 Are Vegetation N, Soil N, or Hydrology A significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation A, Soil N, or Hydrology A naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the sampled area within a wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")

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

Total Tree Cover: —

50% of total cover: — 20% of total cover: —

Sapling/Shrub Stratum (woody plants < 3" dbh)

Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. <u>Myr sal</u>	<u>45</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	7. _____	_____	_____	_____
2. <u>Bet lan</u>	<u>3</u>	_____	<u>FACU</u>	8. _____	_____	_____	_____
3. <u>Sal pal</u>	<u>2</u>	_____	<u>FACW</u>	9. _____	_____	_____	_____
4. <u>Ala sin</u>	<u>2</u>	_____	<u>FAC</u>	10. _____	_____	_____	_____
5. _____	_____	_____	_____	11. _____	_____	_____	_____
6. _____	_____	_____	_____	12. _____	_____	_____	_____

Total Sapling/Shrub Cover: 52
 50% of total cover: 26 20% of total cover: 10.4

Herb Stratum

Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. <u>Cal can</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	12. _____	_____	_____	_____
2. <u>Car ligh</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	13. _____	_____	_____	_____
3. <u>Car lim</u>	<u>5</u>	_____	<u>OBL</u>	14. _____	_____	_____	_____
4. <u>Car pal</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	15. _____	_____	_____	_____
5. _____	_____	_____	_____	16. _____	_____	_____	_____
6. _____	_____	_____	_____	17. _____	_____	_____	_____
7. _____	_____	_____	_____	18. _____	_____	_____	_____
8. _____	_____	_____	_____	19. _____	_____	_____	_____
9. _____	_____	_____	_____	20. _____	_____	_____	_____
10. _____	_____	_____	_____	21. _____	_____	_____	_____
11. _____	_____	_____	_____	22. _____	_____	_____	_____

Total Herb Cover: 50
 50% of total cover: 25 20% of total cover: 10

Circular 1/10-ac plot or other plot dimension: _____ % of bare ground: 5
 % Cover of Wetland Bryophytes 70 % Total Cover of Bryophytes 75 %

Remarks: Trace: Pic sit (spruce), Spi ste, Sal bar, Des-ort, Car can, Jun alp, Agrostis gl, Eric's sot
Any gen, Ep: pal, luth pal, dro rot, vio epi, tri eur, par pal

Dominance Test worksheet:

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

Prevalence Index worksheet:

Species	Total % Cover of:	Multiply by:
OBL species	<u>85</u>	X1= <u>85</u>
FACW species	<u>2</u>	X2= <u>4</u>
FAC species	<u>12</u>	X3= <u>36</u>
FACU species	<u>3</u>	X4= <u>12</u>
UPL + NL species	<u>—</u>	X5= <u>—</u>
Column Totals:	<u>102</u> (A)	<u>137</u> (B)

Prevalence Index = B/A = 1.34

Hydrophytic Vegetation Indicators:

Dominance Test is >50%
 Prevalence Index is ≤3.0

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

SOIL

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	a,a dip (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-16	O _i									
10-18	B/C ₁	5YR6/1	90	10YR5/4	10	C	RC/PL	Fsal		
12-15	B/C ₂	10YR6/2	90	10YR5/4	10	C	RC/PL	Fsal	+	
15-22	B/C ₃	10YR5/1						sa		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface, @ 9" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

⁴Give details of color change in Remarks.

Restrictive Layer (if present) Type: <u>None</u> Depth (inches): _____	Drainage Class: <u>PD</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--	--

Comments:
 1. High percentage of organics in 10-15" layer
 2. B/C₂ is 10YR6/2. Only soil had a color ~~was~~ ~~swatched~~
 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. a,a or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface): Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth of water (in.) <u>5</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth to water (in.) <u>7</u> Seeping in at that depth but not yet filled?: _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth to sat. (in.) <u>3</u> (includes capillary fringe) Epi Endo Unknown	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Black organic wrens throughout which has prolonged saturation during growing season
 H₂S at 8"



Site 006: Soil. Photo taken July 19, 2018.



Site 006: Soil. Photo taken July 19, 2018.



Site 006: Eastern view of vegetation. Photo taken July 19, 2018.



Site 006: Western view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: Point Barrow Airport Borough/City: Kodiak Island Borough Date: 7/19/18
 Applicant/Owner: DOT + PF & Resim Sampling Point #: 7
 Investigator(s): Mac S., Mike D., Emily Haines Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.886217 Long: -152.829772 ± NAD 83 Recorded on GPS #: Ray Marked on map? Field Map #: 5
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Slope Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: Upland
 Photo nos./descriptions: iPad Camera #: — Veg Type (Viereck Level 4 or other): OATS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: — If no, explain. HGM type: —
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u>—</u>	is the sampled area within a wetland? Yes <u>—</u> No <input checked="" type="checkbox"/>	Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>—</u>	No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <u>—</u>	No <input checked="" type="checkbox"/>		

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. _____	_____	_____	_____	5. _____	_____	_____	_____	<u>2</u>	(A)		
2. _____	_____	_____	_____	6. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)		
3. _____	_____	_____	_____	7. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>67</u> (A/B)		
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Prevalence Index worksheet:			
Total Tree Cover: <u>—</u>				50% of total cover: <u>—</u>				20% of total cover: <u>—</u>			
Sapling/Shrub Stratum (woody plants < 3" dbh)								Total % Cover of:	Multiply by:		
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.						
1. <u>Ma sin</u>	<u>10</u>	_____	<u>FAC</u>	7. _____	_____	OBL species	<u>—</u> X1= <u>—</u>				
2. <u>Rub spe</u>	<u>65</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	8. _____	_____	FACW species	<u>—</u> X2= <u>—</u>				
3. <u>Opf her</u>	<u>5</u>	_____	<u>FACU</u>	9. _____	_____	FAC species	<u>75</u> X3= <u>225</u>				
4. <u>Sam lac</u>	<u>1</u>	_____	<u>FACU</u>	10. _____	_____	FACU species	<u>74</u> X4= <u>296</u>				
5. _____	_____	_____	_____	11. _____	_____	UPL + NL species	<u>—</u> X5= <u>—</u>				
6. _____	_____	_____	_____	12. _____	_____	Column Totals:	<u>149</u> (A) <u>521</u> (B)				
Total Sapling/Shrub Cover: <u>81</u>				50% of total cover: <u>40.5</u>				20% of total cover: <u>16.2</u>			
Herb Stratum								Prevalence Index = B/A = <u>3.49</u>			
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.						
1. <u>Cal can</u>	<u>45</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	12. _____	_____	Hydrophytic Vegetation Indicators:					
2. <u>Alf Fel</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	13. _____	_____	<input checked="" type="checkbox"/> Dominance Test is >50%					
3. <u>Cha ang</u>	<u>3</u>	_____	<u>FACU</u>	14. _____	_____	<u>—</u> Prevalence Index is ≤3.0					
4. _____	_____	_____	_____	15. _____	_____	<u>—</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)					
5. _____	_____	_____	_____	16. _____	_____	<u>—</u> Problematic Hydrophytic Vegetation ¹ (Explain)					
6. _____	_____	_____	_____	17. _____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.					
7. _____	_____	_____	_____	18. _____	_____						
8. _____	_____	_____	_____	19. _____	_____						
9. _____	_____	_____	_____	20. _____	_____						
10. _____	_____	_____	_____	21. _____	_____						
11. _____	_____	_____	_____	22. _____	_____						
Total Herb Cover: <u>68</u>				50% of total cover: <u>34</u>				20% of total cover: <u>13.6</u>			
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: _____ % of bare ground: <u>0</u>								Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u>—</u>			
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>1</u> % (where applicable)											
Remarks: <u>Trace: Sal bar, pan pal, var vir, hor max, equ arv, dry exp, tr eur, epi cil, circ dp</u> <u>Very close to wet/up boundary ~ 10-15' away downslope.</u>											

SOIL

Sampling Point #: 7

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a, a dip. (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	O ₁								
5-6	Ash 1	10YR 7/2						fsa	
6-7	Ash 2	10YR 5/4	98	7.5YR 4/6	2	R	RC, PL	fsa	
7-9	Ash 3	7.5YR 4/6						fsa	
9-13	Ash 4	10YR 6/3						fsa	
13-23	A	7.5YR 2.5/3	20						High organic carbon
		10YR 2/2	80						

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:	Indicators for Problematic Hydric Soils³:	³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic. ⁴Give details of color change in Remarks.
<input checked="" type="checkbox"/> Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)	<input checked="" type="checkbox"/> Alaska Color Change ⁴ (TA4)	
<input checked="" type="checkbox"/> Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)	<input checked="" type="checkbox"/> Alaska Alpine Swales (TA5)	
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____ " in this pit)	<input checked="" type="checkbox"/> Alaska Redox with 2.5Y Hue	
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Alaska Gleyed without Hue 5Y or Redder Underlying Layer	
<input checked="" type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)	
<input checked="" type="checkbox"/> Alaska Redox (A14)		
<input checked="" type="checkbox"/> Alaska Gleyed Pores (A15)		

Restrictive Layer (if present) Type: <u>none</u> Depth (inches) _____	Drainage Class: <u>wd</u>	Hydric Soil Present? Yes ___ No <input checked="" type="checkbox"/>
	Soil Map Unit Name: _____	

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):	Secondary Indicators (at least 2 are required)
Primary Indicators (any one indicator is sufficient)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2) (w/in 12")	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3) (w/in 12")	<input checked="" type="checkbox"/> Oxid'd Rhizospheres on Living Roots (C3) (within 12")
<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4) (pos. a,a or soil color change w/in 12")
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Salt Deposits (C5)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Microtopographic Relief (D4) (caused by water)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Marl Deposits (B15)	
<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) (w/in 12")	
<input checked="" type="checkbox"/> Dry-Season Water Table (C2) (w/in 24")	
<input type="checkbox"/> Other (explain) _____	

Field Observations (in. from ground surface):		Wetland Hydrology Present? Yes ___ No <input checked="" type="checkbox"/>
Surface Water Present? Yes ___ No <input checked="" type="checkbox"/>	Depth of water (in.) _____	
Water Table Present? Yes ___ No <input checked="" type="checkbox"/>	Depth to water (in.) _____	
Seeping in at that depth but not yet filled?: _____		
Saturation Present? Yes ___ No <input checked="" type="checkbox"/>	Depth to sat. (in.) _____	
(includes capillary fringe)	Epi Endo Unknown	

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

Remarks:



Site 007: Soil. Photo taken July 19, 2018.



Site 007: Soil. Photo taken July 19, 2018.



Site 007: Northern view of vegetation. Photo taken July 19, 2018.



Site 007: Western view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/15/18
 Applicant/Owner: DOT+PF SC Sampling Point #: 9
 Investigator(s): MS, MD, EH Firm: HDR Alaska, Inc.
 Lat. (dec.°) 57.885143 Long. -152.842361 ± ' NAD 83 Recorded on GPS #: Marked on map? Field Map #: 5
 Subregion (circle one): SE Southern Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1/EMK
 Photo nos./descriptions: Pad Camera #: Veg Type (Viereck Level 4 or other): Sweetgale - sedge
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain _____ HGM type Slope
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here _____

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the sampled area within a wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Remarks (e.g., marginal?):	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover) % can total >100%. Use 2012 Indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.				
1. _____	_____	_____	_____	5. _____	_____	_____	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)			
2. _____	_____	_____	_____	6. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)			
3. _____	_____	_____	_____	7. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)			
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Prevalence Index worksheet:			
Total Tree Cover: <u>-</u>								Total % Cover of:		Multiply by:	
50% of total cover: <u>-</u> 20% of total cover: <u>-</u>								OBL species	<u>96</u>	X1=	<u>96</u>
Sapling/Shrub Stratum (woody plants < 3" dbh)								FACW species	<u>18</u>	X2=	<u>36</u>
	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.	FAC species	<u>36</u>	X3=	<u>108</u>
1. <u>Aln gl</u>	<u>1</u>		<u>FAC</u>	7. _____	_____	_____	_____	FACU species	<u>-</u>	X4=	<u>-</u>
2. <u>Sal bar</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	8. _____	_____	_____	_____	UPL + NL species	<u>-</u>	X5=	<u>-</u>
3. <u>Myr gal</u>	<u>10</u>		<u>OBL</u>	9. _____	_____	_____	_____	Column Totals:	<u>150</u> (A)		<u>246</u> (B)
4. <u>Sal pul</u>	<u>15</u>	<u>X</u>	<u>FACW</u>	10. _____	_____	_____	_____	Prevalence Index = B/A = <u>1.60</u>			
5. <u>Spi ste</u>	<u>trace</u>		<u>-</u>	11. _____	_____	_____	_____				
6. <u>Sal frs</u>	<u>3</u>		<u>FACW</u>	12. _____	_____	_____	_____				
Total Sapling/Shrub Cover: <u>54</u>											
50% of total cover: <u>27</u> 20% of total cover: <u>10.8</u>											
Herb Stratum								Hydrophytic Vegetation Indicators:			
	Abs.Cov.%	Dom?	Ind.		Abs. Cov.%	Dom?	Ind.				
1. <u>Cal can</u>	<u>10</u>		<u>FAC</u>	12. _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. <u>Car lan</u>	<u>65</u>	<u>X</u>	<u>OBL</u>	13. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0			
3. <u>Car can</u>	<u>1</u>		<u>OBL</u>	14. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4. <u>Com pal</u>	<u>20</u>	<u>X</u>	<u>OBL</u>	15. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5. _____	_____	_____	_____	16. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
6. _____	_____	_____	_____	17. _____	_____	_____	_____				
7. _____	_____	_____	_____	18. _____	_____	_____	_____				
8. _____	_____	_____	_____	19. _____	_____	_____	_____				
9. _____	_____	_____	_____	20. _____	_____	_____	_____				
10. _____	_____	_____	_____	21. _____	_____	_____	_____				
11. _____	_____	_____	_____	22. _____	_____	_____	_____				
Total Herb Cover: <u>96</u>								Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
50% of total cover: <u>48</u> 20% of total cover: <u>19.2</u>											
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: _____ % of bare ground: <u>1</u>											
% Cover of Wetland Bryophytes <u>60</u> % Total Cover of Bryophytes <u>70</u> %											
(where applicable) <u>19 photos</u>											

Remarks: 18 bare ground likely water at some point during growing season
Trace Asp ala, Jun fil, equarr, pur nsa, tri eur, epi pal, lichen

SOIL

Sampling Point #: 9

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-11	O ₁									
12-15	Ash1	5Y6/2	90	7.5YR5/4	10	C	RC	Fsal	+	
15-17	Ash2	10YR6/3	95	7.5YR4/6	5	C	RC	Fsal	+	5% pockets of organic
17-21	Ash3	10YR5/1						sa		
21-24	O _{2b}									

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16% organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16% organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface, @ 17" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: none
Depth (inches) _____

Drainage Class: pd

Soil Map Unit Name: _____

Hydric Soil Present? Yes No

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes No Depth of water (in.) _____
 Water Table Present? Yes No Depth to water (in.) 18
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes No Depth to sat. (in.) 16
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks: Water stained black depressions throughout area. Water marks on ridges



Site 009: Soil. Photo taken July 19, 2018.



Site 009: Soil. Photo taken July 19, 2018.



Site 009: Eastern view of vegetation. Photo taken July 19, 2018.



Site 009: Western view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/17/18
 Applicant/Owner: DOT +PT Sampling Point #: 10
 Investigator(s): Max S., Emily, Hughes, Mike Duff Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.884949 Long. -152.842316 ± ' NAD 83 Recorded on GPS #: A Marked on map? Field Map #: 5
 Subregion (circle one): SE South Central Western Aleutian Interior Northern Landform: hillside Slope (%): 5 Aspect: N
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: iPad - Penny Camera #: Veg Type (Viereck Level 4 or other): QWTS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type:
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	Is the sampled area within a wetland? Yes <u> </u> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <u> </u>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <u> </u>	No <input checked="" type="checkbox"/>	

Remarks (e.g., marginal?):

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100% Use 2012 Indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:	
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	<u>2</u> (A)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across All Strata	<u>2</u> (B)
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	6. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
Total Tree Cover: <u> </u>								Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)
50% of total cover: <u> </u>								Prevalence Index worksheet:	
20% of total cover: <u> </u>								Total % Cover of:	Multiply by:
Sprigling/Shrub Stratum (woody plants < 3" dbh)								OBL species	<u> </u> X1= <u> </u>
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	FACW species	<u>2</u> X2= <u>4</u>
1. <u>Aln sin</u>	<u>5</u>	<u> </u>	<u>FAC</u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species	<u>103</u> X3= <u>309</u>
2. <u>Sal her</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species	<u>13</u> X4= <u>52</u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	UPL + NL species	<u> </u> X5= <u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Column Totals:	<u>118</u> (A) <u>365</u> (B)
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index = B/A = <u>3.09</u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	12. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
Total Sapling/Shrub Cover: <u>55</u>									
50% of total cover: <u>27.5</u>									
20% of total cover: <u>11</u>									
Herb Stratum								Hydrophytic Vegetation Indicators:	
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	<input checked="" type="checkbox"/> Dominance Test is >50%	
1. <u>Gal can</u>	<u>45</u>	<u>X</u>	<u>FAC</u>	12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Prevalence Index is ≤3.0	
2. <u>Cha ang</u>	<u>10</u>	<u> </u>	<u>FACU</u>	13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
3. <u>Ang gen</u>	<u>2</u>	<u> </u>	<u>FACW</u>	14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
4. <u>Ath fel</u>	<u>1</u>	<u> </u>	<u>FAC</u>	15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
5. <u>Sal lep</u>	<u>2</u>	<u> </u>	<u>FACU</u>	16. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
6. <u>Har max</u>	<u>1</u>	<u> </u>	<u>FACU</u>	17. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
7. <u>Egum ov</u>	<u>2</u>	<u> </u>	<u>FAC</u>	18. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	19. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	20. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	21. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	22. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
Total Herb Cover: <u>63</u>								Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u> </u>	
50% of total cover: <u>31.5</u>									
20% of total cover: <u>12.6</u>									
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u> </u> % of bare ground: <u> </u>									
% Cover of Wetland Bryophytes <u> </u> % Total Cover of Bryophytes <u>1</u> % (where applicable)									

Remarks: Frax ilicem, Rosa nox, Vib edn, Sam rox, Fes rub, Sang can, ger mac, Ath gen, Bos ross, Tri ear, Gal trifidum, Ran unc, Epi cil, Ger eri

SOIL

Sampling Point #: 10

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-5	O _i									
5-7	Ash1	2.5Y6/2						fsal		
7-11	Ash2	10YR5/6		5YR4/4	10	C	RC, PL	fsal		
11-15	Ash3	10YR5/3						sa	-	
15-19	A	7.5YR2.5/2	90					sil	-	
		10YR5/1	10							

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____ in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: none
Depth (inches) _____

Drainage Class: wd

Soil Map Unit Name: _____

Hydric Soil Present? Yes _____ No

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain) _____

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No Depth of water (in.) _____
 Water Table Present? Yes _____ No Depth to water (in.) _____
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes _____ No Depth to sat. (in.) _____
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes _____ No

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

Remarks:



Site 010: Soil. Photo taken July 19, 2018.



Site 010: Soil. Photo taken July 19, 2018.



Site 010: Southern view of vegetation. Photo taken July 19, 2018.



Site 010: Western view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/19/18
 Applicant/Owner: DOT/PP SC Sampling Point #: 11
 Investigator(s): Mac S., Emily H., Mike Duffy Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.884949 Long. -152.742972 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 5
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSSWC
 Photo nos./descriptions: iPad - Photos Camera #: - Veg Type (Vioreck Level 4 or other): CATS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type Slope
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the sampled area within a wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u>Pic sit</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	5. _____	_____	_____	_____	<u>3</u>	(A)		
2. _____	_____	_____	_____	6. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>4</u> (B)		
3. _____	_____	_____	_____	7. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>75</u> (A/B)		
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Prevalence Index worksheet:			
Total Tree Cover: <u>5</u>				50% of total cover: <u>2.5</u>				20% of total cover: <u>1</u>			
Sapling/Shrub Stratum (woody plants < 3" dbh)								Total % Cover of:			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	_____	Multiply by:		
1. <u>Aln sin</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	7. _____	_____	_____	_____	OBL species	<u>-</u> X1= <u>-</u>		
2. <u>Sal bor</u>	<u>5</u>	_____	<u>FAC</u>	8. _____	_____	_____	_____	FACW species	<u>1</u> X2= <u>2</u>		
3. _____	_____	_____	_____	9. _____	_____	_____	_____	FAC species	<u>128</u> X3= <u>384</u>		
4. _____	_____	_____	_____	10. _____	_____	_____	_____	FACU species	<u>5</u> X4= <u>20</u>		
5. _____	_____	_____	_____	11. _____	_____	_____	_____	UPL + NL species	<u>-</u> X5= <u>-</u>		
6. _____	_____	_____	_____	12. _____	_____	_____	_____	Column Totals:	<u>134</u> (A) <u>406</u> (B)		
Total Sapling/Shrub Cover: <u>80</u>				50% of total cover: <u>40</u>				20% of total cover: <u>16</u>			
Herb Stratum								Prevalence Index = B/A = <u>3.03</u>			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	Hydrophytic Vegetation Indicators:			
1. <u>Des sit</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	12. _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. <u>Gal can</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	13. _____	_____	_____	_____	<input type="checkbox"/> Prevalence Index is ≤ 3.0			
3. <u>Arg gen</u>	<u>1</u>	_____	<u>FAC</u>	14. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4. <u>Erg arv</u>	<u>5</u>	_____	<u>FAC</u>	15. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5. <u>Epi cil</u>	<u>2</u>	_____	<u>FAC</u>	16. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
6. <u>Ath fel</u>	<u>1</u>	_____	<u>FAC</u>	17. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
7. _____	_____	_____	_____	18. _____	_____	_____	_____				
8. _____	_____	_____	_____	19. _____	_____	_____	_____				
9. _____	_____	_____	_____	20. _____	_____	_____	_____				
10. _____	_____	_____	_____	21. _____	_____	_____	_____				
11. _____	_____	_____	_____	22. _____	_____	_____	_____				
Total Herb Cover: <u>49</u>				50% of total cover: <u>24.5</u>				20% of total cover: <u>9.8</u>			
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: _____ % of bare ground: <u>5</u>				% Cover of Wetland Bryophytes _____ % Total Cover of Bryophytes <u>5</u> % (where applicable)							

Remarks: Closed Alder Tall Shrub
 Trees: Sal pal, ros no, car lora, car can, arg exa, car bor, sal bor, song can, com pal, cha ang, tr. auc, gal frt
 US Army Corps of Engineers gen mac, can mac Alaska Version 2.0 Modified by HDR

SOIL

Sampling Point #: 11

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a,a dip. (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	O _i	—	—	—	—	—	—	—	—
3-6	C	N3/1	—	—	—	—	—	—	90% small gravels
6-7	A	10YR2/2	—	—	—	—	—	—	—
7-11	Ash1	10YR6/4	90	5YR3/4	10	—	RC	—	—
11-14	Ash2	5Y6/1	90	7.5YR5/6	10	—	RC, PL	—	—
14-17	O _{eb}	—	—	—	—	—	—	+	—

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ 14" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: none
Depth (inches):

Drainage Class: SWPD

Soil Map Unit Name:

Hydric Soil Present? Yes No

Comments:

1. H₂S w/in 12" of soil surface ^{mineral}
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. a,a or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes No Depth of water (in.) _____
 Water Table Present? Yes No Depth to water (in.) _____
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes No Depth to sat. (in.) _____
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks:

Large black depression w/ algal mat. Unsat'd but has surface water at some point during growing season.

* Technically does not meet indicator because H₂S is not w/in 12" of soil surface. However the presence of H₂S at the Ash/organic interface @ 14" as well as secondary indicators show that saturation is typical at or above this level. H₂S is less likely to occur in Ash. The previous 3 weeks have been drier than normal.



Site 011: Soil. Photo taken July 19, 2018.



Site 011: Soil. Photo taken July 19, 2018.



Site 011: Southern view of vegetation. Photo taken July 19, 2018.



Site 011: Western view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/19/18
 Applicant/Owner: DOT + AF SR Sampling Point #: 12
 Investigator(s): MSEH, MD Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.78488 Long. -152.84864 ± ' NAD 83 Recorded on GPS #: Marked on map? Field Map #: 5
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: 4
 Photo nos /descriptions: iPad - Penny Camera #: — Veg Type (Viereck Level-4 or other): BH
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: — If no, explain. HGM type: —
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u>—</u>	Is the sampled area within a wetland?	Yes <u>—</u>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <u>—</u>	No <input checked="" type="checkbox"/>		Remarks (e.g., marginal?):	
Wetland Hydrology Present?	Yes <u>—</u>	No <input checked="" type="checkbox"/>			

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 Indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u>—</u>				5. <u>—</u>				<u>2</u>	(A)		
2. <u>—</u>				6. <u>—</u>				<u>2</u>	(B)		
3. <u>—</u>				7. <u>—</u>				<u>100</u>	(A/B)		
4. <u>—</u>				8. <u>—</u>				Prevalence Index worksheet:			
Total Tree Cover: <u>—</u>				50% of total cover: <u>—</u>				20% of total cover: <u>—</u>		Total % Cover of:	Multiply by:
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species	<u>—</u>	X1= <u>—</u>	
Species	Abs Cov.%	Dom?	Ind.	Species	Abs Cov.%	Dom?	Ind.	FACW species	<u>10</u>	X2= <u>20</u>	
1. <u>Sal bar</u>	<u>8</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	7. <u>—</u>				FAC species	<u>103</u>	X3= <u>309</u>	
2. <u>—</u>				8. <u>—</u>				FACU species	<u>20</u>	X4= <u>80</u>	
3. <u>—</u>				9. <u>—</u>				UPL + NL species	<u>—</u>	X5= <u>—</u>	
4. <u>—</u>				10. <u>—</u>				Column Totals:	<u>133</u> (A)	<u>409</u> (B)	
5. <u>—</u>				11. <u>—</u>				Prevalence Index = B/A = <u>3.08</u>			
6. <u>—</u>				12. <u>—</u>				Hydrophytic Vegetation Indicators:			
Total Sapling/Shrub Cover: <u>8</u>				50% of total cover: <u>4</u>				20% of total cover: <u>1.6</u>		<input checked="" type="checkbox"/> Dominance Test is >50%	
Herb Stratum								<u>—</u> Prevalence Index is ≤3.0			
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs. Cov.%	Dom?	Ind.	<u>—</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
1. <u>Leg nol</u>	<u>15</u>		<u>FAC</u>	12. <u>—</u>				<u>—</u> Problematic Hydrophytic Vegetation ¹ (Explain)			
2. <u>Gal can</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	13. <u>—</u>				¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
3. <u>Cha ang</u>	<u>15</u>		<u>FACW</u>	14. <u>—</u>				Hydrophytic Vegetation Present?			
4. <u>Her mex</u>	<u>5</u>		<u>FACU</u>	15. <u>—</u>				Yes <input checked="" type="checkbox"/>	No <u>—</u>		
5. <u>San can</u>	<u>5</u>		<u>FACW</u>	16. <u>—</u>							
6. <u>Fern arl</u>	<u>5</u>		<u>FAC</u>	17. <u>—</u>							
7. <u>Arg gen</u>	<u>5</u>		<u>FACW</u>	18. <u>—</u>							
8. <u>—</u>				19. <u>—</u>							
9. <u>—</u>				20. <u>—</u>							
10. <u>—</u>				21. <u>—</u>							
11. <u>—</u>				22. <u>—</u>							
Total Herb Cover: <u>125</u>				50% of total cover: <u>62.5</u>				20% of total cover: <u>25</u>			
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u>—</u> % of bare ground: <u>0</u>											
% Cover of Wetland Bryophytes <u>—</u>				% Total Cover of Bryophytes <u>1</u>							
(where applicable)				<u>BER</u>							

Remarks: Trace: Car pac, Fes' mb, Des' gtt, Psa pal, Sol lep, Ath fel, Epi cil, th eur
Plot stopped at fill prism.

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	a,a dip. (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-4	O _i									
4-5	Ash1	2.5Y4/1						fsal		Organic staining
5-7	Ash2	10YR5/4	95	7.5YR4/4	5		PCR	fsal		Organic staining
7-14	Ash3	10YR4/1						sg		
14-20	A	7.5YR2.5/2						sil		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:	Indicators for Problematic Hydric Soils ³ :	
<input checked="" type="checkbox"/> Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)	<input checked="" type="checkbox"/> Alaska Color Change ⁴ (TA4)	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.
<input checked="" type="checkbox"/> Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)	<input checked="" type="checkbox"/> Alaska Alpine Swales (TA5)	
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)	<input checked="" type="checkbox"/> Alaska Redox with 2.5Y Hue	
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Alaska Gleyed without Hue 5Y or Redder Underlying Layer	
<input checked="" type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)	
<input checked="" type="checkbox"/> Alaska Redox (A14)		
<input checked="" type="checkbox"/> Alaska Gleyed Pores (A15)		

Restrictive Layer (if present) Type: <u>None</u> Depth (inches): _____	Drainage Class: <u>uvd</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes ___ No <u>X</u>
--	---	--

Comments:
1.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):	Secondary Indicators (at least 2 are required)
Primary Indicators (any one indicator is sufficient)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2) (w/in 12")	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3) (w/in 12")	<input checked="" type="checkbox"/> Oxid'd Rhizospheres on Living Roots (C3) (within 12")
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4) (pos. a,a or soil color change w/in 12")
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Microtopographic Relief (D4) (caused by water)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1) (w/in 12")	
<input type="checkbox"/> Dry-Season Water Table (C2) (w/in 24")	
<input type="checkbox"/> Other (explain)	

Field Observations (in. from ground surface): Surface Water Present? Yes ___ No <u>X</u> Depth of water (in.) _____ Water Table Present? Yes ___ No <u>X</u> Depth to water (in.) _____ Seeping in at that depth but not yet filled?: ___ Saturation Present? Yes ___ No <u>X</u> Depth to sat. (in.) _____ (includes capillary fringe) Epi Endo Unknown	Wetland Hydrology Present? Yes ___ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry pit



Site 012: Soil. Photo taken July 19, 2018.



Site 012: Soil. Photo taken July 19, 2018.



Site 012: Eastern view of vegetation. Photo taken July 19, 2018.



Site 012: Western view of vegetation. Photo taken July 19, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/22/18
 Applicant/Owner: DOT+PF SC Sampling Point #: 13
 Investigator(s): Mac Salwan, Emily Haynes, Mike Duffy Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.886829 Long. -152.852814 ± ' NAD 83 Recorded on GPS #: na Marked on map? Field Map #: 4
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: hillslope Slope (%): 5 Aspect: S
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: iPad - Penny Camera #: Veg Type (Viereck Level 4 or other): OBF
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: -
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the sampled area within a wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
			Remarks (e.g., marginal?):

VEGETATION (Use scientific names) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u>Bet ken</u>	<u>55</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	5. _____	_____	_____	_____	<u>2</u>	(A)		
2. _____	_____	_____	_____	6. _____	_____	_____	_____	<u>5</u>	(B)		
3. _____	_____	_____	_____	7. _____	_____	_____	_____				
4. _____	_____	_____	_____	8. _____	_____	_____	_____				
Total Tree Cover: <u>55</u>								Percent of Dominant Species That are OBL, FACW, or FAC:	<u>40</u>	(A/B)	
50% of total cover: <u>27.5</u>								Prevalence Index worksheet:			
20% of total cover: <u>11</u>								Total % Cover of:		Multiply by:	
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species	_____	X1=	_____
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.			FACW species	_____	X2=	_____
1. <u>Aln sin</u>	<u>45</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	7. _____	_____			FAC species	<u>57</u>	X3=	<u>171</u>
2. <u>Rub spe</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	8. _____	_____			FACU species	<u>147</u>	X4=	<u>588</u>
3. <u>Opl hor</u>	<u>1</u>	_____	<u>FACU</u>	9. _____	_____			UPL + NL species	_____	X5=	_____
4. _____	_____	_____	_____	10. _____	_____			Column Totals:	<u>204</u> (A)		<u>759</u> (B)
5. _____	_____	_____	_____	11. _____	_____			Prevalence Index = B/A = <u>3.72</u>			
6. _____	_____	_____	_____	12. _____	_____						
Total Sapling/Shrub Cover: <u>116</u>											
50% of total cover: <u>58</u>											
20% of total cover: <u>23.2</u>											
Herb Stratum								Hydrophytic Vegetation Indicators:			
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.			- Dominance Test is >50%			
1. <u>Cal can</u>	<u>7</u>	_____	<u>FAC</u>	12. _____	_____			- Prevalence Index is ≤3.0			
2. <u>Ath fel</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	13. _____	_____			- Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
3. <u>Cym dry</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>EXO</u>	14. _____	_____			- Problematic Hydrophytic Vegetation ¹ (Explain)			
4. <u>Toi enc</u>	<u>1</u>	_____	<u>FACU</u>	15. _____	_____			¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
5. _____	_____	_____	_____	16. _____	_____						
6. _____	_____	_____	_____	17. _____	_____						
7. _____	_____	_____	_____	18. _____	_____						
8. _____	_____	_____	_____	19. _____	_____						
9. _____	_____	_____	_____	20. _____	_____						
10. _____	_____	_____	_____	21. _____	_____						
11. _____	_____	_____	_____	22. _____	_____						
Total Herb Cover: <u>33</u>								Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
50% of total cover: <u>16.5</u>											
20% of total cover: <u>6.6</u>											
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: _____ % of bare ground: _____											
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>20</u> % (where applicable)											

Remarks: Above material site
Trace: Sam race, Pop bal, equ arv, gen mac, ran urv, san can, hor mak, dry exp, epi cil, bas ross, Vio sla
 US Army Corps of Engineers Ang gen, Orth sec Alaska Version 2.0 Modified by HDR

SOIL

Sampling Point #: 13

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-2	Oi									
2-3	Ash1	10YR6/1						Fsal		
3-7	Ash2	10YR5/3	60%	5YR4/6	40	C	M	Fsal		56 sand packets
7-12	Ash3	10YR5/4	80					sa		
		10YR5/1	20							
2-17	Oab									
17-26	A	7.5YR2.5/1.5						sil		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root-Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present) Type: <u>none</u> Depth (inches) _____	Drainage Class: <u>wd</u> Soil Map Unit Name: <u>-</u>	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
---	---	---

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain) _____

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

- Surface Water Present? Yes _____ No Depth of water (in.) _____
- Water Table Present? Yes _____ No Depth to water (in.) _____
- Seeping in at that depth but not yet filled?: _____
- Saturation Present? Yes _____ No Depth to sat. (in.) _____
- (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes _____ No

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

Remarks: Dry pit.



Site 013: Soil. Photo taken July 22, 2018.



Site 013: Soil. Photo taken July 22, 2018.



Site 013: Northern view of vegetation. Photo taken July 22, 2018.



Site 013: Eastern view of vegetation. Photo taken July 22, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: Kodiak Island Borough Date: 7/20/18
 Applicant/Owner: DOT + PF SC Sampling Point #: 14
 Investigator(s): MS, EH, MD Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.886696 Long. -152.852081 ± ' NAD 83 Recorded on GPS #: X Marked on map? X Field Map #: 4
 Subregion (circle one): SE Southern Western Aleutian Interior Northern Landform: hills/valley Slope (%): 6 Aspect: S
 Local relief: Shape across slope: linear convex / concave Shape up/downslope: linear / convex / concave NWI classification: 4
 Photo nos /descriptions: 1 photo penan Camera #: _____ Veg Type (Viereck Level 4 or other): MH
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: _____ If no, explain. HGM type: _____
 Are Vegetation A Soil M or Hydrology A significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation A Soil A or Hydrology A naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	is the sampled area within a wetland? Yes _____ No _____
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
			Remarks (e.g., marginal?):

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u>Bet ken</u>	<u>1</u>		<u>FACU</u>	5. _____	_____	_____	_____	<u>1</u>	(A)		
2. _____	_____	_____	_____	6. _____	_____	_____	_____	<u>2</u>	(B)		
3. _____	_____	_____	_____	7. _____	_____	_____	_____	<u>50</u>	(A/B)		
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: _____			
Total Tree Cover: <u>—</u>								Prevalence Index worksheet:			
50% of total cover: <u>—</u> 20% of total cover: <u>—</u>								Total % Cover of:			
Sapling/Shrub Stratum (woody plants < 3" dbh)								Multiply by:			
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	OBL species	X1= <u>—</u>		
1. <u>rub spe</u>	<u>50</u>	<u>X</u>	<u>FACU</u>	8. _____	_____	_____	_____	FACW species	X2= <u>12</u>		
2. <u>pos noo</u>	<u>5</u>		<u>FACU</u>	9. _____	_____	_____	_____	FAC species	X3= <u>240</u>		
3. <u>sal pul</u>	<u>2</u>		<u>FACU</u>	10. _____	_____	_____	_____	FACU species	X4= <u>260</u>		
4. _____	_____	_____	_____	11. _____	_____	_____	_____	UPL + NL species	X5= <u>—</u>		
5. _____	_____	_____	_____	12. _____	_____	_____	_____	Column Totals:	<u>151</u> (A) <u>512</u> (B)		
6. _____	_____	_____	_____	Total Sapling/Shrub Cover: <u>58</u>						Prevalence Index = B/A = <u>3.39</u>	
50% of total cover: <u>29</u> 20% of total cover: <u>11.6</u>											
Herb Stratum								Hydrophytic Vegetation Indicators:			
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	— Dominance Test is >50%			
1. <u>Cal can</u>	<u>15</u>		<u>FAC</u>	12. _____	_____	_____	_____	— Prevalence Index is ≤3.0			
2. <u>Alh fel</u>	<u>65</u>	<u>X</u>	<u>FAC</u>	13. _____	_____	_____	_____	— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
3. <u>Sen tai</u>	<u>1</u>		<u>FACU</u>	14. _____	_____	_____	_____	— Problematic Hydrophytic Vegetation ¹ (Explain)			
4. <u>San can</u>	<u>5</u>		<u>FACU</u>	15. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
5. <u>Cha ang</u>	<u>9</u>		<u>FACU</u>	16. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>			
6. <u>Tri eur</u>	<u>1</u>		<u>FACU</u>	17. _____	_____	_____	_____				
7. _____	_____	_____	_____	18. _____	_____	_____	_____				
8. _____	_____	_____	_____	19. _____	_____	_____	_____				
9. _____	_____	_____	_____	20. _____	_____	_____	_____				
10. _____	_____	_____	_____	21. _____	_____	_____	_____				
11. _____	_____	_____	_____	22. _____	_____	_____	_____				
Total Herb Cover: <u>95</u>											
50% of total cover: <u>47.5</u> 20% of total cover: <u>19</u>											
Circular 1/10-ac plot <u>X</u> or other plot dimension: _____ % of bare ground: <u>0</u>											
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>5</u>											
(where applicable)											
Remarks: <u>Traces: Pop bul, car mac, hor max, ang sen.</u> <u>Bet ken grouped w/ shrubs</u>											

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-3	O _i									
3-4	Ash1	10R5/2						fsal		
4-6	Ash2	7.5YR5/4						fsal		
6-9	Ash3	10YR6/3	80					sa		
9-14	Ash4	10YR7/1	60	5YR4/6	40		R ₂ M	sa		
14-16	O _{ah}									
16-19	A	5YR2.5/2						sil		no red, moist

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____ " in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: None
Depth (inches): _____

Drainage Class: wd

Soil Map Unit Name: _____

Hydric Soil Present? Yes _____ No X

Comments:

1. 19-25 B 10YR3/2 96% 2.5YR3/6 RC 4% sil no red, moist
2. Ash3 7.5YR4/4 - 20% Matrix color
3. Ash4 Redox surrounds organic pockets. 40% Organic pockets

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No X Depth of water (in.) _____
 Water Table Present? Yes _____ No X Depth to water (in.) _____
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes _____ No X Depth to sat. (in.) _____
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes _____ No X

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

Remarks:



Site 014: Soil. Photo taken July 22, 2018.



Site 014: Soil. Photo taken July 22, 2018.



Site 014: Northern view of vegetation. Photo taken July 22, 2018.



Site 014: Southern view of vegetation. Photo taken July 22, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: Kodiak Island Borough Date: 7/22/18
 Applicant/Owner: DOT + DF SC Sampling Point #: 16
 Investigator(s): Mac S., Emil H., Mike Duffy Firm: HDR Alaska, Inc.
 Lat. (dec.) 57 98 63 98 Long. -152 85 127 ± NAD 83 Recorded on GPS #: X Marked on map? X Field Map #:
 Subregion (circle one): SE Southeastern Western Aleutian Interior Northern Landform: hillside Slope (%): Aspect:
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1/EM1C
 Photo nos./descriptions: ilad - panay Camera #: Veg Type (Viereck Level 4 or other): Broadleaf Woodland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: If no, explain. HGM type: Slope
 Are Vegetation A, Soil A, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation A, Soil A, or Hydrology X naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")			
Species	Cov. %	Dom?	Ind.
1. <u>Bet ken</u>	<u>20</u>	<u>X</u>	<u>FACU</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>

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

Sapling/Shrub Stratum (woody plants < 3" dbh)			
Species	Abs. Cov. %	Dom?	Ind.
1. <u>Aln sin</u>	<u>25</u>	<u>X</u>	<u>FAC</u>
2. <u>Vib edn</u>	<u>5</u>	<u> </u>	<u>FACU</u>
3. <u>Pub spe</u>	<u>5</u>	<u> </u>	<u>FACU</u>
4. <u>Sp1 str</u>	<u>5</u>	<u> </u>	<u>FACU</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>

Total Sapling/Shrub Cover: 40
 50% of total cover: 20 20% of total cover: 8

Herb Stratum			
Species	Abs. Cov. %	Dom?	Ind.
1. <u>Cal can</u>	<u>3</u>	<u> </u>	<u>FAC</u>
2. <u>Car dis</u>	<u>20</u>	<u>X</u>	<u>PCW</u>
3. <u>Car ant</u>	<u>10</u>	<u> </u>	<u>FACU</u>
4. <u>Des bar</u>	<u>5</u>	<u> </u>	<u>FAC</u>
5. <u>Car mac</u>	<u>5</u>	<u> </u>	<u>PCW</u>
6. <u>Car can</u>	<u>5</u>	<u> </u>	<u>FACU</u>
7. <u>Athy fol</u>	<u>35</u>	<u>X</u>	<u>FAC</u>
8. <u>San can</u>	<u>15</u>	<u> </u>	<u>PCW</u>
9. <u>Swe per</u>	<u>20</u>	<u>X</u>	<u>FACU</u>
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>

Total Herb Cover: 118
 50% of total cover: 59 20% of total cover: 23.6

Circular 1/10-ac plot or other plot dimension: % of bare ground: 0
 % Cover of Wetland Bryophytes 5 % Total Cover of Bryophytes 45 %
 (where applicable) Sphagnum

Remarks: Trace: Agr ala, Luz ann, Car lym, Can tem, Cham ang, Plan dil, Eri ang, Sol lep
Ast subspicatus, Equ arv, Eri3 pare, Hali per, ang sen, gal bar, gal tr, Fidu, viu epio
friglodm palustris, tri eur, vio lany.

Dominance Test worksheet:	
Number of Dominant Species That are OBL, FACW, or FAC:	<u>4</u> (A)
Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
Percent of Dominant Species That are OBL, FACW, or FAC:	<u>80</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u> </u>	X1= <u> </u>
FACW species <u>75</u>	X2= <u>150</u>
FAC species <u>68</u>	X3= <u>204</u>
FACU species <u>35</u>	X4= <u>140</u>
UPL + NL species <u> </u>	X5= <u> </u>
Column Totals: <u>178</u> (A)	<u>494</u> (B)
Prevalence Index = B/A = <u>2.78</u>	

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

SOIL

Sampling Point #: 16

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-5	O _i									
5-8	Ash 1	5Y6/1	80	5YR5/8	20		PL	Fsal		
8-10	Ash 2	10YR6/4	90	5YR5/8	10		PL, RC	Fsal		
10-15	Ash 3	10YR5/1	70	7.5YR5/4	70		MRC	Sa		
15-22	Onb								+	
22-24	B	10YR2/1						sil		low coarse sand, mixed throughout

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ 15" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils²:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p 91 of 2007 Supplement; explain in Remarks)

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

⁴Give details of color change in Remarks.

Restrictive Layer (if present)
Type: none
Depth (inches):

Drainage Class: pd
Soil Map Unit Name:

Hydric Soil Present? Yes No

- Comments:
- Cobbles starting 0 21" 100%
 -
 -

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):
 Surface Water Present? Yes No Depth of water (in.) _____
 Water Table Present? Yes No Depth to water (in.) 17
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes No Depth to sat. (in.) 15
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks: Multiple seepy channels running through area. Technically does not meet this indicator because H₂S is not w/in 12" of soil surface. However the presence of H₂S at the Ash/organic interface @ 15" is well as secondary indicators indicates that saturation is typical at or above this level. H₂S less likely to occur in Ash. The previous 3 weeks have been drier than normal.



Site 016: Soil. Photo taken July 22, 2018.



Site 016: Soil. Photo taken July 22, 2018.



Site 016: Northern view of vegetation. Photo taken July 22, 2018.



Site 016: Eastern view of vegetation. Photo taken July 22, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIRB Date: 7/22/18
 Applicant/Owner: DOT/PP SC Sampling Point #: 21
 Investigator(s): Mac S., Mike D., Emily H Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.855071 Long. -152.850540 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 4
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Dupressure Slope (%): Aspect:
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: ipad Camera #: Veg Type (Viereck Level 4 or other): Mixed Forb Mea
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: 1
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	Is the sampled area within a wetland? Yes <u> </u> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <u> </u>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	

Remarks (e.g., marginal?):

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:		Total Number of Dominant Species Across All Strata:	
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>3</u> (A)		<u>3</u> (B)	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)			
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence index worksheet:			
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total % Cover of:		Multiply by:	
Total Tree Cover: <u> </u>				50% of total cover: <u> </u>				20% of total cover: <u> </u>			
50% of total cover: <u> </u>								20% of total cover: <u> </u>			
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species			
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	<u>2</u>		X1= <u>2</u>	
1. <u>Sal sit</u>	<u>8</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW species <u>106</u>		X2= <u>212</u>	
2. <u>Aln sin</u>	<u>1</u>	<u> </u>	<u>FAC</u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species <u>48</u>		X3= <u>144</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species <u>2</u>		X4= <u>8</u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	UPL + NL species <u> </u>		X5= <u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Column Totals: <u>158</u> (A)		<u>366</u> (B)	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index = B/A = <u>2.32</u>			
Total Sapling/Shrub Cover: <u>9</u>				50% of total cover: <u>4.5</u>				20% of total cover: <u>1.8</u>			
Herb Stratum								Hydrophytic Vegetation Indicators:			
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	<input checked="" type="checkbox"/> Dominance Test is >50%			
1. <u>Cal can</u>	<u>2</u>	<u> </u>	<u>FAC</u>	12. <u>San can</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0			
2. <u>Des her</u>	<u>15</u>	<u> </u>	<u>FAC</u>	13. <u>Gal trifid</u>	<u>5</u>	<u> </u>	<u>FACW</u>	<u> </u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
3. <u>Car pac</u>	<u>5</u>	<u> </u>	<u>FAC</u>	14. <u>Sal lep</u>	<u>2</u>	<u> </u>	<u>FACU</u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)			
4. <u>Hie edo</u>	<u>3</u>	<u> </u>	<u>FACW</u>	15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
5. <u>Hor bra</u>	<u>3</u>	<u> </u>	<u>FACW</u>	16. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u> </u>			
6. <u>Pea pal</u>	<u>10</u>	<u> </u>	<u>FAC</u>	17. <u> </u>	<u> </u>	<u> </u>	<u> </u>				
7. <u>Ang gen</u>	<u>5</u>	<u> </u>	<u>FACW</u>	18. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u> </u> % of bare ground: <u>T</u>			
8. <u>Rum br</u>	<u>2</u>	<u> </u>	<u>OBL FAC</u>	19. <u> </u>	<u> </u>	<u> </u>	<u> </u>				
9. <u>Gen mac</u>	<u>2</u>	<u> </u>	<u>FAC</u>	20. <u> </u>	<u> </u>	<u> </u>	<u> </u>	% Cover of Wetland Bryophytes <u> </u> % Total Cover of Bryophytes <u>25</u> %			
10. <u>Arn cha</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	21. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Remarks: <u>Trace: Sal bar, Ely trach, Lat pal, Ran unc, Epi cil, For ice, Ste sit, Car umb, Cir alp,</u>			
11. <u>Ah tel</u>	<u>5</u>	<u> </u>	<u>FAC</u>	22. <u> </u>	<u> </u>	<u> </u>	<u> </u>				
Total Herb Cover: <u>149</u>				50% of total cover: <u>74.5</u>				20% of total cover: <u>29.8</u>			

SOIL

Sampling Point #: 21

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a,a dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-3</u>	<u>O_i</u>								
<u>3-8</u>	<u>H</u>	<u>N3/1</u>	<u>90</u>					<u>sil</u>	
<u>8-24</u>	<u>B/C</u>	<u>10YR3/3</u>	<u>10</u>						
		<u>10YR4/6</u>	<u>50</u>					<u>gr</u>	<u>90% gravel (N3/1)</u>
		<u>N3/1</u>	<u>50</u>						

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

<p>Standard Indicators:</p> <p><input checked="" type="checkbox"/> Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)</p> <p><input checked="" type="checkbox"/> Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)</p> <p><input checked="" type="checkbox"/> Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)</p> <p><input checked="" type="checkbox"/> Thick Dark Surface (A12)</p> <p><input checked="" type="checkbox"/> Alaska Gleyed (A13)</p> <p><input checked="" type="checkbox"/> Alaska Redox (A14)</p> <p><input checked="" type="checkbox"/> Alaska Gleyed Pores (A15)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input checked="" type="checkbox"/> Alaska Color Change⁴ (TA4)</p> <p><input checked="" type="checkbox"/> Alaska Alpine Swales (TA5)</p> <p><input checked="" type="checkbox"/> Alaska Redox with 2.5Y Hue</p> <p><input checked="" type="checkbox"/> Alaska Gleyed without Hue 5Y or Redder Underlying Layer</p> <p><input type="checkbox"/> Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)</p>	<p>³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.</p> <p>⁴Give details of color change in Remarks.</p>
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Restrictive Layer (if present) Type: <u>None</u> Depth (inches) _____	Drainage Class: <u>wd</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
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Comments:
 1. B/C compacted gravel.
 2. B/C has pockets of sil 5Y4/1 @ 5"
 3. Gley color on slate gravel is color of slate (parent material) not from depletion same color as slate from mineral site

HYDROLOGY

<p>Wetland Hydrology Indicators (check ones that apply, measure from soil surface):</p> <p>Primary Indicators (any one indicator is sufficient)</p> <p><input checked="" type="checkbox"/> Surface Water (A1)</p> <p><input checked="" type="checkbox"/> High Water Table (A2) (w/in 12")</p> <p><input checked="" type="checkbox"/> Saturation (A3) (w/in 12")</p> <p><input checked="" type="checkbox"/> Water Marks (B1)</p> <p><input checked="" type="checkbox"/> Sediment Deposits (B2)</p> <p><input checked="" type="checkbox"/> Drift Deposits (B3)</p> <p><input checked="" type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input checked="" type="checkbox"/> Iron Deposits (B5)</p> <p><input checked="" type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input checked="" type="checkbox"/> Marl Deposits (B15)</p> <p><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) (w/in 12")</p> <p><input checked="" type="checkbox"/> Dry-Season Water Table (C2) (w/in 24")</p> <p><input type="checkbox"/> Other (explain) _____</p>	<p>Secondary Indicators (at least 2 are required)</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input checked="" type="checkbox"/> Drainage Patterns (B10) _____</p> <p><input checked="" type="checkbox"/> Oxid'd Rhizospheres on Living Roots (C3) (within 12")</p> <p><input checked="" type="checkbox"/> Presence of Reduced Iron (C4) (pos. a,a or soil color change w/in 12")</p> <p><input checked="" type="checkbox"/> Salt Deposits (C5)</p> <p><input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input checked="" type="checkbox"/> Geomorphic Position (D2) - <u>Depression</u></p> <p><input checked="" type="checkbox"/> Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")</p> <p><input checked="" type="checkbox"/> Microtopographic Relief (D4) (caused by water)</p> <p><input checked="" type="checkbox"/> FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)</p>
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<p>Field Observations (in. from ground surface):</p> <p>Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth of water (in.) _____</p> <p>Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth to water (in.) _____</p> <p>Seeping in at that depth but not yet filled?: _____</p> <p>Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth to sat. (in.) _____</p> <p>(includes capillary fringe) Epi Endo Unknown</p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Area has likely been previously altered. No ash in soil pit. Same material as in mineral site. Berm surrounding this depression looks like it was placed around area (geomorphic position - depression - likely man-made. Drainage patterns - some areas wd bare ground/litter where water has ponded previously (not recently)



Site 021: Soil. Photo taken July 22, 2018.



Site 021: Soil. Photo taken July 22, 2018.



Site 021: Eastern view of vegetation. Photo taken July 22, 2018.



Site 021: Western view of vegetation. Photo taken July 22, 2018.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: Port Lions Borough/City: KTB Date: 7/22/18
 Applicant/Owner: DOT+PF Sampling Point #: 22
 Investigator(s): Mac S., Emily H., Mike D. Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.985193 Long. -152.849503 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 4
 Subregion (circle one): SE Southeastern Western Aleutian Interior Northern Landform: hill top Slope (%): - Aspect: -
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: 4
 Photo nos./descriptions: ilad Camera #: Veg Type (Viereck Level 4 or other): CATS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: -
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	Is the sampled area within a wetland? Yes <u> </u> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <u> </u>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <u> </u>	No <input checked="" type="checkbox"/>	

Remarks (e.g., marginal?):

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

<p>Tree Stratum (dbh ≥ 3")</p> <table border="1"> <thead> <tr> <th>Species</th> <th>Cov. %</th> <th>Dom?</th> <th>Ind.</th> <th>Species</th> <th>Cov. %</th> <th>Dom?</th> <th>Ind.</th> </tr> </thead> <tbody> <tr><td>1. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td><td>5. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td>2. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td><td>6. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td>3. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td><td>7. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> <tr><td>4. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td><td>8. <u> </u></td><td><u> </u></td><td><u> </u></td><td><u> </u></td></tr> </tbody> </table> <p>Total Tree Cover: <u> </u> 50% of total cover: <u> </u> 20% of total cover: <u> </u></p>							Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>2</u> (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)</p>																																																									
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<p>Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u> </u> % of bare ground: <u>1</u></p> <p>% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>101</u> % (where applicable) <u> </u></p>							<p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u> </u></p>																																																																																																	
<p>Remarks: <u>Trace Pan pul, any gen, cha ang, Rum spp, Tar off, Ath fel, abrad lichen</u></p>																																																																																																								

SOIL

Sampling Point #: 22

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α,α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-4	O _i									
4-10	B/C	7.5YR3/2	90					s.l		90% gravel (2.5Y)
		2.5Y3/1	10							

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)
Type: None
Depth (inches) _____

Drainage Class: wd
Soil Map Unit Name: _____

Hydric Soil Present? Yes No

Comments:
1.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain) _____

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10) _____
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes No Depth of water (in.) _____
 Water Table Present? Yes No Depth to water (in.) _____
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes No Depth to sat. (in.) _____
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks:



Site 022: Soil. Photo taken July 22, 2018.



Site 022: Soil. Photo taken July 22, 2018.



Site 022: Northern view of vegetation. Photo taken July 22, 2018.



Site 022: Southern view of vegetation. Photo taken July 22, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KRS Date: 7/22/18
 Applicant/Owner: DOT-IPF SC Sampling Point #: 23
 Investigator(s): Ma. S. Mike D. Emily H. Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.786475 Long. -152.84558 ± NAD 83 Recorded on GPS #: X Marked on map? X Field Map #: 4
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: hillside Slope (%): 40 Aspect: S
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: 11
 Photo nos./descriptions: iPad Camera #: _____ Veg Type (Viereck Level 4 or other): Forb meadow
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: _____ If no, explain. HGM type: _____
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the sampled area within a wetland? Yes _____ No <u>X</u> Remarks (e.g., marginal?): _____
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. _____	_____	_____	_____	5. _____	_____	_____	_____	<u>2</u>	(A)		
2. _____	_____	_____	_____	6. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>4</u> (B)		
3. _____	_____	_____	_____	7. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>50</u> (A/B)		
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Prevalence Index worksheet:			
Total Tree Cover: _____				50% of total cover: _____				20% of total cover: _____			
Sapling/Shrub Stratum (woody plants < 3" dbh)								Total % Cover of:			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	Total % Cover of:		Multiply by:	
1. <u>Ros hoot</u>	<u>5</u>	<u>✓</u>	<u>FACU</u>	7. _____	_____	_____	_____	OBL species	<u>—</u>	X1=	<u>—</u>
2. <u>Rubus</u>	<u>5</u>	<u>✓</u>	<u>FACU</u>	8. _____	_____	_____	_____	FACW species	<u>5</u>	X2=	<u>10</u>
3. _____	_____	_____	_____	9. _____	_____	_____	_____	FAC species	<u>75</u>	X3=	<u>225</u>
4. _____	_____	_____	_____	10. _____	_____	_____	_____	FACU species	<u>47</u>	X4=	<u>188</u>
5. _____	_____	_____	_____	11. _____	_____	_____	_____	UPL + NL species	<u>—</u>	X5=	<u>—</u>
6. _____	_____	_____	_____	12. _____	_____	_____	_____	Column Totals:	<u>127</u> (A)		<u>423</u> (B)
Total Sapling/Shrub Cover: <u>13</u>				50% of total cover: <u>6.5</u>				20% of total cover: <u>2.6</u>			
Herb Stratum								Prevalence Index = B/A = <u>3.33</u>			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	Hydrophytic Vegetation Indicators:			
1. <u>Gal can</u>	<u>25</u>	<u>✓</u>	<u>FAC</u>	12. _____	_____	_____	_____	<u>—</u> Dominance Test is >50%			
2. <u>Her mus</u>	<u>10</u>	<u>✓</u>	<u>FACU</u>	13. _____	_____	_____	_____	<u>—</u> Prevalence Index is ≤3.0			
3. <u>Sol lon</u>	<u>10</u>	<u>✓</u>	<u>FACU</u>	14. _____	_____	_____	_____	<u>—</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4. <u>Alh fol</u>	<u>50</u>	<u>✓</u>	<u>FAC</u>	15. _____	_____	_____	_____	<u>—</u> Problematic Hydrophytic Vegetation ¹ (Explain)			
5. <u>Sar can</u>	<u>5</u>	<u>—</u>	<u>FACW</u>	16. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
6. <u>Ger eri</u>	<u>5</u>	<u>—</u>	<u>FACU</u>	17. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>			
7. <u>Cha ring</u>	<u>5</u>	<u>—</u>	<u>FACU</u>	18. _____	_____	_____	_____				
8. <u>Gal bar</u>	<u>2</u>	<u>—</u>	<u>FACU</u>	19. _____	_____	_____	_____				
9. <u>Arch mill</u>	<u>2</u>	<u>—</u>	<u>FACU</u>	20. _____	_____	_____	_____				
10. <u>Cast trif. due trace</u>	<u>—</u>	<u>—</u>	<u>FACU</u>	21. _____	_____	_____	_____				
11. _____	_____	_____	_____	22. _____	_____	_____	_____				
Total Herb Cover: <u>114</u>				50% of total cover: <u>57</u>				20% of total cover: <u>22.8</u>			
Circular 1/10-ac plot <u>X</u> or other plot dimension: _____ % of bare ground: <u>0</u>											
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>10</u> %											
Remarks: <u>Trace: Ely tra, fes rub, car pac, paa pratensis, festuca altica, her ado, des baringi, tri. cer, paa arc, lip noo, cas una, rhy min, iri set, lath pal, act subsp.</u>											

SOIL

Sampling Point #: 23

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	a, a dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
<u>0-4</u>	<u>Mi</u>									
<u>4-5</u>	<u>Ash 1</u>	<u>10YR 7/1</u>						<u>sal</u>		<u>discontinuous</u>
<u>5-7</u>	<u>Ash 2</u>	<u>10YR 6/3</u>						<u>sa</u>		
<u>7-11</u>	<u>Ash 3</u>	<u>10YR 6/2</u>						<u>sa</u>		
<u>11-14</u>	<u>Oab</u>									
<u>14-22</u>	<u>H</u>	<u>7.5YR 2.5/2</u>						<u>sl</u>		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:	Indicators for Problematic Hydric Soils ³ :	
<input checked="" type="checkbox"/> Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)	<input checked="" type="checkbox"/> Alaska Color Change ⁴ (TA4)	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.
<input checked="" type="checkbox"/> Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)	<input checked="" type="checkbox"/> Alaska Alpine Swales (TA5)	
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)	<input checked="" type="checkbox"/> Alaska Redox with 2.5Y Hue	
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Alaska Gleyed without Hue 5Y or Redder Underlying Layer	
<input checked="" type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)	
<input checked="" type="checkbox"/> Alaska Redox (A14)		
<input checked="" type="checkbox"/> Alaska Gleyed Pores (A15)		

Restrictive Layer (if present) Type: <u>none</u> Depth (inches) _____	Drainage Class: <u>wd</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
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Comments:
1.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):	Secondary Indicators (at least 2 are required)
Primary Indicators (any one indicator is sufficient)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2) (w/in 12")	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3) (w/in 12")	<input type="checkbox"/> Oxid'd Rhizospheres on Living Roots (C3) (within 12")
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4) (pos. a.a or soil color change w/in 12")
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Microtopographic Relief (D4) (caused by water)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)
<input type="checkbox"/> Sparingly Vegetated Concave Surface (B8)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1) (w/in 12")	
<input checked="" type="checkbox"/> Dry-Season Water Table (C2) (w/in 24")	
<input type="checkbox"/> Other (explain) _____	

Field Observations (in. from ground surface): Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth of water (in.) _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth to water (in.) _____ Seeping in at that depth but not yet filled? _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth to sat. (in.) _____ (includes capillary fringe) Epi Endo Unknown	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Site 023: Soil. Photo taken July 22, 2018.



Site 023: Soil. Photo taken July 22, 2018.



Site 023: Eastern view of vegetation. Photo taken July 22, 2018.



Site 023: Western view of vegetation. Photo taken July 22, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: Kodiak Island Borough Date: 7/23/18
 Applicant/Owner: DOT+PF SC Sampling Point #: 31
 Investigator(s): Mac S, Emily H, Mike Duffy Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.885620 Long. -152.856655 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 4
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: swale Slope (%): 6 Aspect: S
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear convex / concave NWI classification: 1SS1/EM1C
 Photo nos./descriptions: ipad - panny Camera #: ___ Veg Type (Viereck Level 4 or other): QWTS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No: ___ If no, explain. HGM type: Slope
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No ___
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No ___	Is the sampled area within a wetland? Yes <input checked="" type="checkbox"/> No ___ Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No ___	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No ___	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:				
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:				
1. _____	_____	_____	_____	5. _____	_____	_____	_____	<u>3</u>	(A)			
2. _____	_____	_____	_____	6. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)			
3. _____	_____	_____	_____	7. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)			
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Prevalence Index worksheet:				
Total Tree Cover: <u>—</u>				50% of total cover: <u>—</u>				20% of total cover: <u>—</u>				
Sapling/Shrub Stratum (woody plants < 3" dbh)								Total % Cover of:				
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	OBL species	Multiply by:			
1. <u>Sal pul</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	8. _____	_____	_____	_____	<u>50</u>	X1= <u>50</u>			
2. <u>Sal bar</u>	<u>2</u>	_____	<u>FAC</u>	9. _____	_____	_____	_____	<u>30</u>	X2= <u>60</u>			
3. _____	_____	_____	_____	10. _____	_____	_____	_____	<u>62</u>	X3= <u>186</u>			
4. _____	_____	_____	_____	11. _____	_____	_____	_____	FACU species	X4= <u>—</u>			
5. _____	_____	_____	_____	12. _____	_____	_____	_____	UPL + NL species	X5= <u>—</u>			
6. _____	_____	_____	_____	Total Sapling/Shrub Cover: <u>27</u>				Column Totals:	<u>147</u> (A) <u>296</u> (B)			
50% of total cover: <u>13.5</u>				20% of total cover: <u>5.4</u>				Prevalence Index = B/A = <u>2.08</u>				
Herb Stratum								Hydrophytic Vegetation Indicators:				
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	<input checked="" type="checkbox"/> Dominance Test is >50%				
1. <u>Cal can</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	12. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0				
2. <u>Car lan</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	13. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)				
3. <u>Ang sen</u>	<u>5</u>	_____	<u>FACW</u>	14. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
4. _____	_____	_____	_____	15. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.				
5. _____	_____	_____	_____	16. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No ___				
6. _____	_____	_____	_____	17. _____	_____	_____	_____					
7. _____	_____	_____	_____	18. _____	_____	_____	_____					
8. _____	_____	_____	_____	19. _____	_____	_____	_____					
9. _____	_____	_____	_____	20. _____	_____	_____	_____					
10. _____	_____	_____	_____	21. _____	_____	_____	_____					
11. _____	_____	_____	_____	22. _____	_____	_____	_____					
Total Herb Cover: <u>115</u>				50% of total cover: <u>57.5</u>				20% of total cover: <u>23</u>				
Circular 1/10-ac plot ___ or other plot dimension: <u>seede</u> % of bare ground: <u>trace</u>												
% Cover of Wetland Bryophytes <u>10</u> % Total Cover of Bryophytes <u>15</u> % (where applicable) <u>5% above</u>												
Remarks: <u>Wide spot in seep w/ sedges. Plot contained to valley bottom 25' wide at plot</u> <u>Upland slopes surrounding. 100' water</u>												

SOIL

Sampling Point #: 31

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-7</u>	<u>Di</u>								
<u>7-18</u>	<u>De</u>								
<u>18-24</u>	<u>Ash</u>	<u>5Y7/1</u>						<u>SA</u>	

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface: @ 7 in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p 91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present) Type: <u>None</u> Depth (inches): _____	Drainage Class: <u>D</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---	--

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth of water (in.) <u>1</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth to water (in.) <u>5</u>
Seeping in at that depth but not yet filled?: <input type="checkbox"/>		
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth to sat. (in.) <u>0</u>
Epi Endo Unknown		

Wetland Hydrology Present? Yes No

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

Remarks: seeps upstream and downstream Flanking in.
Just wide spot in seed w/ lots of cores



Site 031: Soil. Photo taken July 23, 2018.



Site 031: Soil. Photo taken July 23, 2018.



Site 031: Southern view of vegetation. Photo taken July 23, 2018.



Site 031: Western view of vegetation. Photo taken July 23, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: Kodiak Island Borough Date: 7/23/18
 Applicant/Owner: DOT+PE SC Region Sampling Point #: 32
 Investigator(s): Mac S., Emily H., Mike Duffy Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.890343 Long.: -152.738776 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 6
 Subregion (circle one): SE Southern Central Western Aleutian Interior Northern Landform: Depression Slope (%): 2 Aspect: N
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1EM1B
 Photo nos./descriptions: iPad Camera #: Veg Type (Viereck Level 4 or other): OULS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: Slope
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the sampled area within a wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. _____	_____	_____	_____	5. _____	_____	_____	_____	<u>2</u>	(A)		
2. _____	_____	_____	_____	6. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)		
3. _____	_____	_____	_____	7. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>67%</u> (A/B)		
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Prevalence Index worksheet:			
Total Tree Cover: <u>—</u>				50% of total cover: <u>—</u>				20% of total cover: <u>—</u>			
Sapling/Shrub Stratum (woody plants < 3" dbh)								Total % Cover of:			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	OBL species	Multiply by:		
1. <u>Sol bar</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	7. _____	_____	_____	_____	<u>—</u>	X1= <u>—</u>		
2. <u>Pub sfo</u>	<u>20</u>	<u>X</u>	<u>FACU</u>	8. _____	_____	_____	_____	<u>27</u>	X2= <u>44</u>		
3. _____	_____	_____	_____	9. _____	_____	_____	_____	<u>78</u>	X3= <u>234</u>		
4. _____	_____	_____	_____	10. _____	_____	_____	_____	<u>27</u>	X4= <u>108</u>		
5. _____	_____	_____	_____	11. _____	_____	_____	_____	<u>—</u>	X5= <u>—</u>		
6. _____	_____	_____	_____	12. _____	_____	_____	_____	Column Totals:	<u>127</u> (A) <u>386</u> (B)		
Total Sapling/Shrub Cover: <u>35</u>				50% of total cover: <u>17.5</u>				20% of total cover: <u>7</u>			
Herb Stratum								Prevalence Index = B/A = <u>3.08</u>			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	Hydrophytic Vegetation Indicators:			
1. <u>Des bar</u>	<u>5</u>	_____	<u>FAC</u>	12. <u>Vio ep</u>	<u>1</u>	_____	<u>FACU</u>	<input checked="" type="checkbox"/> Dominance Test is >50%			
2. <u>Gal can</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	13. _____	_____	_____	_____	<input type="checkbox"/> Prevalence Index is ≤3.0			
3. <u>Sol lep</u>	<u>5</u>	_____	<u>FACU</u>	14. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
4. <u>Sana can</u>	<u>15</u>	_____	<u>FACW</u>	15. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)			
5. <u>Ath fol</u>	<u>5</u>	_____	<u>FAC</u>	16. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
6. <u>Pol can</u>	<u>2</u>	_____	<u>FAC</u>	17. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
7. <u>Cir alp</u>	<u>1</u>	_____	<u>FACW</u>	18. _____	_____	_____	_____				
8. <u>Ang gen</u>	<u>5</u>	_____	<u>FACW</u>	19. _____	_____	_____	_____				
9. <u>Egu arv</u>	<u>1</u>	_____	<u>FAC</u>	20. _____	_____	_____	_____				
10. <u>Dr Yh sec</u>	<u>1</u>	_____	<u>FACU</u>	21. _____	_____	_____	_____				
11. <u>Tr eur</u>	<u>1</u>	_____	<u>FACU</u>	22. _____	_____	_____	_____				
Total Herb Cover: <u>92</u>				50% of total cover: <u>46</u>				20% of total cover: <u>18.4</u>			
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: _____ % of bare ground: _____											
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>30</u> % (where applicable)											

Remarks: Slopes toward lake.
Grass: Ath sin, ros haw, hot ken, luz mul, moe lat, ver vic, gal triflorus, act rubra, vio glab, epi pal
Chen ang, gal bar, plan dilatata, pyr ole minor, mon uni.

SOIL

Sampling Point #: **32**

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

Depth (In.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α,α dip. (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-5	O _i									
5-7	A _{sh1}	5Y7/1	95	7.5YR5/6	5	C	RC	fsal	+	
7-10	A _{sh2}	10YR5/4						fsal	+	
10-13	A _{sh3}	5Y6/1	65	5YR4/4	3.5		M,RC	sa		Concentrated on border w/ O _{ab} as well as throughout
13-19	O _{ab}								+	
19-23	B	10YR2/2						sil		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ 13" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p 91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: None
Depth (inches): _____

Drainage Class: swpd
Soil Map Unit Name: _____

Hydric Soil Present? Yes No

Comments:

1. H₂S w/in 12" of mineral surface
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes No Depth of water (in.) _____
 Water Table Present? Yes No Depth to water (in.) _____
 Seeping in at that depth but not yet filled?: _____
 Saturation Present? Yes No Depth to sat. (in.) _____
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks:

Platann/hemlock in forest.
Bare areas around edge of meadow that have standing water at some point during growing season
mud

* Technically does not meet this indicator because H₂S is not w/in 12" of soil surface. However, the presence of H₂S at the Ash/organic interface @ 13" as well as secondary indicators shows that saturation is typical at or above this level. The previous 3 weeks prior to field effect have been drier than normal.



Site 032: Soil. Photo taken July 23, 2018.



Site 032: Soil. Photo taken July 23, 2018.



Site 032: Eastern view of vegetation. Photo taken July 23, 2018.



Site 032: Western view of vegetation. Photo taken July 23, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/23/18
 Applicant/Owner: DOT-IPF SC Sampling Point #: 35
 Investigator(s): MS, EH, MD Firm: HDR Alaska, Inc.

Lat. (dec.) 57.892245 Long. -152.840012 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 3

Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: toeslope Slope (%): Aspect:

Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PFO1/4B

Photo nos./descriptions: Pad - Panny Camera #: Veg Type (Viereck Level 4 or other): OMF
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: Slope

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	Is the sampled area within a wetland? Yes <input checked="" type="checkbox"/> No <u> </u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <u> </u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

<p>Tree Stratum (dbh ≥ 3")</p> <table border="1"> <thead> <tr> <th>Species</th> <th>Cov.%</th> <th>Dom?</th> <th>Ind.</th> <th>Species</th> <th>Cov.%</th> <th>Dom?</th> <th>Ind.</th> </tr> </thead> <tbody> <tr> <td>1. <u>Pic sit</u></td> <td><u>5</u></td> <td><input checked="" type="checkbox"/></td> <td><u>FACW</u></td> <td>5. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> <tr> <td>2. <u>Bet ken</u></td> <td><u>20</u></td> <td><input checked="" type="checkbox"/></td> <td><u>FACW</u></td> <td>6. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> <tr> <td>3. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td>7. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> <tr> <td>4. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td>8. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> </tbody> </table> <p>Total Tree Cover: <u>25</u> 50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u></p>								Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	1. <u>Pic sit</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	2. <u>Bet ken</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>71</u> (A/B)</p>																																																									
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9. <u>Rub cha</u>	<u>9</u>	<u> </u>	<u>FW</u>	20. <u> </u>	<u> </u>	<u> </u>	<u> </u>																																																																																																		
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	21. <u> </u>	<u> </u>	<u> </u>	<u> </u>																																																																																																		
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	22. <u> </u>	<u> </u>	<u> </u>	<u> </u>																																																																																																		
<p>Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u> </u> % of bare ground: <u> </u> % Cover of Wetland Bryophytes <u>75</u> % Total Cover of Bryophytes <u>90</u> % (where applicable) <u>Sphagnum</u></p>								<p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u> </u></p>																																																																																																	
<p>Remarks: <u>Thyus water spi ste, Car can, ph dil, arg gen, cha ans, Sol lep, pyr asu, gal tri, tri eur, vio ep, lyc ann, ept. pal, vio lang, rho tom, Liz cor</u></p>																																																																																																									

SOIL

Sampling Point #: **35**

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	O _i								
6-8	O _e								
8-9	Ash ₁	5Y7/1						f _{sal}	+
9-12	Ash ₂	10YR6/3						f _{sal}	-
12-15	Ash ₃	5Y4/1	85	5YR5/6	15	C	RC	sa	+
15-25	O _{ab}								+

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ 15" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p 91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: none
Depth (inches): _____

Drainage Class: pd
Soil Map Unit Name: _____

Hydric Soil Present? Yes No

Comments:

1. Positive red on organic layer.
2. H₂S w/12" of mineral surface
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain) _____

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes No Depth of water (in.) _____
 Water Table Present? Yes No Depth to water (in.) 18
 Seeping in at that depth but not yet filled?: 15
 Saturation Present? Yes No Depth to sat. (in.) 13
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks:

H₂S @ 15", Moist to surface
 Seeps may flow into this wetland. Lots of open water pockets and iron deposits currently dry

*Technically does not meet H₂S because H₂S is not w/in 12" of soil surface. However, the presence of H₂S at the Ash/organic interface @ 15" as well as secondary indicators show that saturation is typical at or above this level. H₂S is less likely to occur in Ash. The previous 3 weeks have been drier than normal.



Site 035: Soil. Photo taken July 23, 2018.



Site 035: Soil. Photo taken July 23, 2018.



Site 035: Northern view of vegetation. Photo taken July 23, 2018.



Site 035: Southern view of vegetation. Photo taken July 23, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KEB Date: 7/23/18
 Applicant/Owner: DOT + PF SC Sampling Point #: 37
 Investigator(s): MS, EH, MD Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.886757 Long. -152.839702 NAD 83 Recorded on GPS #: Marked on map? Field Map #: 3
 Subregion (circle one): SE ~~Southern~~ Western Aleutian Interior Northern Landform: Fair slope Slope (%): 3 Aspect: S
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: iPad Camera #: Veg Type (Viereck Level 4 or other): OSSF
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: If no, explain. HGM type: —
 Are Vegetation A, Soil A, or Hydrology A significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation A, Soil A, or Hydrology A naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the sampled area within a wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 Indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet	
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	
1. <u>Pic sit</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FU</u>	5. _____	_____	_____	_____	<u>0</u>	(A)
2. _____	_____	_____	_____	6. _____	_____	_____	_____	<u>4</u>	(B)
3. _____	_____	_____	_____	7. _____	_____	_____	_____	<u>0</u>	(AVB)
4. _____	_____	_____	_____	8. _____	_____	_____	_____	Prevalence Index worksheet	
Total Tree Cover: <u>30</u>								Total % Cover of:	
50% of total cover: <u>15</u>								Multiply by:	
20% of total cover: <u>6</u>								OBL species	<u>0</u> X1= <u>0</u>
Sapling/Shrub Stratum (woody plants < 3" dbh)								FACW species	<u>0</u> X2= <u>0</u>
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	FAC species	<u>7</u> X3= <u>21</u>
1. <u>Aln sin</u>	<u>5</u>	_____	<u>F</u>	7. _____	_____	_____	_____	FACU species	<u>120</u> X4= <u>480</u>
2. <u>Dal hor</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FU</u>	8. _____	_____	_____	_____	UPL + NL species	<u>—</u> X5= <u>—</u>
3. <u>Rub spe</u>	<u>5</u>	_____	<u>FU</u>	9. _____	_____	_____	_____	Column Totals:	<u>127</u> (A) <u>501</u> (B)
4. _____	_____	_____	_____	10. _____	_____	_____	_____	Prevalence Index = B/A = <u>3.94</u>	
5. _____	_____	_____	_____	11. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:	
6. _____	_____	_____	_____	12. _____	_____	_____	_____	_____ Dominance Test is >50%	
Total Sapling/Shrub Cover: <u>40</u>								_____ Prevalence Index is ≤3.0	
50% of total cover: <u>20</u>								_____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
20% of total cover: <u>8</u>								_____ Problematic Hydrophytic Vegetation ¹ (Explain)	
Herb Stratum								¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
1. <u>Fes rub</u>	<u>1</u>	_____	<u>F</u>	12. _____	_____	_____	_____		
2. <u>Gram dry</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FU</u>	13. _____	_____	_____	_____		
3. <u>Dry exp</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FU</u>	14. _____	_____	_____	_____		
4. <u>Equ ar</u>	<u>1</u>	_____	<u>F</u>	15. _____	_____	_____	_____		
5. _____	_____	_____	_____	16. _____	_____	_____	_____		
6. _____	_____	_____	_____	17. _____	_____	_____	_____		
7. _____	_____	_____	_____	18. _____	_____	_____	_____		
8. _____	_____	_____	_____	19. _____	_____	_____	_____		
9. _____	_____	_____	_____	20. _____	_____	_____	_____		
10. _____	_____	_____	_____	21. _____	_____	_____	_____		
11. _____	_____	_____	_____	22. _____	_____	_____	_____		
Total Herb Cover: <u>57</u>									
50% of total cover: <u>28.5</u>									
20% of total cover: <u>11.4</u>									
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: _____ % of bare ground: <u>0</u>									
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>95</u> %									
Remarks: <u>Trace: Vyb edn, Cal can, her max, lyl can, cha ang, cir alp, Ath fel, tr eur, lvs cord, mon uni, pres alw</u>									

SOIL

Sampling Point #: 37

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip (pos/neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-6	O _i									
6-8	A _{3h1}	2.5Y7/1						Fsal		
8-11	A _{3h2}	7.5YR5/4						Fsal		
		10YR6/2	90							
11-15	A _{3h3}	7.5YR5/6	10					Sc		
15-17	O _{ab}									
17-23	B	7.5YR2.5/2						Sil		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: None
Depth (inches) _____

Drainage Class: ud
Soil Map Unit Name: _____

Hydric Soil Present? Yes ___ No X

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes ___ No X Depth of water (in.) _____
 Water Table Present? Yes ___ No X Depth to water (in.) _____
 Seeping in at that depth but not yet filled?: ___
 Saturation Present? Yes ___ No X Depth to sat. (in.) _____
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ___ No X

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

Remarks:



Site 037: Soil. Photo taken July 23, 2018.



Site 037: Soil. Photo taken July 23, 2018.



Site 037: Northern view of vegetation. Photo taken July 23, 2018.



Site 037: Southern view of vegetation. Photo taken July 23, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lums Airport Borough/City: KIPB Date: 7/23/18
 Applicant/Owner: DOT OF SC Region Sampling Point #: 38
 Investigator(s): MS, EH, MD Firm: HDR Alaska, Inc.
 Lat. (dec.): 57.886066 Long. -152.841644 ± ' NAD 83 Recorded on GPS #: X Marked on map? X Field Map #: 3
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PF04/1B
 Photo nos./descriptions: 1 Pav Camera #: Veg Type (Viereck Level 4 or other): OMF
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: If no, explain. HGM type: Slope
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>	Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>		
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>		

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

<p>Tree Stratum (dbh ≥ 3")</p> <table border="1"> <thead> <tr> <th>Species</th> <th>Cov.%</th> <th>Dom?</th> <th>Ind.</th> <th>Species</th> <th>Cov.%</th> <th>Dom?</th> <th>Ind.</th> </tr> </thead> <tbody> <tr> <td>1. <u>Pic sit</u></td> <td><u>25</u></td> <td><u>X</u></td> <td><u>FU</u></td> <td>5. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> <tr> <td>2. <u>Bet kom</u></td> <td><u>5</u></td> <td><u> </u></td> <td><u>FU</u></td> <td>6. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> <tr> <td>3. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td>7. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> <tr> <td>4. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td>8. <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> </tbody> </table> <p>Total Tree Cover: <u>30</u> 50% of total cover: <u>15</u> 20% of total cover: <u>6</u></p>								Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	1. <u>Pic sit</u>	<u>25</u>	<u>X</u>	<u>FU</u>	5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	2. <u>Bet kom</u>	<u>5</u>	<u> </u>	<u>FU</u>	6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>5</u> (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: <u>80</u> (A/B)</p>																																																									
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SOIL

Sampling Point #: **38**

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				α,α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	O _i								
8-9	Ash1	5Y7/2						fsal	+
9-11	Ash2	10YR7/2						fsal	+
11-12	Ash3	10YR6/4						sa	+
12-14	Ash4	5Y5/1	90	7.5YR6/4	10	L	RC	sa	+
14-24	Deb								

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ 9" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present) Type: <u>NDM</u> Depth (inches): _____	Drainage Class: <u>pd</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--	--

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth of water (in.)	<u>3</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth to water (in.)	<u>12</u>
Seeping in at that depth but not yet filled? @ <u>9</u> "			
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth to sat. (in.)	<u>0</u>
Epi Endo Unknown			

Wetland Hydrology Present? Yes No

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

Remarks:



Site 038: Soil. Photo taken July 23, 2018.



Site 038: Soil. Photo taken July 23, 2018.



Site 038: Northern view of vegetation. Photo taken July 23, 2018.



Site 038: Eastern view of vegetation. Photo taken July 23, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIR Date: 7/23/11
 Applicant/Owner: DOT-DF SC Sampling Point #: 39
 Investigator(s): MS, EH, MD Firm: HDR Alaska, Inc.
 Lat. (dec.) 57.886131 Long. -152.839813 ± NAD 83 Recorded on GPS #: Marked on map? Field Map #: 3
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PEMF
 Photo nos./descriptions: 1, 2, 3 - penny Camera #: - Veg Type (Viereck Level 4 or other): FSM
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No: - If no, explain. HGM type: Slope
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No -
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <u>-</u>	Is the sampled area within a wetland? Yes <input checked="" type="checkbox"/> No <u>-</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <u>-</u>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <u>-</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:		
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:		
1. _____				5. _____				1	(A)	
2. _____				6. _____				1	(B)	
3. _____				7. _____				100	(A/B)	
4. _____				8. _____						
Total Tree Cover: <u>-</u>								Prevalence Index worksheet:		
50% of total cover: <u>-</u>				20% of total cover: <u>-</u>				Total % Cover of:		Multiply by:
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species	<u>95</u>	X1= <u>95</u>
Abs. Cov. %	Dom?	Ind.	Abs. Cov. %	Dom?	Ind.	FACW species	<u>0</u>	X2= <u>0</u>		
1. _____			7. _____			FAC species	<u>0</u>	X3= <u>0</u>		
2. _____			8. _____			FACU species	<u>0</u>	X4= <u>0</u>		
3. _____			9. _____			UPL + NL species	<u>0</u>	X5= <u>0</u>		
4. _____			10. _____			Column Totals:	<u>95</u> (A)	<u>95</u> (B)		
5. _____			11. _____			Prevalence Index = B/A = <u>1.0</u>				
6. _____			12. _____			Hydrophytic Vegetation Indicators:				
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50% of total cover: <u>-</u>				20% of total cover: <u>-</u>				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0		
Herb Stratum								<u>-</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)		
Abs. Cov. %	Dom?	Ind.	Abs. Cov. %	Dom?	Ind.	<u>-</u> Problematic Hydrophytic Vegetation ¹ (Explain)				
1. <u>Carex lynn</u>	<u>85</u>	<u>X</u>	<u>OBL</u>			¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.				
2. <u>Compa</u>	<u>5</u>		<u>OBL</u>			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <u>-</u>				
3. <u>Junc alp</u>	<u>5</u>		<u>OBL</u>							
4. _____										
5. _____										
6. _____										
7. _____										
8. _____										
9. _____										
10. _____										
11. _____										
Total Herb Cover: <u>95</u>										
50% of total cover: <u>47.5</u>				20% of total cover: <u>19</u>						
Circular 1/10-ac plot <input checked="" type="checkbox"/> or other plot dimension: <u>mud</u> % of bare ground: <u>5</u>										
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>0</u> %										

Remarks: Water 5%
Trace: Ath sin, sal bar, mys gal, cal can, car can, agr gla, ele pal, tri alp, ror ted,
ath fel, ach mil, sol lep, par pal, gal trif, dan, b: o epi, ds rot,
spar min, pot, sal pul.

SOIL

Sampling Point #: **39**

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				α,α dip (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	O _i								
5-11	O _e							+	Ash mixed in through top 3"
11-16	Ash	5Y6/1	90	7.5YR5/4	10	C	RC	fsal	+

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- Histosol or Histel (A1) (≥16% organic surface, sat'd during wet period of growing season)
- Histic Epipedon (A2) (8-16% organics, sat'd, underlain by mineral soil with chroma ≤2)
- Hydrogen Sulfide (A4) (within 12" of ground surface; @ 7" in this pit)
- Thick Dark Surface (A12)
- Alaska Gleyed (A13)
- Alaska Redox (A14)
- Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- Alaska Color Change⁴ (TA4)
- Alaska Alpine Swales (TA5)
- Alaska Redox with 2.5Y Hue
- Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

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

Restrictive Layer (if present)

Type: none
Depth (inches): _____

Drainage Class: vpu

Soil Map Unit Name: _____

Hydric Soil Present? Yes No

Comments:

- 1.
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2) (w/in 12")
- Saturation (A3) (w/in 12")
- 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) (w/in 12")
- Dry-Season Water Table (C2) (w/in 24")
- Other (explain)

Secondary Indicators (at least 2 are required)

- Water-Stained Leaves (B9)
- Drainage Patterns (B10)
- Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- Salt Deposits (C5)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- Microtopographic Relief (D4) (caused by water)
- FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes No Depth of water (in.) 6
 Water Table Present? Yes No Depth to water (in.) 3
 Seeping in at that depth but not yet filled?
 Saturation Present? Yes No Depth to sat (in.) 0
 (Includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes No

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

Remarks: Large areas of wet bare ground which typically is covered w/ water Iron sheen and deposits in water



Site 039: Soil. Photo taken July 23, 2018.



Site 039: Soil. Photo taken July 23, 2018.



Site 039: Northern view of vegetation. Photo taken July 23, 2018.



Site 039: Western view of vegetation. Photo taken July 23, 2018.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: Port Lions Airport Borough/City: KIB Date: 7/23/18
 Applicant/Owner: DOT-PE SC Sampling Point #: 40
 Investigator(s): MS, EH, MD Firm: HDR Alaska, Inc.
 Lat. (dec.) 57 29 03.43 Long. -152 27 39.776 ± NAD 83 Recorded on GPS #: X Marked on map? Y Field Map #: 3
 Subregion (circle one): SE South Central Western Aleutian Interior Northern Landform: Flat Slope (%): 2 Aspect: S
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: iPod - penny Camera #: X Veg Type (Viereck Level 4 or other): Bluejoint Herb
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: If no, explain. HGM type:
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the sampled area within a wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>		Remarks (e.g., marginal?):	
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u> </u>				5. <u> </u>				<u>1</u>	(A)		
2. <u> </u>				6. <u> </u>				Total Number of Dominant Species Across All Strata:	<u>1</u> (B)		
3. <u> </u>				7. <u> </u>				Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)		
4. <u> </u>				8. <u> </u>				Prevalence Index worksheet:			
Total Tree Cover: <u> </u>				50% of total cover: <u> </u>				20% of total cover: <u> </u>		Total % Cover of:	Multiply by:
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species	<u>0</u> X1= <u> </u>		
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.	FACW species <td><u>20</u> X2= <u>40</u></td>		<u>20</u> X2= <u>40</u>			
1. <u> </u>			7. <u> </u>			FAC species		<u>70</u> X3= <u>210</u>			
2. <u> </u>			8. <u> </u>			FACU species		<u>35</u> X4= <u>140</u>			
3. <u> </u>			9. <u> </u>			UPL + NL species		<u> </u> X5= <u> </u>			
4. <u> </u>			10. <u> </u>			Column Totals:	<u>125</u> (A)	<u>390</u> (B)			
5. <u> </u>			11. <u> </u>			Prevalence Index = B/A = <u>3.12</u>					
6. <u> </u>			12. <u> </u>			Hydrophytic Vegetation Indicators:					
Total Sapling/Shrub Cover: <u> </u>						X Dominance Test is >50%					
50% of total cover: <u> </u>						Prevalence Index is ≤3.0					
20% of total cover: <u> </u>						Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)					
Herb Stratum								Problematic Hydrophytic Vegetation ¹ (Explain)			
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.					
1. <u>Gal can</u>	<u>65</u>	<u>X</u>	<u>F</u>	12. <u> </u>		Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>					
2. <u>Cha ang</u>	<u>10</u>		<u>FU</u>	13. <u> </u>							
3. <u>Fes rub</u>	<u>3</u>		<u>F</u>	14. <u> </u>							
4. <u>Des ber</u>	<u>2</u>		<u>F</u>	15. <u> </u>							
5. <u>Gal ber</u>	<u>2</u>		<u>FU</u>	16. <u> </u>							
6. <u>Sol lep</u>	<u>20</u>		<u>FU</u>	17. <u> </u>							
7. <u>Arn dia</u>	<u>5</u>		<u>FW</u>	18. <u> </u>							
8. <u>San can</u>	<u>15</u>		<u>FW</u>	19. <u> </u>							
9. <u>Ach mill</u>	<u>2</u>		<u>FU</u>	20. <u> </u>							
10. <u>Tol clea</u>	<u>1</u>		<u>FU</u>	21. <u> </u>							
11. <u> </u>				22. <u> </u>							
Total Herb Cover: <u>125</u>											
50% of total cover: <u>62.5</u>											
20% of total cover: <u>25</u>											
Circular 1/10-ac plot <u>X</u> or other plot dimension: <u> </u> % of bare ground: <u>0</u>											
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u>5</u> %											
Remarks: <u>Trace: Ros noo, luz mul, ant her, car mac, any gen, any luc, lat pal</u>											
<u>Her max, ste sit,</u>											

SOIL

Sampling Point #: 40

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a,a dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	O _i								
5-7	A _{ah1}	10YR7/1						fsil	
7-11	A _{sh2}	7.5YR5/4	70	5YR5/4	5	C	RC	fsil	258 10YR6/3 Matrix
11-15	A _{sh3}	10YR6/2						sa	
15-17	O _{ab}								
17-22	A	7.5YR2.5/3						sil	

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:	Indicators for Problematic Hydric Soils³:	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.
<input checked="" type="checkbox"/> Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)	<input checked="" type="checkbox"/> Alaska Color Change ⁴ (TA4)	
<input checked="" type="checkbox"/> Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)	<input checked="" type="checkbox"/> Alaska Alpine Swales (TA5)	
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)	<input checked="" type="checkbox"/> Alaska Redox with 2.5Y Hue	
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Alaska Gleyed without Hue 5Y or Redder Underlying Layer	
<input checked="" type="checkbox"/> Alaska Gleyed (A13)	<input type="checkbox"/> Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)	
<input checked="" type="checkbox"/> Alaska Redox (A14)		
<input checked="" type="checkbox"/> Alaska Gleyed Pores (A15)		

Restrictive Layer (if present) Type: <u>none</u>	Drainage Class: <u>wd</u>	Hydric Soil Present? Yes ___ No <u>X</u>
Depth (inches) _____	Soil Map Unit Name: _____	

Comments:
1.
2.
3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)	Secondary Indicators (at least 2 are required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2) (w/in 12")	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3) (w/in 12")	<input checked="" type="checkbox"/> Oxid'd Rhizospheres on Living Roots (C3) (within 12")
<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4) (pos. a,a or soil color change w/in 12")
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Salt Deposits (C5)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Microtopographic Relief (D4) (caused by water)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Marl Deposits (B15)	
<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) (w/in 12")	
<input checked="" type="checkbox"/> Dry-Season Water Table (C2) (w/in 24")	
<input type="checkbox"/> Other (explain) _____	

Field Observations (in. from ground surface):	Wetland Hydrology Present? Yes ___ No <u>X</u>
Surface Water Present? Yes ___ No <u>X</u> Depth of water (in.) _____	
Water Table Present? Yes ___ No <u>X</u> Depth to water (in.) _____	
Seeping in at that depth but not yet filled? _____	
Saturation Present? Yes ___ No <u>X</u> Depth to sat. (in.) _____	
(includes capillary fringe) Epi Endo Unknown	

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

Remarks: Dry pit.



Site 040: Soil. Photo taken July 23, 2018.



Site 040: Soil. Photo taken July 23, 2018.



Site 040: Northern view of vegetation. Photo taken July 23, 2018.



Site 040: Southern view of vegetation. Photo taken July 23, 2018.

Appendix B

Observation Point Photographs

May 7, July 19 and 22-24, 2018

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Appendix B: Summary of Observation Point Sites

Site	Latitude	Longitude	NWI Code ^a	HGM Class ^b
002	57.88545	-152.84660	R4SBC	Riverine Channel
005	57.88553	-152.84407	U	N/A
008	57.88541	-152.84090	R4SBC	Riverine Channel
015	57.88644	-152.85124	R4SBC	Riverine Channel
017	57.88624	-152.85121	R4SBC	Riverine Channel
018	57.88609	-152.85091	U	N/A
019	57.88594	-152.85075	R4SBC	Riverine Channel
020	57.88545	-152.85028	R4SBC	Riverine Channel
024	57.88740	-152.84796	R4SBC	Riverine Channel
025	57.88168	-152.86043	R3UBH	Riverine Channel
026	57.88350	-152.86122	R4SBC	Riverine Channel
026b	57.88424	-152.86046	R4SBC	Riverine Channel
027	57.88442	-152.86046	R4SBC	Riverine Channel
028	57.88569	-152.85974	R4SBC	Riverine Channel
029	57.88640	-152.85921	R3UBH	Riverine Channel
030	57.88619	-152.85660	R4SBC	Riverine Channel
033	57.88826	-152.84120	R4SBC	Riverine Channel
034	57.88784	-152.83986	R4SBC	Riverine Channel
036	57.88704	-152.83987	R3UBH	Riverine Channel
041	57.88416	-152.85216	U	N/A
042	57.88416	-152.85034	U	N/A
558	57.88586	-152.84946	R4SBC	Riverine Channel
559	57.88644	-152.84977	R4SBC	Riverine Channel
560	57.88678	-152.85002	R4SBC	Riverine Channel
561	57.88702	-152.84991	R4SBC	Riverine Channel
561b	57.88912	-152.84874	U	N/A
562	57.88893	-152.84958	R4SBC	Riverine Channel
563	57.88906	-152.84924	R4SBC	Riverine Channel
564	57.88856	-152.85136	R4SBC	Riverine Channel
565	57.88825	-152.85215	R4SBC	Riverine Channel
566	57.88818	-152.85238	R4SBC	Riverine Channel
567	57.88794	-152.85227	R4SBC	Riverine Channel



Appendix B: Summary of Observation Point Sites

Site	Latitude	Longitude	NWI Code ^a	HGM Class ^b
568	57.88689	-152.85270	R4SBC	Riverine Channel
569	57.88683	-152.85273	R4SBC	Riverine Channel
570	57.88692	-152.85285	R4SBC	Riverine Channel
571	57.88656	-152.85235	R4SBC	Riverine Channel
573	57.88514	-152.85311	R4SBC	Riverine Channel
574	57.88451	-152.85355	R4SBC	Riverine Channel
575	57.88492	-152.85093	R4SBC	Riverine Channel
576	57.88511	-152.85044	U	N/A
579	57.88655	-152.85411	R3UBH	Riverine Channel
580	57.88677	-152.85470	R3UBH	Riverine Channel
585	57.89019	-152.85240	U	N/A
586	57.89036	-152.85570	R3UBH	Riverine Channel
587	57.88911	-152.85758	U	N/A
588	57.88802	-152.85591	R4SBC	Riverine Channel
590	57.88788	-152.85596	R4SBC	Riverine Channel
591	57.88571	-152.85449	R3UBH	Riverine Channel
592	57.88448	-152.85456	R3UBH	Riverine Channel
593	57.88341	-152.85398	R3UBH	Riverine Channel
594	57.88249	-152.85549	R3UBH	Riverine Channel
595	57.88238	-152.85673	R3UBH	Riverine Channel
596	57.88205	-152.85354	R1UBV	Riverine Channel
597	57.88276	-152.85280	R1UBV	Riverine Channel
598	57.88579	-152.83972	R3UBH	Riverine Channel
599	57.88554	-152.84606	R3UBH	Riverine Channel

^a NWI: National Wetlands Inventory. Cowardin et al. 1979. See Table 3 for full descriptions.

^b HGM: Hydrogeomorphic. Brinson 1993



Site 002: Upstream view of stream. Photo taken July 19, 2018.



Site 002: Downstream view of stream. Photo taken July 19, 2018.



Site 005: Northern view of vegetation. Photo taken July 19, 2018.



Site 005: Eastern view of vegetation. Photo taken July 19, 2018.



Site 008: Culvert outlet. Photo taken July 19, 2018.



Site 008: Downstream view of stream. Photo taken July 19, 2018.



Site 015: Upstream view of stream. Photo taken July 22, 2018.



Site 015: Top view of stream. Photo taken July 22, 2018.



Site 017: Upstream view of stream. Photo taken July 22, 2018.



Site 017: Downstream view of stream. Photo taken July 22, 2018.



Site 018: Soil. Photo taken July 22, 2018.



Site 018: Northern view of vegetation. Photo taken July 22, 2018.



Site 019: Upstream view of stream. Photo taken July 22, 2018.



Site 019: Downstream view of stream. Photo taken July 22, 2018.



Site 020: Upstream view of stream. Photo taken July 22, 2018.



Site 020: Downstream view of stream. Photo taken July 22, 2018.



Site 024: Upstream view of stream. Photo taken July 22, 2018.



Site 024: Downstream view of stream. Photo taken July 22, 2018.



Site 025: Upstream view of stream. Photo taken July 23, 2018.



Site 025: Downstream view of stream. Photo taken July 23, 2018.



Site 026: Upstream view of stream. Photo taken July 23, 2018.



Site 026: Downstream view of stream. Photo taken July 23, 2018.



Site 026b: Upstream view of stream. Photo taken July 23, 2018.



Site 026b: Downstream view of stream. Photo taken July 23, 2018.



Site 027: Upstream view of stream. Photo taken July 23, 2018.



Site 027: Downstream view of stream. Photo taken July 23, 2018.



Site 028: Upstream view of stream. Photo taken July 23, 2018.



Site 028: Downstream view of stream. Photo taken July 23, 2018.



Site 029: Upstream view of stream. Photo taken July 23, 2018.



Site 029: Downstream view of stream. Photo taken July 23, 2018.



Site 030: Upstream view of stream. Photo taken July 23, 2018.



Site 030: Downstream view of stream. Photo taken July 23, 2018.



Site 033: Upstream view of stream. Photo taken July 23, 2018.



Site 033: Downstream view of stream. Photo taken July 23, 2018.



Site 034: Upstream view of stream. Photo taken July 23, 2018.



Site 034: Downstream view of stream. Photo taken July 23, 2018.



Site 036: Upstream view of stream. Photo taken July 23, 2018.



Site 036: Downstream view of stream. Photo taken July 23, 2018.



Site 041: Culvert outlet. Photo taken July 24, 2018.



Site 041: Downstream view from culvert. Photo taken July 24, 2018.



Site 042: Eastern view of vegetation. Photo taken July 24, 2018.



Site 042: Southern view of vegetation. Photo taken July 24, 2018.



Site 558: Upstream view of stream. Photo taken May 7, 2018.



Site 558: Downstream view of stream. Photo taken May 7, 2018.



Site 559: Upstream view of stream. Photo taken May 7, 2018.



Site 559: Downstream view of stream. Photo taken May 7, 2018.



Site 560: Upstream view of stream. Photo taken May 7, 2018.



Site 560: Downstream view of stream. Photo taken May 7, 2018.



Site 561: Upstream view of stream. Photo taken May 7, 2018.



Site 561: Downstream view of stream. Photo taken May 7, 2018.



Site 561b: Soil. Photo taken May 7, 2018.



Site 561b: Vegetation. Photo taken May 7, 2018.



Site 562: Upstream view of stream. Photo taken May 7, 2018.



Site 562: Downstream view of stream. Photo taken May 7, 2018.



Site 564: Upstream view of stream. Photo taken May 7, 2018.



Site 564: Downstream view of stream. Photo taken May 7, 2018.



Site 565: Upstream view of stream. Photo taken May 7, 2018.



Site 565: Downstream view of stream. Photo taken May 7, 2018.



Site 566: Upstream view of stream. Photo taken May 7, 2018.



Site 566: Downstream view of stream. Photo taken May 7, 2018.



Site 568: Upstream view of stream. Photo taken May 7, 2018.



Site 568: Downstream view of stream. Photo taken May 7, 2018.



Site 570: Seep. Photo taken May 7, 2018.



Site 570: Downstream view of stream. Photo taken May 7, 2018.



Site 571: Upstream view of stream. Photo taken May 7, 2018.



Site 571: Downstream view of gravel fill. Photo taken May 7, 2018.



Site 573: Upstream view of stream. Photo taken May 7, 2018.



Site 573: Downstream view of stream. Photo taken May 7, 2018.



Site 574: Upstream view of stream to east. Photo taken May 7, 2018.



Site 574: Downstream view of stream to culvert inlet. Photo taken May 7, 2018.



Site 575: Upstream view of stream. Photo taken May 7, 2018.



Site 575: Downstream view of stream. Photo taken May 7, 2018.



Site 576: Eastern view of vegetation. Photo taken May 7, 2018.



Site 576: Western view of vegetation. Photo taken May 7, 2018.



Site 579: Upstream view of stream. Photo taken May 7, 2018.



Site 579: Downstream view of stream. Photo taken May 7, 2018.



Site 580: Upstream view of stream. Photo taken May 7, 2018.



Site 580: Downstream view of stream. Photo taken May 7, 2018.



Site 585: Southern view of vegetation. Photo taken May 7, 2018.



Site 585: Western view of vegetation. Photo taken May 7, 2018.



Site 586: Upstream view of stream. Photo taken May 7, 2018.



Site 586: Downstream view of stream. Photo taken May 7, 2018.



Site 587: Northern view of vegetation. Photo taken May 7, 2018.



Site 587: Eastern view of vegetation. Photo taken May 7, 2018.



Site 588: Upstream view of vegetation. Photo taken May 7, 2018.



Site 588: Downstream view of stream. Photo taken May 7, 2018.



Site 590: Upstream view of stream. Photo taken May 7, 2018.



Site 590: Downstream view of stream. Photo taken May 7, 2018.



Site 591: Upstream view of stream. Photo taken May 7, 2018.



Site 591: Downstream view of stream. Photo taken May 7, 2018.



Site 592: Upstream view of stream to west. Photo taken May 7, 2018.



Site 592: Downstream view of stream. Photo taken May 7, 2018.



Site 593: Upstream view of stream. Photo taken May 7, 2018.



Site 593: Downstream view of stream to culvert inlet. Photo taken May 7, 2018.



Site 594: Upstream view of stream. Photo taken May 7, 2018.



Site 594: Downstream view of stream to culvert inlet. Photo taken May 7, 2018.



Site 595: Upstream view of stream. Photo taken May 7, 2018.



Site 595: Downstream view of stream. Photo taken May 7, 2018.



Site 596: Upstream view of stream. Photo taken May 7, 2018.



Site 596: Cross view of stream mouth. Photo taken May 7, 2018.



Site 597: Upstream view of stream. Photo taken May 7, 2018.



Site 597: Downstream view of stream mouth. Photo taken May 7, 2018.



Site 598: Upstream view of stream above culvert inlet. Photo taken May 7, 2018.



Site 598: Downstream view of stream mouth. Photo taken May 7, 2018.



Site 599: Upstream view of stream. Photo taken May 7, 2018.



Site 599: Downstream view of stream. Photo taken May 7, 2018.