APPENDIX F. WETLANDS DELINEATION AND USACE CONCURRENCE DOCUMENTATION

UNITED STATES AIR FORCE

JOINT BASE ELEMENDORF-RICHARDSON, ALASKA

BRYANT ARMY AIR FIELD- BASH/WEZ AREA HAZARD MITIGATION PROJECT
JOINT BASE ELMENDORF-RICHARDSON
JBER-Elmendorf, Alaska

Preliminary Jurisdictional Determination Report

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ACRONYMS AND ABBREVIATIONS USED IN THIS REPORT AND ASSOCIATED APPENDICES

ANG	Army National Guard
BAAF	Bryant Army Air Field
BASH	Bird Air Strike Hazard
CFR	Code of Federal Regulation
EPA	Environmental Protection Agency
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GIS	Geographic Information System
GPS	Global Positioning System
JBER	Joint Base Elmendorf-Richardson
JDR	Jurisdictional Determination Report
LIDAR	Light Identification Detection and Ranging
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	National Resource Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
PWS	Professional Wetland Scientist
RODM	Routine Onsite Data Method
TNW	Traditional Navigable Waters
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Survey
USGS	U.S. Geological Survey
WEZ	Waterfowl Exclusion Zone
WOUS	Water of the U.S.
WSS	Web Soil Survey

INTRODUCTION AND PURPOSE

The purpose of this preliminary jurisdictional determination report (hereinafter referred to as "report") is to present information to support the U.S. Army Corps of Engineers (USACE) in their determination of the jurisdictional status of wetlands and other areas described herein, under authority of Section 404 of the Clean Water Act. By federal law and under Executive Order EO11990, and other associated regulatory guidance, wetland and water impacts to wetlands must be avoided to the maximum extent practicable.

The proposed location for the Bryant Army Air Field (BAAF) Bird Aircraft Strike Hazard (BASH)/ Waterfowl Exclusion Zone (WEZ) Hazard Mitigation Project Site is located in lands surrounding BAAF; north of the Glenn Highway located at U.S. Air Force (USAF) Base Elmendorf on Joint Base Elmendorf-Richardson (JBER), Alaska (Figure 1). Approximate coordinates for the center of the proposed project area were latitude 61.264 North and longitude 149.664 West.

Figure 1: Project vicinity

The USAF is currently developing a proposed project to improve airfield safety in the BASH and WEZ areas around BAAF. Large bodied raptors, waterfowl and waterbirds, and even large flocks of passerines pose a serious airfield risk. Wetlands where intermittent or permanent standing water occur will encourage waterfowl, waterbird, raptor, and passerine resting, nesting, and/or feeding and can pose is serious, life-threatening hazards to aircraft operating at the air field. The USAF and Army National Guard (ANG) are developing a project to mitigate this hazard by managing open water in wetlands in the BASH and WEZ areas.

This document does not include a detailed project description at this time, as the resulting jurisdictional determination may or may not determine the practicability of certain project components. A full environmental assessment and evaluation of alternatives will be conducted in accordance with the National Environmental Policy Act. Determination by the USACE as to whether or not the subject site contains jurisdictional wetlands as well as whether or not areas that were previously mapped as wetlands are in fact wetlands by definition, is necessary to the environmental assessment.

Wetlands, waters of the U.S., and uplands (non-wetlands), as referenced in this report, are defined as:

> *Wetlands:* "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR Part 328.3[b]). Wetlands are a subset of "waters of the U.S."

As described in the USACE *Wetlands Delineation Manual* (Environmental Laboratory 1987) and in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Alaska Region* (USACE 2007), wetlands must possess the following three characteristics: 1) a vegetation community dominated by plant species that are typically adapted for life in saturated soils, 2) inundation or saturation of the soil during the growing season, and 3) soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions.

Waters of the U.S.: Waters of the U.S. include other waterbodies regulated by the USACE, including navigable waters, lakes, ponds, and streams, in addition to wetlands.

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

In addition to a site meeting wetland criteria, it may also be classified as either a jurisdictional or non-jurisdictional wetland depending on its connectivity to waters of the U.S. or their tributaries, as described above. Court decisions released in 2008 have attempted to clarify USACE regulatory authority over wetlands without a direct surface water connection or significant nexus to other regulated waters. Jurisdiction of wetlands and waters shall be defined herein, in accordance with the proposed revised definition of 'Waters of the United States' (WOUS), under the Clean Water Act (40 CFR 230.3, April 21, 2014). This shall include those wetlands with a "significant nexus" to clearly identified WOUS, including those waters, including wetlands, either alone or in combination with other similarly situated waters in the region (i.e., the watershed that drains to the nearest water identified under the approved definition), significantly affects the chemical, biological, or physical integrity of a WOUS. Similarly situated is interpreted as when wetlands perform similar functions and are located sufficiently close together so that they can be evaluated as a single landscape unit with regard to their effect on the chemical, physical, or biological integrity of connected WOUS. Wetlands without a significant nexus to a traditional navigable water (TNW) would be classified as non-jurisdictional. However, on federal lands, Executive Order 11990, Protection of Wetlands, requires avoidance and/or minimization of impact to wetlands to the maximum extent practicable, regardless of whether wetlands meet the definition of "jurisdictional". Thereby, this submittal includes evaluation of (a) whether sites are, by definition, "wetland" as well as (b) if sites are also, by definition, "jurisdictional".

METHODS

The project scope was determined by identifying all wetland areas inventoried within the BASH and WEZ areas around BAAF using the current JBER Wetland Inventory (JBER-GIO 2017), a GIS layer. This wetland inventory is comprised of multiple data sets combined into one comprehensive database and includes the National Wetland Inventory, inventory efforts by Lichvar et al. (1997) and MWH Americas, Inc. (2013), as well as annual updates made from field efforts ongoing since 2013 by the 673d CES/CEIEC Natural Resources Program. Not all areas identified in the inventory have been validated in the field.

The wetland delineation methodology used to characterize each of the six study areas consisted of three main components. First, a review of existing data including inventory information and historic aerial photography from 1950-2015 was completed. Second, a preliminary wetland mapping effort using tabletop resources including other GIS resources such as hydrology data, elevation and contours, hillshade, soils, and waterways was completed. Third, a field delineation was conducted in accordance with the USACE wetland delineation methodology (Environmental

Laboratory 1987, USACE 2007). A final cumulative review of all data was conducted prior to final mapping of the determined wetland boundary.

Review of Existing Data

The following information was reviewed to aid in determining the presence of wetlands in the study area:

- Topography: 2012 LIDAR (hillshade)
- Aerial imagery: 1950 (black and white, summer), 1981 (fall, wet season), 2007 (fall, wet season), 2009 (summer, dry season) 2012 (late fall, post flooding), and 2015 (summer, dry season)
- National Resource Conservation Service (NRCS) Soil Survey Mapping (Web Soil Survey Accessed 16 June 2017), Anchorage Area Soil Survey (Soil Conservation Service 1979)
- Land Cover Classification (Jorgenson et al. 2003)
- Historic Wetland Inventory (Lichvar et al. 1997, MWH Americas Inc. 2013)
- JBER Wetland Inventory (JBER-GIO 2016)

Preliminary Wetland Mapping

Charlene Johnson, JBER Wetland Ecologist (P.W.S. #1868) reviewed aerial photographs, soil survey mapping, and existing wetland inventory mapping to determine the presence of wetlands or other waters of the U.S. in the study area. A total of six areas were identified in the inventory. A map of the study area is included in Appendix 1, as is a report on the soils mapped and a summary of the climate history of the project area. Delineating wetlands from aerial photography included looking for vegetation clues, evidence of soil saturation, and evaluating topographic features across all available years of imagery. On aerial photography, saturation-adapted vegetation communities, low plant height, open canopy structure, and the presence of hydrophytic plant species can be indicators of wetlands. A site's proximity to streams, open water habitat, and marshes can also be indicative of the potential presence of water. Topographic depressions, toes of slopes, and flat topography can serve as indicators of potential soil drainage pathways. These observations were corroborated with field observations to determine designation of the wetland boundary. GIS polygons were then categorized with NWI mapping codes and classifications based on the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and *The Alaska Vegetation Classification* (Viereck et al. 1992). Preliminary wetland boundaries defined in the *U.S. Air Force Installation Wetlands Mapping and Field Verification Report* (MWH 2013) and updated annually by JBER Natural Resources were used for the initial project area assessment.

Field Delineation

Field reconnaissance occurred on 22, 23, and 26 June 2017. One additional site visit was performed on 29 August at one of the locations where vegetation was not discernible during the original site visit. Site investigations were performed by Charlene Johnson, JBER Wetland Ecologist (P.W.S #1868) accompanied by Army National Guard (ANG) NEPA Program Manager, Mandy K. Hope. In the field, characteristic wetland and upland areas were studied using the three parameter method of determining an area's wetland status outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region* (USACE 2007) and the 1987 *Corps of Engineers Wetlands Delineation Manual* (USACE 1987). Standard Routine Onsite Determination Method (RODM) data forms were completed at representative observation points

and photographs were taken to document the vegetation and field conditions. Observation points were selected where wetland/upland status was obvious (i.e. ponds and inundated areas); additional observations were made until the boundary was determined. Each location was recorded with a Trimble Geo 7X GPS. Data points were converted to shape files and transferred to ArcMap GIS. The completed data forms, maps with delineated boundaries, and photographs for all wetlands investigated are included in Appendix 2 through 6.

SUMMARY OF WETLAND INDICATORS

Six wetland sites were indicated in the current JBER Wetland Inventory. Four of these sites failed to meet criteria that define a wetland. Two wetland areas were delineated. Neither of the two wetland areas delineated appeared to have a surface water connection to a navigable waterway. Appendix 2 through 6 document findings of field investigations that took place during the 2017 growing season. Table 1 summarizes indicators observed at each of these plot locations. Table 2 summarizes mapped soil types at each of the study areas.

Four of the six wetlands were sampled and observations were documented using standard USACE Routine Onsite Determine Method (RODM) data forms. Two upland sites were also investigated in the field, but historical information and field observations clearly showed no indication of latent wetland conditions and therefore no detailed data was collected. All sites are described below and information gathered, including photographs and a survey of aerial imagery are included in Appendices 2 through 6.

Table 1. Summary of Project Area Wetland

Wetland Number	Plot ID	**Hydrophytic Vegetation**	**Hydric Soil**	**Wetland Hydrology**	Determination NWI/HGM	Wetland Size
HRCHE2156	DP-1	YES	YES	YES	PUB2J/Depressional	1.41 acres
	DP-2	YES	YES	YES	PEM1J/Depressional	
HRCHE0167	DP-3	NO	NO	NO	Non-Wetland	
HRCHS0166	DP-4	YES	YES	YES	PSS1/Depressional	1.79 acres
	DP-5	YES	NO	NO	Non-Wetland	
HRCHS0168	DP-6	NO	NO	NO	Non-Wetland	
HRCHS0163	DP-7	YES	NO	NO	Non-Wetland	
HRCHS1928	DP-8	NO	NO	NO	Non-Wetland	

Table 2. Elmendorf Area Soil Series Units Located in Study Area

Soil Classification	Soil Class Features
Deception-Estelle-Kitchatna (411/415) *HRCHE0166*	• Undulating to Steep • Coarse, silty loess over gravelly till • Well-drained; medium to high runoff • Silt loam over gravelly sandy loam • Permeability moderate • Water capacity moderately high; (ksat 0.58- 2.00 in/hr) • Non-Hydric
Disappear-Pioneer Peak (416) *HRCHS0168*	• 0-7% slopes • Concave outwash plains • Coarse-loamy alluvium over gravel glacial till • Organic (up to 8") over silt to gravel loam • Somewhat poorly drained • Water capacity moderately high; (ksat 0.57- 1.98 in/hr) • Hydric soil possible (where mucky)
Pits, Gravel (443) *HRCHE2156*	• Convex (Kitchatna) to Concave (Jacobson) rolling landforms in glacial moraine • Well drained (Kitchatna) or very poorly drained (Jacobson) • Greyish to dark brown loam (depending on slope) • Typically 5-10 in. of loess over very gravelly moraine • Moderately high/high permeability (ksat 0.57-2.00 in/hr) • Water capacity is variable- very high to low
Kashwitna-Kitchatna (428) *HRCHS0167* *HRCHS1928* *HRCHS0163*	• 0-3% Slopes • Convex outwash plains • Coarse silty-loess over gravelly outwash • Well drained • Water capacity moderately high to high (0.57-1.98 in/hr) • Non-hydric

SUMMARY OF OBSERVED SITE CONDITIONS

HRCHE2156 was identified in the JBER Wetland Inventory as a 1.41 acre semi-permanently flooded, excavated, palustrine, open-water system (PUBfx). The site visit conducted in June yielded a dry pond with no dry season water table but with clear primary and secondary indicators of hydrology. Vegetation in the dry basin was not identifiable, so a follow-up survey of vegetation was conducted in August. The vegetative structure of the site is limited to emergent, weedy vegetation which appears to sustain drought and flooding intermittently throughout the season. The wetland boundary was delineated around field indicators of ordinary high water (visible in drift lines and in soil moisture), but then modified based on observations made from aerial images. The basin is a constructed, frequently disturbed, completely closed system that is fed by sheet flow (stormwater) and snowmelt (snowdump) from BAAF. This site does serve to prevent release of stormwater to natural areas downstream and filter pollutants prior to releasing water into the ground. There is no natural or constructed outfall. In 1950 aerial imagery, the site appears to be forested upland. The next imagery record is from 1981, post excavation and water is present in the basin. Most imagery is from fall, which is typically wet and the basin is observed as containing water. The soil type mapped at this site is reflective of the status as a gravel pit, which fits the observed conditions. This wetland area, having intermittent open water, serves as potential nesting, staging, rearing, and feeding habitat for waterfowl, which would be a hazard since the area is immediately next to an airfield. BASH can be fatal to aircraft pilots and passengers, as well as to birds. RODM data forms, site photos, and a survey of historic aerial imagery are included in Appendix 2.

HRCHS0167 was originally identified on the JBER wetland inventory as a scrub shrub wetland (PSS1B), presumably from interpretation of aerial imagery. Field investigations showed a robust white-spruce dominated community with additional regeneration of balsam poplar and quaking aspen. The ground cover was dominated by upland mosses and lichens and soil observations indicated the site was very dry. Aerial imagery in 1950 showed the site had been historically disturbed and again may have been cleared for training exercises as was observed in the imagery taken in 1981, but has subsequently been allowed to regenerate naturally. There is no indication in the soil profile (no observed buried A or B horizons) or in aerial imagery that fill was placed or land was otherwise altered to convert the site from wetland. Based on these observations, it can be concluded that this site was erroneously identified as wetland during table top surveys used to inventory wetlands in past efforts. The soil type mapped at this site is Kashwitna-Kitchatna, which are typically well drained, coarse silty loess over gravelly outwash. The field conditions appeared to match the mapped soil type. RODM data forms, site photos, and a survey of historic aerial imagery is included in Appendix 3.

HRCHE0166 was shown on the JBER wetland inventory as a scrub shrub wetland (PSS1B). In the field it was determined that the wetland is slightly larger than mapped (1.79 vs. 1.08 acres), primarily due to a portion of the wetland extending into the forested edge to the west, where a culvert discharges stormwater into the basin from under the Glenn Highway. In 1950, aerial imagery indicates that the area was not developed at all, but was subsequently disturbed by construction of the Glenn Highway Right-of-Way prior to imagery taken in 1981. Additional modifications around the area are visible in 2007 imagery, which appear to further isolate the depression, which does not appear to have any other outlet. 1950 aerial imagery does not indicate areas that would pond, however only a few trees are visible in otherwise low vegetation. No other streams or surface waters appear to occur in the area around the study area. While the site currently meets wetland criteria, it is not clear whether it was ever naturally occurring as a wetland.

The site does receive stormwater, intermittently, via a culvert at the western end of the site, and thereby functions for stormwater management and filtration of pollutants from discharge. The soil type mapped at this site is Deception-Estelle-Kitchatna, which are typically well drained, coarse silty loess over gravelly outwash. The field conditions did not appear to match the mapped soil type, since a large amount of mucky organics covered the majority of the site- more similar to the Disappear-Pioneer Peak soils mapped to the north. There was no open water observed in the field or in aerial imagery, including in flooding years, so the value of this site for waterfowl, water birds, or other open-water dependent wetland birds is unlikely. Lack of connectivity to an anadromous waterway or other open water source restricts the value of this site to fish. The area is publically accessible and is alongside the bike path. RODM data forms, site photos, and a survey of historic aerial imagery are included in Appendix 4.

HRCHS0168 was shown on the JBER wetland inventory as a saturated palustrine scrub shrub wetland, but failed to meet any wetland criteria when observed in the field. Like HRCHS0167, the site was dominated by robust, mature white spruce with a ground flora dominated by upland mosses and other FACU-UPL plants including prickly rose, bunchberry, raspberry, and fireweed. Review of historic aerial imagery indicated that the site had been cleared for military maneuvers, but nothing to indicate that the site was filled, ditched, or otherwise altered to remove wetlands or wetness at the site. Based on the well vegetated condition of the soil and maturity and condition of white spruce observed on site, there was no indication of latent wetland indicators, and no RODM data forms were completed for this site. The soil type mapped at this site was Disappear-Pioneer Peak, which are typically organic to mucky organic over coarse-loamy alluvium and gravel. The field conditions did not appear to match the mapped soil type, as there weren't any accumulated dark or mucky organics indicative of poorly drained soils. Site photos and aerial imagery survey is included in Appendix 5.

HRCHS0163 was shown on the JBER wetland inventory as a saturated, palustrine, scrub-shrub wetland, but failed to meet all three wetland criteria when observed in the field. This site was dominated by black spruce, feathermoss, lingonberry, and blueberry; as well as a low abundance of FACU forbs growing on hummocks. The site was relatively low and slightly concave, but failed to fully meet soil or hydrology indicators. The site was observed in a typical year and no "problem" area conditions were present. Vegetation, soil, and hydrology were not atypical or problematic, in accordance with the Alaska Supplement (USACE 2007). Soils in this study area are mapped as Kashwitna-Kitchatna; a well-drained, coarse silty-loess over gravelly outwash. The observed soil type was a sandy loam, approximately 15 inches thick over coarse gravel. Appendix C of the Functional Profile of Black Spruce Wetlands in Alaska (Post 1996) lists the physical descriptions of black spruce dominated habitats found in Alaska. Based on the vegetative assemblage, the site could be described as a "mesic" *Picea mariana/Vaccinium uliginosum-Rhododenron groenlandicum/Pleurozium schreberi Community* (Foote 1983), which is not typically described as "wetland" (Post 1996). I have personally studied several similar black spruce dominated systems between June and September over multiple years on JBER and in other areas of Southcentral Alaska. My findings have been consistent with the vegetation descriptions included in Post (1996). Soils in closed black spruce systems are typically temporarily saturated for at least a portion of the growing season while the cool, shaded, and moss-insulated soil remains at least partially frozen, usually between 16 and 10 inches below ground surface. During field investigations, water observed in the early season within the pit quickly drains once the ice layer is penetrated. Later in the growing season, when the ice layer is melts, the site drains quickly and soils will not saturate, even during prolonged rain events. Despite the mounded hummocks and microtopography observed within these systems, the soils were rocky, coarse sandy-loam and

well drained. Based on personal observations at these coarse-soiled sites, saturation within the upper 12" is not usually (occurring in five out of 10 years) sustained for a period long enough to influence development of hydric soil characteristics. Based on observation and professional judgment, the conclusion was that this site was non-wetland. Site photos and aerial imagery survey is included in Appendix 6.

HRCHS1928 was shown on the JBER wetland inventory as a saturated, palustrine, scrub-shrub wetland, but failed to meet any wetland criteria when observed in the field. Like HRCHS0167 and HRCHS0168, the site is dominated by robust white spruce with a ground flora dominated by upland mosses. Soils in this study area are mapped as Kashwitna-Kitchatna; a well-drained, coarse silty-loess over gravelly outwash. Review of historic aerial imagery indicates that the site has been cleared for military maneuvers, as recently as in the last few years, but nothing to indicate that the site was filled, ditched, or otherwise altered for the purpose of filling wetlands. Since there was no apparent indication of latent wetland indicators, no RODM data forms were completed for this site. Site photos and aerial imagery survey is included in Appendix 6.

WETLAND AND WATERBODY CLASSES OBSERVED IN PROJECT SITE

Two wetland areas were identified where indicators of hydrophytic vegetation, wetland hydrology, and hydric soils were observed. Connectivity of wetlands within the study area was assessed using GIS as well as in the field. Both of the study areas determined to be wetlands were depressional in a landscape with predominantly flat to slightly rolling terrain and neither appear to have been wetland historically, based on comparison of aerial imagery in 1950 and 1981. There were no traditionally navigable waters (TNW) located within the study area. The nearest TNW is Ship Creek, located more than one mile away. Neither of the wetlands determined within the study area had any outlet that would connect water to another TNW. HRCHS0166, a depression bounded by roadways, receives water from ditched areas on the south side of the highway. HRCHE2156, a stormwater pond created from a gravel borrow source receives water by sheet flow from Bryant Army Air Field. Lacking any defined outlet, discharge for both of these closed basins is assumed to be downward, to groundwater.

PRELIMINARY JURISDICTIONAL STATUS

Table 1 summarizes the findings at each of the wetlands studied within the BAAF BASH/WEZ study area.

Four wetlands, HRCHS0167, HRCHS0168, HRCHS1928, and HRCHS0163, were determined to be non-wetland and therefore would not be subject to regulatory review as wetlands in accordance to Section 404 of the Clean Water Act or Executive Order 11990.

HRCHE2156, which clearly meets the criteria for a "wetland", is an active stormwater pond that appears to have been constructed from uplands sometime between 1950 and 1981. Wetlands constructed from prior uplands are non-jurisdictional according to Section 404 of the Clean Water Act, but may still be subject to E.O. 11990, as the jurisdictional status of areas meeting the technical and scientific definition of "wetland" as described in the Order are still subject to environmental review.

HRCHS0166 is a study area also clearly meeting the definition of a wetland, however review of historic imagery was not conclusive regarding whether this site was historically wetland or upland. Major changes to landforms, hydrologic flow, and land use further complicate that determination.

Historic surface water connectivity to Ship Creek or McVeigh Marsh is not likely, considering pre-development conditions including mapped soil types, and drainage patterns derived from historic landforms and area topography. Lacking any current or historical outlet or surface water connection to an adjacent Water of the U.S. or other TNW, the wetland would therefore be considered isolated and non-jurisdictional.

CONCLUSION

The U.S. Air Force hereby requests that an approved Jurisdictional Determination be made on wetland and non-wetland determinations described in this report. Once the jurisdiction of the wetlands in the study area is confirmed, final project planning will commence and a permit application, if necessary, shall be forthcoming.

Any Federal undertaking located on Federal lands is subject to Executive Order 11990, Protection of Wetlands, regardless of whether or not that wetland is subject to the regulatory authority pursuant to Section 404 of the Clean Water Act. Therefore, the USAF is also seeking concurrence on the status of all study areas as either wetland or non-wetland, as indicated in this report, according to the definition of a wetland, described herein.

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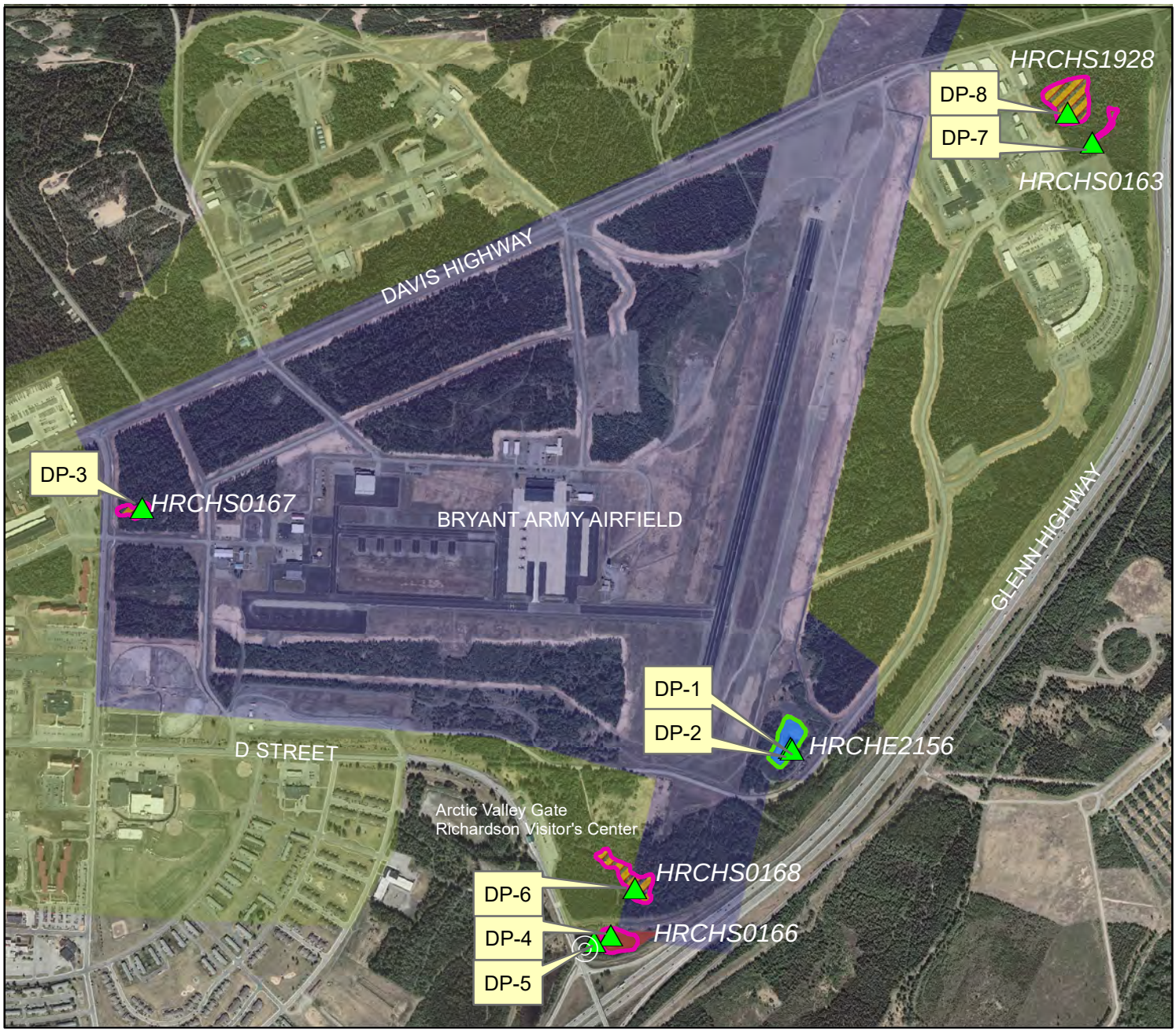
APPENDIX 1

Study Area Background Information

Site Overview Map
Alaska Climate Conditions Data
NRCS Soil Report

Appendix 1
BAAF BASH-WEZ Hazard Mitigation Project
Wetland Study Overview

A study of wetlands occurring within the Bryant Army Airfield (BAAF) Bird-Aircraft Strike Hazard (BASH) and Waterfowl Exclusion Zones (WEZ)



Legend

- Data_Point
- Culvert

wetl_label

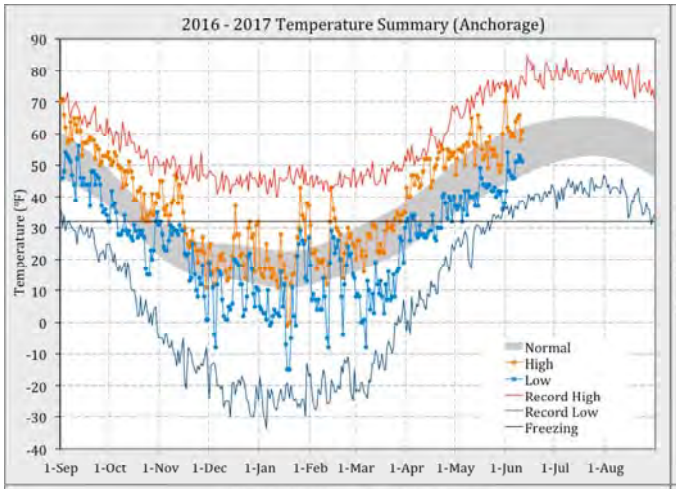
- PSS1B
- PUBFx
- DELINEATED: PSS1B
- DELINEATED: PUBFx
- UPLAND
- BASH Management Zone
- Waterfowl Exclusion Zone

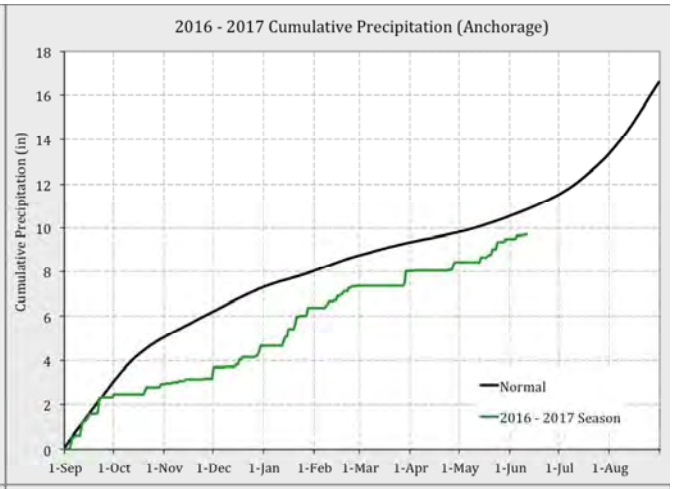
0 0.25 0.5 1 Miles

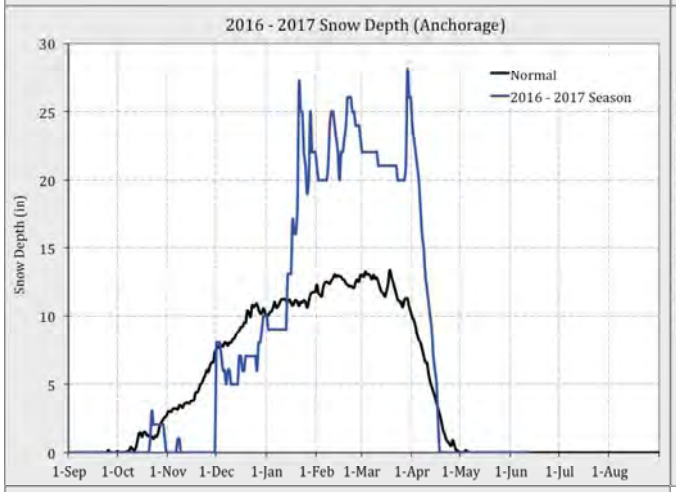
N

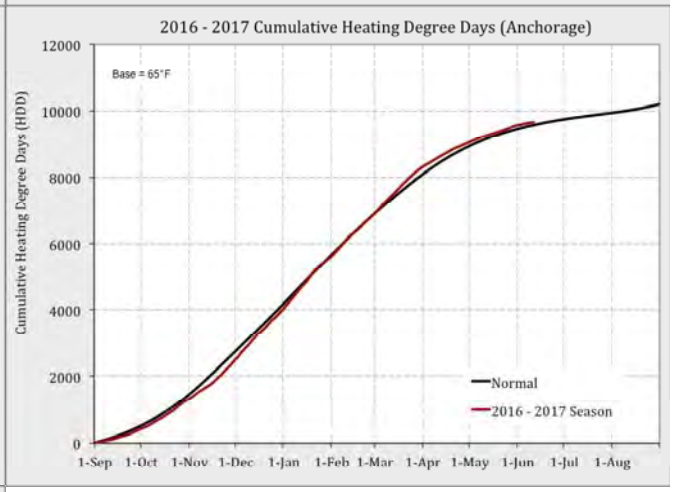
Aerial Date: 2015
UNCLASSIFIED//FOUO
Project: BAAF
C. Johnson
673d CES/CEIEC
8 September 2017

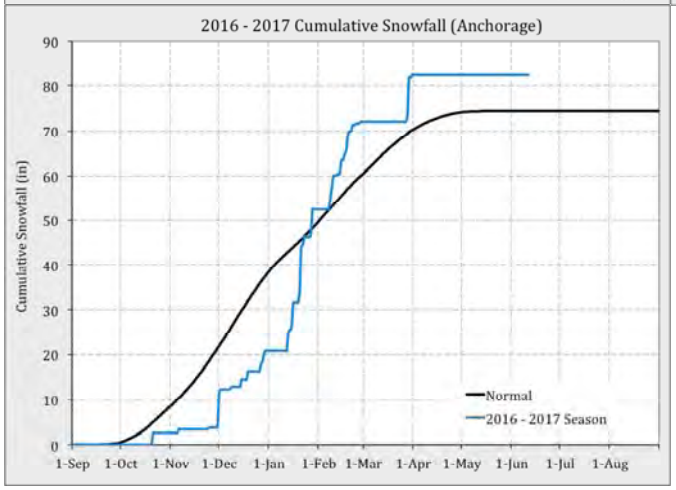
Anchorage International Airport











Normal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Minimum	11.1	13.8	19.2	29.1	39.6	47.7	52.2	50.0	42.0	29.1	16.6	13.2
Mean	17.1	20.2	26.6	36.8	47.8	55.2	58.8	56.7	48.6	34.8	22.2	19.0
Mean Maximimum	23.1	26.6	33.9	44.5	56.0	62.8	65.4	63.5	55.1	40.5	27.8	24.8
Mean Precipitation	0.73	0.72	0.60	0.47	0.72	0.97	1.83	3.25	2.99	2.03	1.16	1.11
Snowfall	11.3	10.9	9.9	4.0	0.3	0.0	0.0	0.0	0.4	7.9	13.1	16.7
CDD	0	0	0	0	0	0	2	0	0	0	0	0
HDD	1485	1254	1192	846	533	293	194	256	494	936	1284	1426

Temperature Extremes	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Highest Daily Maximum (°F)	50	48	51	69	77	85	84	82	73	64	54	48
Year	1961	1968	1984	2005	1969	1969	2003	1968	1957	2006	2002	1992
Lowest Daily Minimum (°F)	-34	-28	-24	-4	17	33	36	31	19	-5	-21	-30
Year	1975	1999	1971	1985	1964	1961	1964	1984	1992	1956	1956	1961
Highest Mean (°F)	31.98	32.68	36.47	40.6	50.69	58.82	62.55	61.19	53.63	43.94	35.15	28.37
Year	1977	1977	1965	1993	1993	1984	1977	2004	1995	2013	2002	1969
Lowest Mean (°F)	2.32	3.75	13.98	26.78	41.11	51.13	55.42	53.76	40.28	25.35	9.38	0.77
Year	1971	1990	1959	1972	1964	1971	1971	1973	1992	1996	1955	1980

Precipitation Extremes	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Highest 1-Day Maximum Precipitation (in)	1.1	1.16	1.25	1.32	0.97	1.62	2	2.76	1.41	1.68	1.16	1.39
Year	1987	1956	1986	2008	1980	1962	1956	1997	2012	1952	1964	1955
Highest Total Precipitation (in)	2.71	3.07	2.76	2.32	1.93	3.4	4.49	9.77	7.35	4.28	2.87	2.67
Year	1987	1955	1979	2008	1989	1962	2001	1989	2004	2002	2010	1955
Lowest Total Precipitation (in)	0.02	0.07	0.01	0.01	0.02	0.02	0.42	0.33	0.72	0.35	0.04	0.09
Year	1974	1958	1997	1957	1955	1952	1972	1969	1998	1960	2006	1995

Snow Extremes	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Highest 1-Day Maximum Snow (in)	11.2	13	22	15.5	5	0	0	0	6	12.6	10.9	15.6
Year	2007	1996	2002	2008	2001	1953	1953	1953	2004	1996	1964	1955
Highest Total Snow (in)	29.3	52.1	31	30.8	6.1	0	0	0	6.3	28.1	38.8	41.6
Year	2007	1996	1979	2008	2001	1953	1953	1953	2004	1996	1994	1955
Lowest Total Snow (in)	0.5	0.3	0.2	0	0	0	0	0	0	0	0.9	1.4
Year	1974	2003	1984	1993	1953	1953	1953	1953	1953	2003	1995	1980

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Fairbanks, Alaska
99775-7320

A Recognized State Climate Office - American Association of State Climatologists

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Anchorage Area, Alaska

Bryant Army Airfield

June 16, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

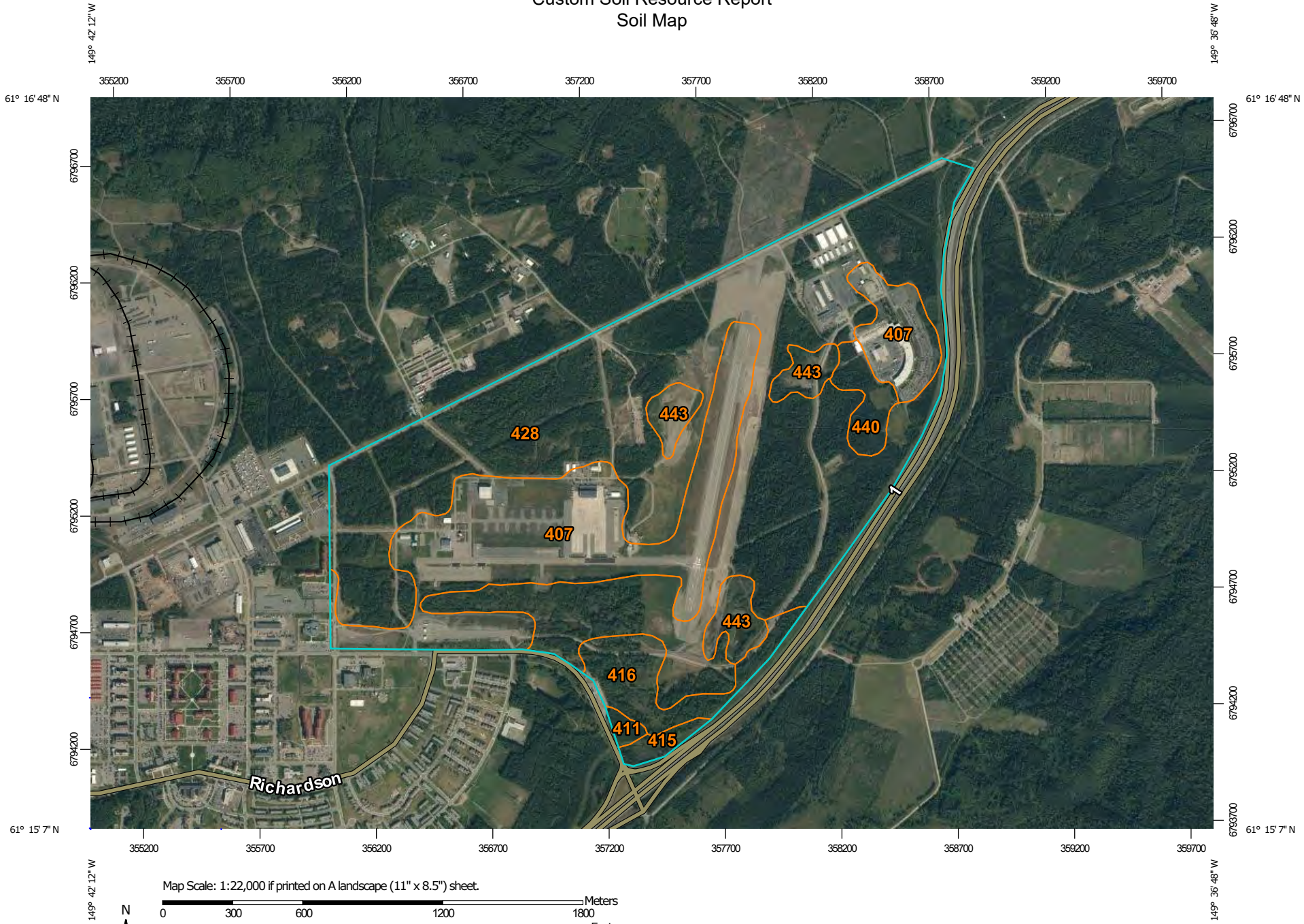
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:22,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 6N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Anchorage Area, Alaska
Survey Area Data: Version 11, Sep 27, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 26, 2011—Aug 29, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Anchorage Area, Alaska (AK605)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
407	Cryorthents and Urban land, 5 to 20 percent slopes	226.3	24.4%
411	Deception-Estelle-Kichatna complex, 12 to 20 percent slopes	4.0	0.4%
415	Deception-Estelle-Kichatna complex, undulating and steep	8.1	0.9%
416	Disappear-Pioneer Peak complex, 0 to 7 percent slopes	41.5	4.5%
428	Kashwitna-Kichatna complex, 0 to 3 percent slopes	591.4	63.7%
440	Pioneer Peak silt loam, 0 to 3 percent slopes	18.5	2.0%
443	Pits, gravel	38.0	4.1%
Totals for Area of Interest		**927.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Anchorage Area, Alaska

407—Cryorthents and Urban land, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: n9q5
Elevation: 30 to 330 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 29 to 43 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Cryorthents, skeletal, and similar soils: 45 percent
Urban land: 45 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cryorthents, Skeletal

Setting

Landform: Till plains, outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial sediments

Typical profile

C - 0 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 5 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Hydric soil rating: Unranked

Minor Components

Water

Percent of map unit: 5 percent
Landform: Rivers, lakes
Hydric soil rating: Unranked

Icknuun, ponded

Percent of map unit: 5 percent
Landform: Depressions on till plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

411—Deception-Estelle-Kichatna complex, 12 to 20 percent slopes

Map Unit Setting

National map unit symbol: n9n3
Elevation: 160 to 1,970 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 29 to 43 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Deception and similar soils: 40 percent
Estelle and similar soils: 35 percent
Kichatna and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deception

Setting

Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-silty loess over gravelly till

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: silt loam
Bs1 - 3 to 6 inches: silt loam
2Bs2 - 6 to 14 inches: very gravelly sandy loam
2C - 14 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 12 to 20 percent

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Estelle

Setting

Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-silty loess over gravelly till

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
E - 2 to 4 inches: silt loam
Bs1 - 4 to 18 inches: silt loam
2Bs2 - 18 to 28 inches: gravelly sandy loam
2C - 28 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Kichatna

Setting

Landform: Hills
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Coarse-silty loess over gravelly outwash

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
E - 2 to 4 inches: silt loam
Bs - 4 to 11 inches: silt loam
2BC - 11 to 14 inches: very gravelly sandy loam
2C - 14 to 60 inches: very gravelly sand

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Doroshin

Percent of map unit: 6 percent
Landform: Depressions on hills
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pioneer peak

Percent of map unit: 4 percent
Landform: Depressions on hills
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

415—Deception-Estelle-Kichatna complex, undulating and steep

Map Unit Setting

National map unit symbol: n9n4
Elevation: 250 to 1,970 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 29 to 43 degrees F

Frost-free period: 105 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Deception and similar soils: 40 percent
Estelle and similar soils: 35 percent
Kichatna and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deception

Setting

Landform: Hills
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Parent material: Coarse-silty loess over gravelly till

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: silt loam
Bs1 - 3 to 6 inches: silt loam
2Bs2 - 6 to 14 inches: very gravelly sandy loam
2C - 14 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 3 to 40 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Estelle

Setting

Landform: Hills
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Parent material: Coarse-silty loess over gravelly till

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
E - 2 to 4 inches: silt loam
Bs1 - 4 to 18 inches: silt loam
2Bs2 - 18 to 28 inches: gravelly sandy loam
2C - 28 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 3 to 40 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Kichatna

Setting

Landform: Hills
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Parent material: Coarse-silty loess over gravelly outwash

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
E - 2 to 4 inches: silt loam
Bs - 4 to 11 inches: silt loam
2BC - 11 to 14 inches: very gravelly sandy loam
2C - 14 to 60 inches: very gravelly sand

Properties and qualities

Slope: 3 to 40 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Doroshin, ponded

Percent of map unit: 6 percent
Landform: Depressions on hills
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

Pioneer peak

Percent of map unit: 4 percent
Landform: Depressions on hills
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

416—Disappear-Pioneer Peak complex, 0 to 7 percent slopes

Map Unit Setting

National map unit symbol: n9nx
Elevation: 30 to 820 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 29 to 43 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Disappear and similar soils: 60 percent
Pioneer peak and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Disappear

Setting

Landform: Depressions on outwash plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy alluvium over gravelly glaciofluvial deposits

Typical profile

Oe - 0 to 3 inches: mucky peat
Oa - 3 to 8 inches: muck
Bw - 8 to 14 inches: gravelly sandy loam
2C1 - 14 to 51 inches: silt loam
2C2 - 51 to 55 inches: loamy fine sand
3C3 - 55 to 60 inches: stratified extremely gravelly sandy loam to very gravelly coarse sand to loamy fine sand

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Description of Pioneer Peak

Setting

Landform: Depressions on till plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Eolian deposits over gravelly glacial drift

Typical profile

Oa - 0 to 3 inches: highly decomposed plant material
E/B - 3 to 5 inches: silt loam
Bs - 5 to 10 inches: silt loam
Eb/Bsb - 10 to 25 inches: silt loam
2BC - 25 to 37 inches: gravelly loam
2C - 37 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 12.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Jacobsen

Percent of map unit: 10 percent
Landform: Depressions on till plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

428—Kashwitna-Kichatna complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: n9np
Elevation: 80 to 1,480 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 29 to 43 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Kashwitna and similar soils: 45 percent
Kichatna and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kashwitna

Setting

Landform: Outwash plains
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-silty loess over gravelly outwash

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 5 inches: silt loam
Bs - 5 to 16 inches: silt loam
2BC - 16 to 18 inches: gravelly sandy loam
2C - 18 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Kichatna

Setting

Landform: Outwash plains
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-silty loess over gravelly outwash

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
E - 2 to 4 inches: silt loam
Bs - 4 to 11 inches: silt loam
2BC - 11 to 14 inches: very gravelly sandy loam
2C - 14 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Deception

Percent of map unit: 10 percent
Landform: Till plains
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Pioneer peak

Percent of map unit: 3 percent
Landform: Depressions on till plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Doroshin, ponded

Percent of map unit: 2 percent
Landform: Depressions on outwash plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

440—Pioneer Peak silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: n9nk
Elevation: 30 to 1,150 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 29 to 43 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Pioneer peak and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pioneer Peak

Setting

Landform: Depressions on till plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Eolian deposits over gravelly glacial drift

Typical profile

Oa - 0 to 3 inches: highly decomposed plant material
E/B - 3 to 5 inches: silt loam
Bs - 5 to 10 inches: silt loam
Eb/Bsb - 10 to 25 inches: silt loam
2BC - 25 to 37 inches: gravelly loam
2C - 37 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 12.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Kichatna
Percent of map unit: 10 percent
Landform: Till plains
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Disappear
Percent of map unit: 5 percent
Landform: Depressions on outwash plains
Down-slope shape: Convex
Across-slope shape: Concave
Hydric soil rating: Yes

Doroshin, ponded
Percent of map unit: 5 percent
Landform: Depressions on outwash plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

443—Pits, gravel

Map Unit Setting
National map unit symbol: n9q7
Elevation: 30 to 820 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 29 to 43 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition
Pits, gravel: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Gravel

Setting
Down-slope shape: Concave
Across-slope shape: Concave

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

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APPENDIX 2

HRCHE2156 Field Assessment Information

RODM Data Forms (DP-1, DP-2)
Wetland Delineation Map (DP-1, DP-2)
Site Visit Photographs (DP-1, DP-2)
Survey of Historical Aerial Imagery

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Bryant Army Air Field | Borough/City: JBER, Alaska | Sampling Date: 6/22/2017

Applicant/Owner: U.S. Air Force | Wetland No: HRCHE2156 | Sampling Point: DP-1

Investigator(s): Charlene C. Johnson (PWS#1868) | Landform (hillside, terrace, hummocks, etc.): Depression; stormwater basin

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands) | Lat: 61.259577 | Long: -149.651336 | Datum: WGS 84

Soil Map Unit Name: 443: pits, gravel | NWI classification: PUB2J

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

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

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

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

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

Remarks:
Site is a stormwater pond originally excavated for gravel resources.

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. None	0		
2.			
3.			
4.			
	=Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum			
1. None	0		
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum			
1. *Deschampsia caespitosa*	40	Yes	FAC
2. *Deschampsia brevifolia*	20	Yes	OBL
3. *Festuca rubra*	5	No	FAC
4. *Eleocharis palustris*	10	No	OBL
5. *Rorippa austriaca*	5	No	
6. *Alopecurus pratensis*	5	No	FACW
7.			
8.			
9.			
10.			
	85	=Total Cover	
50% of total cover: 43	20% of total cover: 17		

Plot Size (radius, or length x width) 10ft (herb only) | % Bare Ground ____

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	5	x 2 =	10
FAC species	45	x 3 =	135
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		175 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
Site was investigated in late June when water from break up had drained (groundwater recharge) from the pond. Vegetation was not readily identifyable. Returned in August, but the pond was again inundated, but additional vegetation information was collected.

SOIL

Sampling Point: DP-1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								1 in" moss/duff
1-5	5YR 4/1	60	5YR 4/6	40	RM	M	Loamy/Clayey	Sandy loam; Changes to 10YR 4/2
5-9	7.5YR 4/1	98	5YR 4/6	2	D	PL	Loamy/Clayey	gravelly; sandy loam
9-20	2.5YR 5/3	100					Loamy/Clayey	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

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

Remarks:

This data form is revised from Alaska Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016. Soil data is from pit dug in June 2017. No resampling of soil was conducted in August. Location is in a depression (concave) landform appropriate for Ak Color Change. Observed change from 5YR 4/1 to 10YR 4/2 in less than 15 minutes.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Salt Crust (B11)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 6		
Water Table Present?	Yes ___	No ___	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 12	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

See attached aerial imagery series depicting pre-gravel pit operations in 1950, through ponding in 1981, flooding in 2012, saturated in 2015.

Remarks:

Additionally: Observed a dried out dead frog, water beetle carcass, and snail carcasses in June; Saturation @ 12" in July; Inundation (same location) in August ~6". A3, B2, B4, C4, D2, D5 met in June;

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Bryant Army Air Field | Borough/City: JBER, Alaska | Sampling Date: 6/22/2017

Applicant/Owner: U.S. Air Force | Wetland No: HRCHE2156 | Sampling Point: DP-2

Investigator(s): Charlene C. Johnson (PWS#1868) | Landform (hillside, terrace, hummocks, etc.): Toe of Hillslope

Local relief (concave, convex, none): linear (up/down; side/side) | Slope (%): 30%

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands) | Lat: 61.259382 | Long: -149.651172 | Datum: WGS 84

Soil Map Unit Name: 443: pits, gravel | NWI classification: PEM1J

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

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

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

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

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

Remarks:
Site is a stormwater pond originally excavated for gravel resources. The wetland boundary was established immediately uphill of the watermark

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. None	0		
2.			
3.			
4.			
	=Total Cover		
50% of total cover:		20% of total cover:	

Sapling/Shrub Stratum			
1. None	0		
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum			
1. *Calamagrostis canadensis*	40	Yes	FAC
2. *Deschampsia caespitosa*	20	Yes	FAC
3. *Hordeum jubatum*	15	No	FACU
4. *Chenopodium album*	10	No	FACU
5. *Galeopsis tetrahit*	5	No	
6. *Trifolium pratense*	5	No	FACU
7. *Lepidium densiflorum*	5	No	FACU
8.			
9.			
10.			
	100	=Total Cover	
50% of total cover:	50	20% of total cover:	20

Plot Size (radius, or length x width) 10ft (herb only) % Bare Ground ____

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	95 (A)		320 (B)

Prevalence Index = B/A = 3.37

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
Site was investigated in late June when before vegetation was readily identifyable. Returned in August to collect additional vegetation information.

SOIL

Sampling Point: DP-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	5Y 3/1		7.5YR 3/4	25	C	PL	Loamy/Clayey	Mixed aggregate, sandy loam
								Disturbed Soil
								Roots to 6"
								Wood chunks observed at 12"

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

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

Remarks:

This data form is revised from Alaska Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016. Soil data is from pit dug in June 2017. No resampling of soil was conducted in August. Location is along a steep sideslope above the normal water table, but at a location where temporary inundation is possible seasonally. Does not meet landform requirements for Region W Test Indicators F6 and F8.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- X Water-Stained Leaves (B9)
- ___ Drainage Patterns (B10)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Crust (B11)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

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

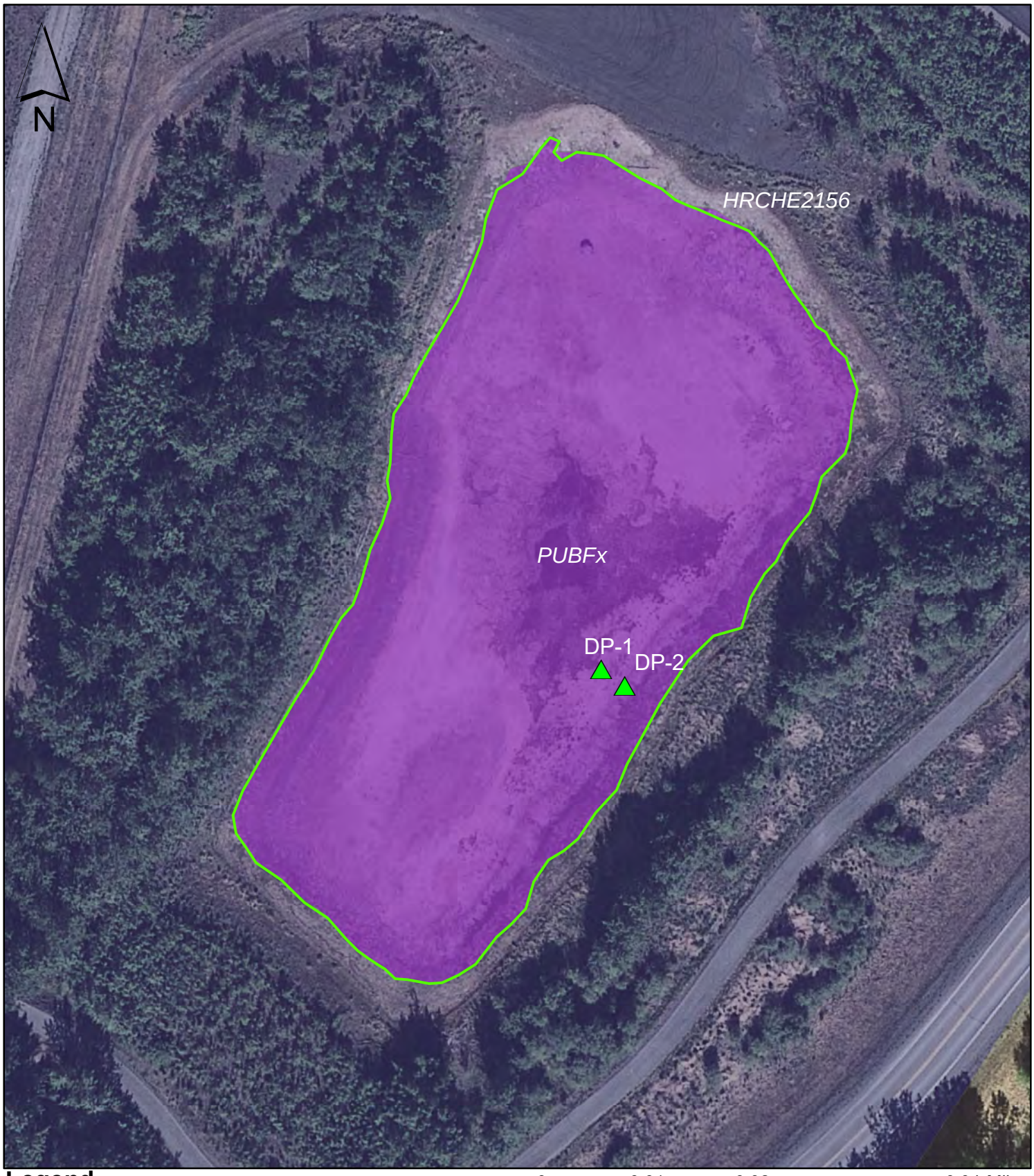
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

See attached aerial imagery series depicting pre-gravel pit operations in 1950, through ponding in 1981, flooding in 2012, saturated in 2015.

Remarks:

Inundation at the DP sample point is intermittantly flooded seasonally. Wetland boundary was delineated a few feet uphill of this data point, beyond the clearly defined watermarks, visible on site. The boundary was adjusted using available aerial imagery, which is variable by season.

Figure 1: JBER Wetland Delineation: BAAF Wetlands: HRCHE2156



Legend

- Data_Point
- OPEN_WATER
- DELINEATED: PUBFx
- BASH Management Zone

0 0.01 0.02 0.04 Miles

UNCLASSIFIED//FOUO
Project: BAAF
C. Johnson
673d CES/CEIEC
1 September 2017

HRCHE2156 Initial Site Visit Photographs

22 June 2017

Figure 2: Panorama from sideslope on eastern side facing west-northwest.

Figure 3: Near DP-1, facing north across depression.

Figure 4: Near DP-2, facing north along sideslope.

Figure 5: DP-1 Soil pit

Figure 6: DP-2 Soil Pit

HRCHE2156 Follow-up Site Visit Photographs

29 August 2017

Figure 7: Pond depression from southern end facing northeast across depression.

Figure 1: Inundated near original DP-1.

Figure 9: Aquatic fauna found in basin bottom June 2017.

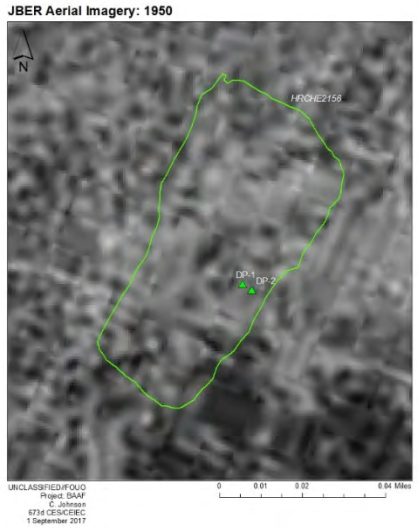


Figure 10: ca. 1950. Pre- disturbance, appears forested/non-hydric.

Figure 11: ca. 1981- Active gravel operations occurring; pond established.

Figure 12: ca. 2007 fall, wet season.

Figure 13: ca. 2009 summer, dry season.

Figure14: ca. 2012, fall, post flooding.

Figure 15: ca. 2015 summer, dry season.

APPENDIX 3

HRCHE0167 Field Assessment Information

RODM Data Forms (DP-3)
Wetland Delineation Map (DP-3)
Site Visit Photographs (DP-3)
Survey of Historical Aerial Imagery

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Bryant Army Air Field | Borough/City: JBER, Alaska | Sampling Date: 6/22/2017

Applicant/Owner: U.S. Air Force | Wetland No: HRCHE0167 | Sampling Point: DP-3

Investigator(s): Charlene C. Johnson (PWS#1868) | Landform (hillside, terrace, hummocks, etc.): Flat

Local relief (concave, convex, none): Convex | Slope (%): ~flat

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands) | Lat: 61.264242 | Long: -149.682142 | Datum: WGS 84

Soil Map Unit Name: 428: Kashwitna-Kichatna complex 0-3% slopes, well drained | NWI classification: PFO2

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

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

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

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

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

Remarks:
Site has been disturbed for training exercises. No wetland indicators present or likely and no abnormal circumstances present to conclude otherwise.

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea glauca*	40	Yes	FACU
2.			
3.			
4.			
	40	=Total Cover	
50% of total cover:	20	20% of total cover:	8
Sapling/Shrub Stratum			
1. *Picea glauca*	30	Yes	FACU
2. *Populus balsamifera*	20	Yes	FACU
3. *Alnus rugosa*	20	Yes	FAC
4. *Populus tremuloides*	5	No	FACU
5.			
6.			
	75	=Total Cover	
50% of total cover:	38	20% of total cover:	15
Herb Stratum			
1. *Vaccinium vitis-idaea*	20	Yes	FAC
2. *Cornus canadensis*	5	No	FACU
3. *Linnea borealis*	2	No	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	27	=Total Cover	
50% of total cover:	14	20% of total cover:	6

Plot Size (radius, or length x width) 10ft (herb only) % Bare Ground 0

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	120 (A)		460 (B)

Prevalence Index = B/A = 3.83

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Lichens (white, crustose) and moss (Pleurozium schreberi) covered nearly 80% of the total ground cover in this area. Mosses typical of moist/mesic spruce forest.

SOIL

Sampling Point: DP-3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								1 in" moss/duff
1-3	10YR 3/1	100					Loamy/Clayey	Sandy loam
3-5	10YR 5/2	100					Loamy/Clayey	Elluvial
5-16	7.5YR 4/4	100					Loamy/Clayey	Sandy loam, gravel
								Rooting depth to ~6"

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

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

Remarks:

Kashwitna-Kitchatna soils are silt loam to gravelly silt loam to sandy loam; Moderately high to high Ksat (0.57-2.00 in/hr) and well drained. Soil observed was consistent with mapped type.

This data form is revised from Alaska Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Crust (B11)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

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

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

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

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

Remarks:

Additionally: Soil dry to very dry (crumbly) in profile during "wet" season.

Figure 1: JBER WETLAND DELINEATION: BAAF WETLANDS: HRCHS0167

Legend

- Data_Point
- UPLAND
- BASH Management Zone
- Waterfowl Exclusion Zone

UNCLASSIFIED//FOUO
Project: BAAF
C. Johnson
673d CES/CEIEC
9 August 2017

HRCHS0167 Site Visit Photographs

22 June 2017

Figure 1: Representative photograph of ground cover.

Figure 3: Representative photograph of forest assemblage.

HRCHS0167: Survey of Historical Aerial Imagery

Figure 4: ca. 1950 season unknown. Imagery shows early disturbance.

Figure 5: ca. 1981 fall. Different active land use; Ssite allowed to regenerate.

Figure 6: ca. 2017 fall (wet season). No hydrology visible.

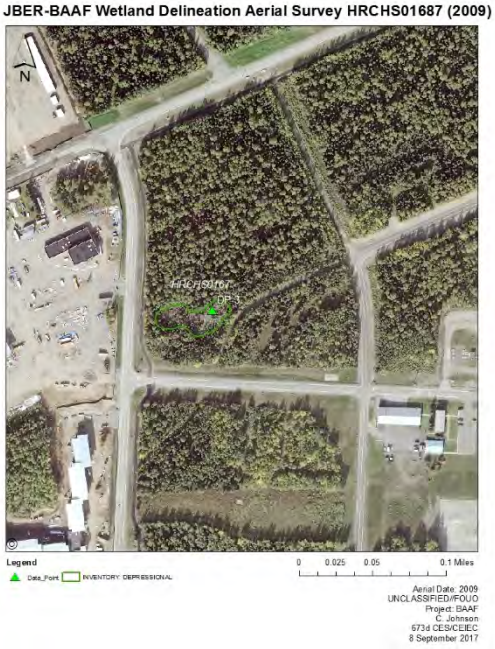


Figure 7: ca. 2009 summer (dry season).

Figure 8: ca. 2012 fall (post flooding); no hydrology visible.

Figure 9: ca. 2015 summer (dry season)

APPENDIX 4

HRCHS0166 Field Assessment Information

RODM Data Forms (DP-4, DP-5)
Wetland Delineation Map (DP-4, DP-5)
Site Visit Photographs (DP-4, DP-5)
Survey of Historical Aerial Imagery

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Bryant Army Air Field | Borough/City: JBER, Alaska | Sampling Date: 6/23/2017

Applicant/Owner: U.S. Air Force | Wetland No: HRCHS0166 | Sampling Point: DP-4

Investigator(s): Charlene C. Johnson (PWS#1868) | Landform (hillside, terrace, hummocks, etc.): Depression

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands) | Lat: 61.255007 | Long: -149.659336 | Datum: WGS 84

Soil Map Unit Name: 415: Deception-Estelle-Kichatna complex (undulating/steep) | NWI classification: PSS1

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

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

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

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

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

Remarks:
Site has been disturbed for the construction of the Glenn Highway. Water is clearly impounded within the study area. Culvert drains water into the wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum			
1. *Betula glandulosa*	10	No	FAC
2. *Chamaedaphne calyculata*	30	Yes	FACW
3. *Salix fuscescens*	10	No	FACW
4. *Ledum groenlandicum*	5	No	FAC
5. *Vaccinium uliginosum*	15	Yes	FAC
6.			
	70	=Total Cover	
50% of total cover:	35	20% of total cover:	14
Herb Stratum			
1. *Calamagrostis canadensis*	40	Yes	FAC
2. *Carex canescens*	60	Yes	FACW
3. *Comarum palustre*	10	No	OBL
4. *Eleocharis sp.*	2	No	FACW
5. *Sedge sp.*	1	No	FAC
6. *Galium sp.*	1	No	FAC
7.			
8.			
9.			
10.			
	114	=Total Cover	
50% of total cover:	57	20% of total cover:	23

Plot Size (radius, or length x width): 10ft (herb only) | % Bare Ground: 0

% Cover of Wetland Bryophytes (Where applicable): 0 | Total Cover of Bryophytes: ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	102	x 2 =	204
FAC species	67	x 3 =	201
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	179 (A)		415 (B)

Prevalence Index = B/A = 2.32

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
Sedge possibly C. utriculuta, but not identified in the field.

SOIL

Sampling Point: DP-4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								0-2+ duff
2-4	7.5YR 2.5/1	100					Muck	Fibric organic
4-9	7.5YR 2.5/2	100					Muck	Mucky loam, disturbed
9-16	7.5YR 2.5/1	95	7.5YR 5/4	5	CS	M	Muck	Mucky organic with sand inclusions
16-26	7.5YR 2.5/1	100					Mucky Peat	Sapric muck

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

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

Remarks:

Mapped as 415: Deception-Estelle-Kichatna complex (undulating/steep); inconsistent with field observations. Heavily saturated muck in basin of depression. See DP-5 for representative of distrubed edge (which surrounds depression).

This data form is revised from Alaska Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Crust (B11)
- X Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 12		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Seeping in at depth, not completely filled.

Remarks:

Black spruce that occurred on hummocks are all dead (3-15 feet tall). Mild HS odor within 12". Grass/sedge hummocks create microtopography within basin.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Bryant Army Air Field | Borough/City: JBER, Alaska | Sampling Date: 6/23/2017

Applicant/Owner: U.S. Air Force | Wetland No: HRCHS0166 | Sampling Point: DP-5

Investigator(s): Charlene C. Johnson (PWS#1868) | Landform (hillside, terrace, hummocks, etc.): Depression

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

Subregion: LRR W1, MLRA 224 (Cook Inlet Lowlands) | Lat: 61.254859 | Long: -149.66009 | Datum: WGS 84

Soil Map Unit Name: 415: Deception-Estelle-Kichatna complex (undulating/steep) | NWI classification: PSS1

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

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

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

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

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

Remarks:
Site highly disturbed, likely impounds water. Culvert receives stormwater and discharges into subject wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix bebbiana*	40	Yes	FAC
2. *Populus tremuloides*	20	Yes	FACU
3. *Populus balsamifera*	10	No	FACU
4.			
	70	=Total Cover	
50% of total cover:	35	20% of total cover:	14
Sapling/Shrub Stratum			
1. *Salix bebbiana*	60	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	60	=Total Cover	
50% of total cover:	30	20% of total cover:	12
Herb Stratum			
1. *Calamagrostis canadensis*	95	Yes	FAC
2. *Equisetum arvense*	20	No	FAC
3. *Epilobium palustre*	2	No	OBL
4. *Geum macrophyllum*	2	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	119	=Total Cover	
50% of total cover:	60	20% of total cover:	24

Plot Size (radius, or length x width) 10ft (herb only) | % Bare Ground 0

% Cover of Wetland Bryophytes 0 (Where applicable) | Total Cover of Bryophytes ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	2	x 2 =	4
FAC species	215	x 3 =	645
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	249 (A)		771 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Dominance test passed; Prevalence test failed. Salix bebbiana persists as a very large, robust tree/large sapling in sampling area. This is likely morphological response to the "moist" conditions persisting in the edge of the basin. Conclusion- borderline; see other factors.

SOIL

Sampling Point: DP-5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Loamy/Clayey	Aggregate fill, fine sandy loam
4-10	7.5YR 3/3	100					Loamy/Clayey	Aggregate fill, sandy loam
10-12	10YR 4/1	100					Loamy/Clayey	Buried A?, fine sandy loam
12-20	5YR 2.5/1	70	5YR 3/3	30	C	M	Loamy/Clayey	Buried B1?, Fine clay loam

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

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

Remarks:

Mapped as 415: Deception-Estelle-Kichatna complex (undulating/steep); Buried A/B and aerial imagery consistent with original mapping.
This data form is revised from Alaska Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016. A14-Alaska Redox would apply to buried horizons.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Salt Crust (B11)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

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

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

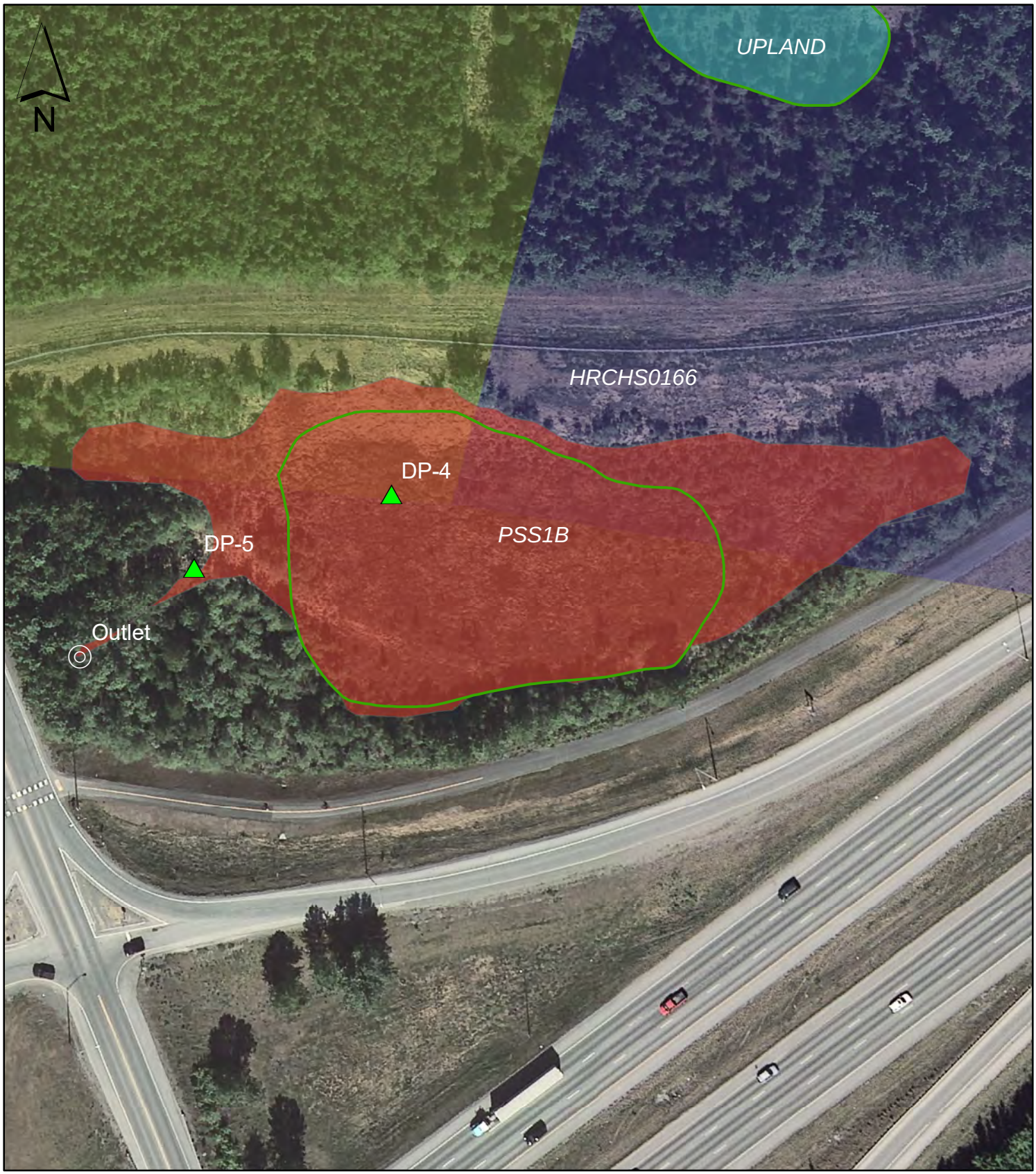
Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

Geomorphic position at toe of slope, near culvert boundary. Highly disturbed area. Expected dry season water table, but it was not observed within the upper 20 inches, nor within upper 12 of the buried horizon.

FIGURE 1: JBER WETLAND DELINEATION: BAAF WETLANDS HRCHS0166



Legend

- Data_Point
- Culvert
- INVENTORY: DEPRESSIONAL
- DELINEATED: PSS1B
- UPLAND
- BASH Management Zone
- Waterfowl Exclusion Zone

0 0.015 0.03 0.06 Miles

UNCLASSIFIED//FOUO
Project: BAAF
C. Johnson
673d CES/CEIEC
1 September 2017

HRCHS0166 Site Visit Photographs

23 June 2017

Figure 2: DP-4 From plot center facing south (toward highway)

Figure 3: PD-4 Soil pit with water table rising (after appx. 15 minutes).

Figure 4: DP-5 From plot center facing west.

Figure 5: DP-5 Soil profile (wetland)

HRCHS0166 Culvert Connection under Glenn Highway (outlet)
23 June 2017

Figure 6: DP-5: Culvert discharge point. Drainage direction into wetland. Photo taken facing south (toward highway)

Figure 7: DP-5 Down drainage (facing north) from near culvert.

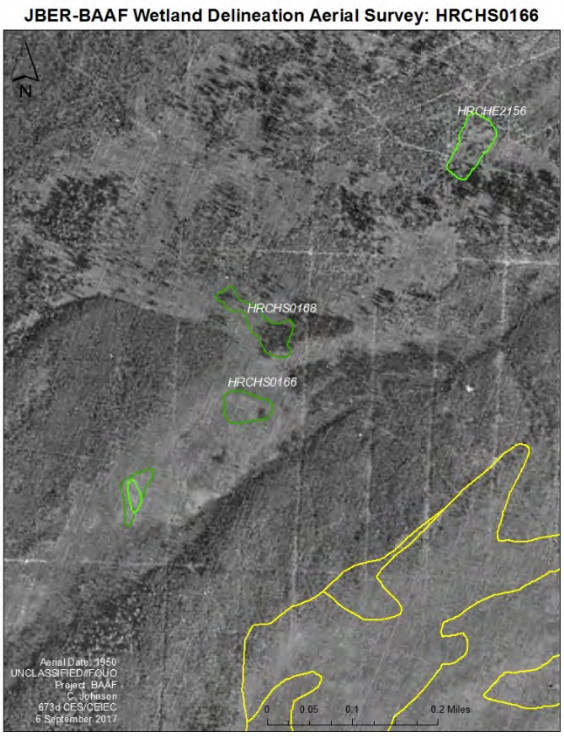


Figure 8: Aerial Image ca. 1950

Figure 9: Aerial Image ca. 1981

Figure 10: Aerial Image ca. 2007

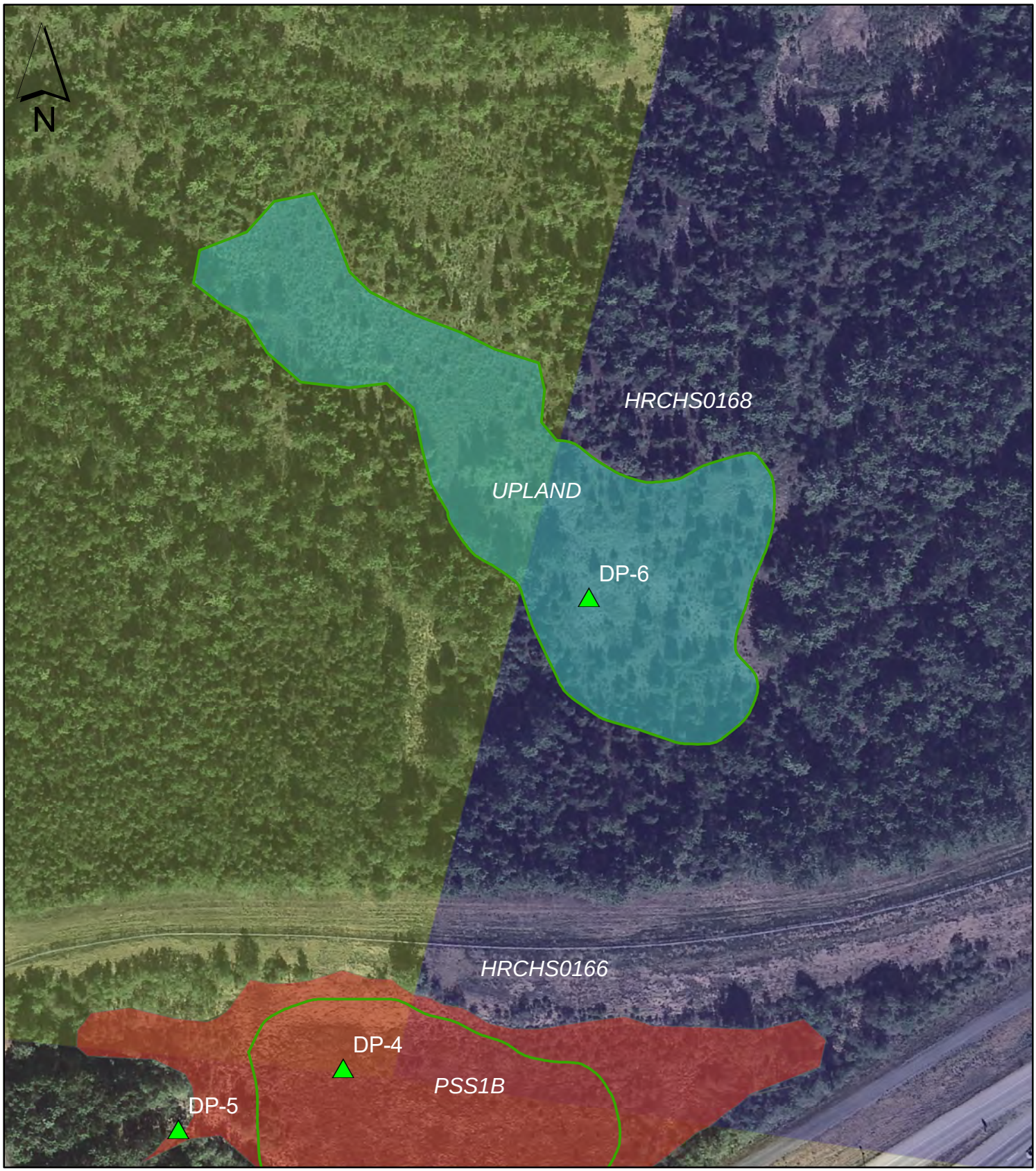
Figure 11: Aerial Image ca. 2015

APPENDIX 5

HRCHS0168 Field Assessment Information

Wetland Delineation Map (DP-6)
Site Visit Photographs (DP-6)
Survey of Historical Aerial Imagery

FIGURE 1: JBER-BAAF Wetland Delineation: HRCHS0168



Legend

- Data_Point
- INVENTORY: DEPRESSIONAL
- DELINEATED: PSS1B
- UPLAND
- BASH Management Zone
- Waterfowl Exclusion Zone

0 0.0175 0.035 0.07 Miles

Aerial Date: 1950
UNCLASSIFIED//FOUO
Project: BAAF
C. Johnson
673d CES/CEIEC
6 September 2017

HRCHS0168 Site Visit Photos
23 June 2017

No accompanying RODM data forms are included with this site visit since field conditions and vegetative community clearly showed no indication of latent wetland conditions.

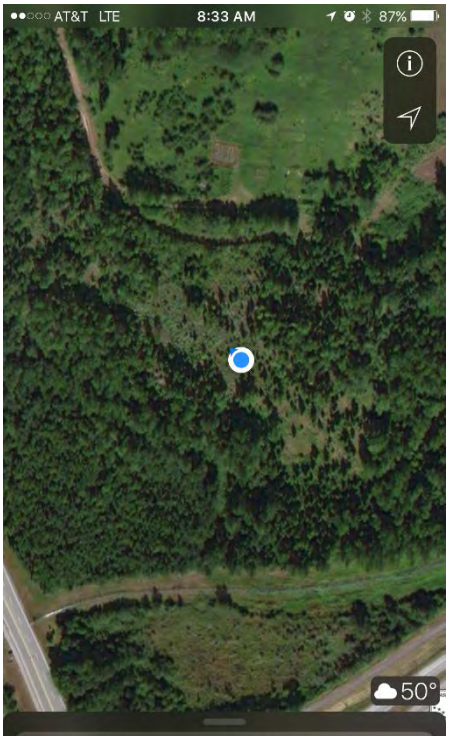


Figure 2: DP-6 Relative location of Figure 3.

Figure 3: DP-6: HRCHS0168 from location indicated in Figure 2, facing east.

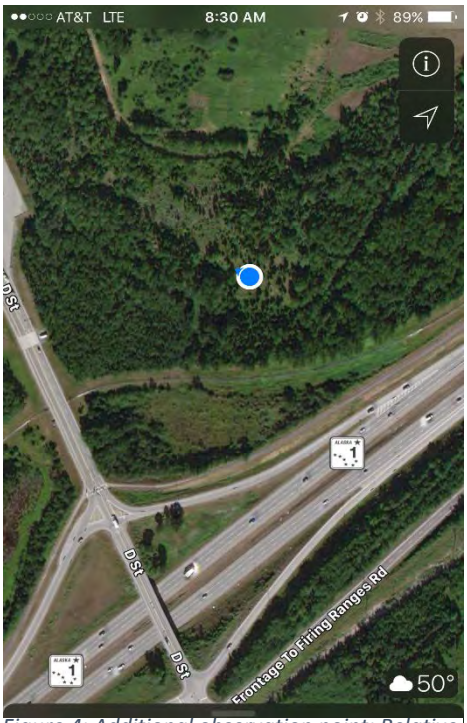


Figure 4: Additional observation point: Relative location of Figure 5.

Figure 5: HRCHS0168 from location indicated in Figure 4, facing west.

HRCHS0168 Survey of Historical Aerial Imagery

Historic imagery shows pre-existing forest in the area and then possible vegetation removal/alteration (prior to 1981), but does not indicate direct soil disturbance or alteration of hydrology.

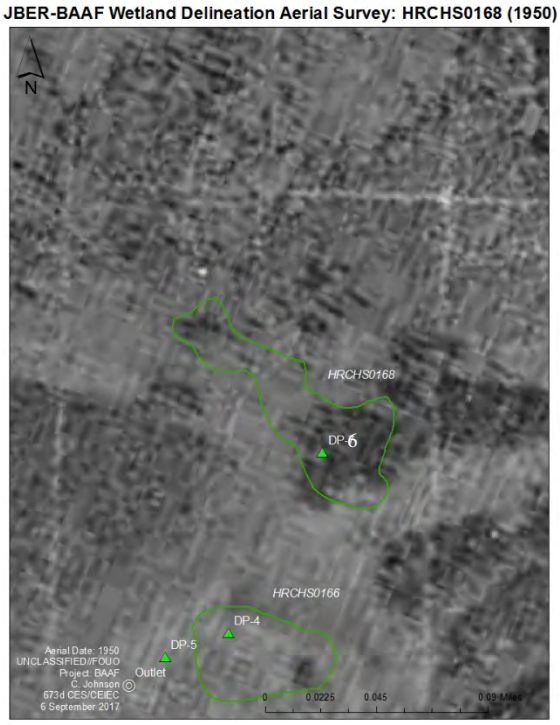


Figure 6: Aerial image ca. 1950.

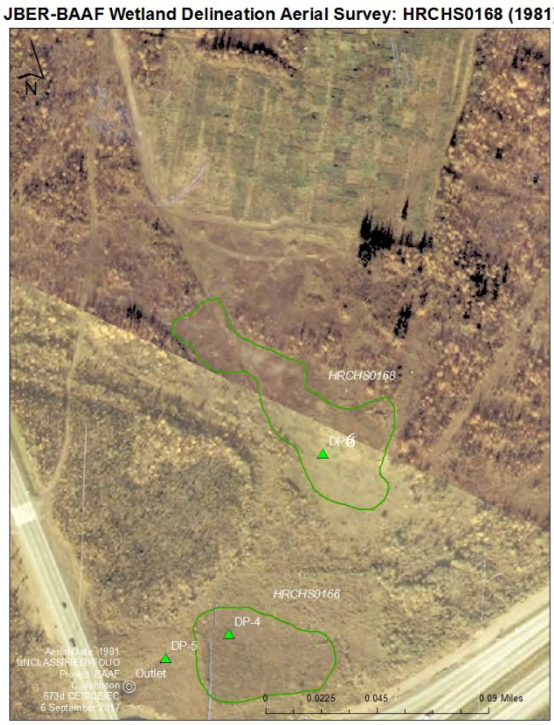


Figure 7: Aerial image ca. 1981.

Figure 8: Aerial image ca. 2009

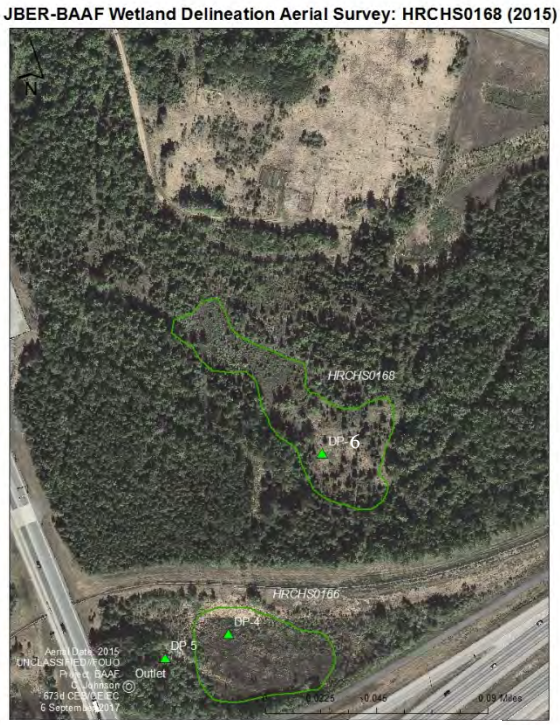


Figure 9: Aerial image ca. 2015

APPENDIX 6

HRCHS0163 (DP-7), HRCHS1928 (DP-8) Field Assessment Information

RODM Data Forms (DP-7 only)
Wetland Delineation Map (DP-7, DP-8)
Site Visit Photographs (DP-7, DP-8)
Survey of Historical Aerial Imagery (Combined)

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Bryant Army Air Field Wetlands | Borough/City: JBER | Sampling Date: 6/23/2017

Applicant/Owner: Joint Base Elmendorf-Richardson | Wetland: HRCHS0163 | Sampling Point: DP-7

Investigator(s): Charlene C. Johnson (PWS# 1868) | Landform (hillside, terrace, hummocks, etc.): Swale, w/ microtp

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

Subregion: LRR W1, MLRA 223 (Cook Inlet Mountains) | Lat: 61.273378 | Long: 149.638235 | Datum: WGS84

Soil Map Unit Name: 428: Kashwitna-Kitchatna Complex 0-3% Slopes | NWI classification: PFO4

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea mariana*	40	Yes	FACW
2.			
3.			
4.			
	40	=Total Cover	
50% of total cover:	20	20% of total cover:	8
Sapling/Shrub Stratum			
1. *Picea mariana*	30	Yes	FACW
2. *Empetrum nigrum*	15	No	FAC
3. *Rhododendron groenlandicum*	15	No	FAC
4. *Vaccinium vitis-idaea*	25	Yes	FAC
5. *Vaccinium uliginosum*	20	No	FAC
6. *Cornus canadensis*	2	No	FACU
	107	=Total Cover	
50% of total cover:	54	20% of total cover:	22
Herb Stratum			
1. *Geocaulon lividum*	2	No	FACU
2. *Trientalis europaea*	1	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	3	=Total Cover	
50% of total cover:	2	20% of total cover:	1

Plot Size (radius, or length x width) ____ % Bare Ground ____

% Cover of Wetland Bryophytes 0 Total Cover of Bryophytes ____

(Where applicable)

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	75	x 3 =	225
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	150 (A)		385 (B)

Prevalence Index = B/A = 2.57

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Hylocomium sp., and Pleurozium schreberi moss present; no Sphagnum spp.

SOIL

Sampling Point: DP-7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1						Loamy/Clayey	sandy loam
3-4	10YR 3/1						Loamy/Clayey	sandy loam
4-20	10YR 4/4	90	10YR 3/4	10	RM	M	Loamy/Clayey	Inclusions, mixed matrix
								Below 15" - 50% coarse gravel

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Alaska Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016. Kashwitna-Kitchatna are well drained soils with loess to sandy loam over gravel, consistent with field observations. All soil layers mineral based with well developed A horizon. Disturbance of soil not apparent. Permafrost not present. Late seasonal frost also not observed, but is common in recent years in similar habitat on JBER.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Salt Crust (B11)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

No saturation or ponding (even in flooded years 2012) observed in aerial imagery.

Remarks:

Site not depressional; was a swale. No sparsely vegetated surface since gound was covered in mosses/dwarf shrubs, despite lacking herbaceous gc FAC Neutral test passes on abundance of black spruce in both shrub and canopy layers. All other shrub and dwarf shrub spp are FAC and herbaceous spp. are FACU. Stressed mature black spruce observed may be intolerant of crowding.

Figure 1: JBER WETLAND DELINEATION: BAAF WETLANDS

0 0.0375 0.075 0.15 Miles

Legend

- Data_Point
- UPLAND
- BASH Management Zone
- Waterfowl Exclusion Zone

UNCLASSIFIED//FOUO
Project: BAAF
C. Johnson
673d CES/CEIEC
9 August 2017

HRCHS0163 Site Visit Photos

23 June 2017

Site appeared wetter than HRCHS1928, with mounded microtopography, dominance of scrawny black spruce, an abundance of moss, and dearth of lichens which may have indicated hydric conditions. See RODM data form completed for this site.

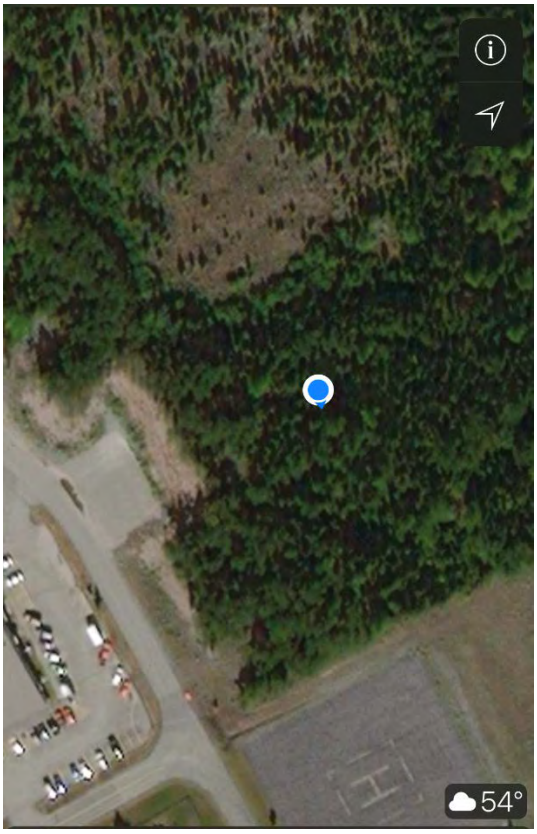


Figure 2: Approximate location of DP-7 sample point.

Figure 3: DP-7, plot center facing north

HRCHS1928 Site Visit Photos

23 June 2017

ANG indicated that COE have reviewed this site before and concluded non-wetland, but documentation is lacking. Indications of recent grading historic disturbance present. Healthy (non-stunted) mature white spruce are abundant as are regenerating white spruce and quaking aspen. No accompanying RODM data forms are included with this site visit since field conditions and vegetative community clearly showed no indication of latent wetland conditions.

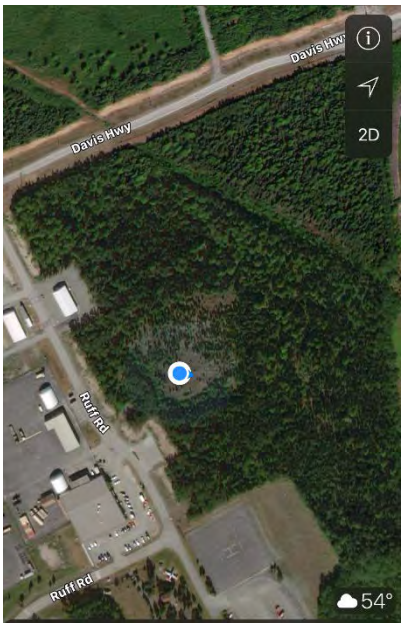


Figure 4: DP-8: Approximate location of observations shown in Figs. 3-5.


Figure 5: Historically cleared, regenerating vegetation. From DP-8 facing east.


Figure 6: From DP-8 facing west.


Figure 7: From DP-8 facing north.

HRCHS0163 Survey of Historical Aerial Imagery

Historic imagery shows history of forest and disturbance in the area originating prior to 1950. There is no indication of discharge of fill or alteration of wetland hydrology.

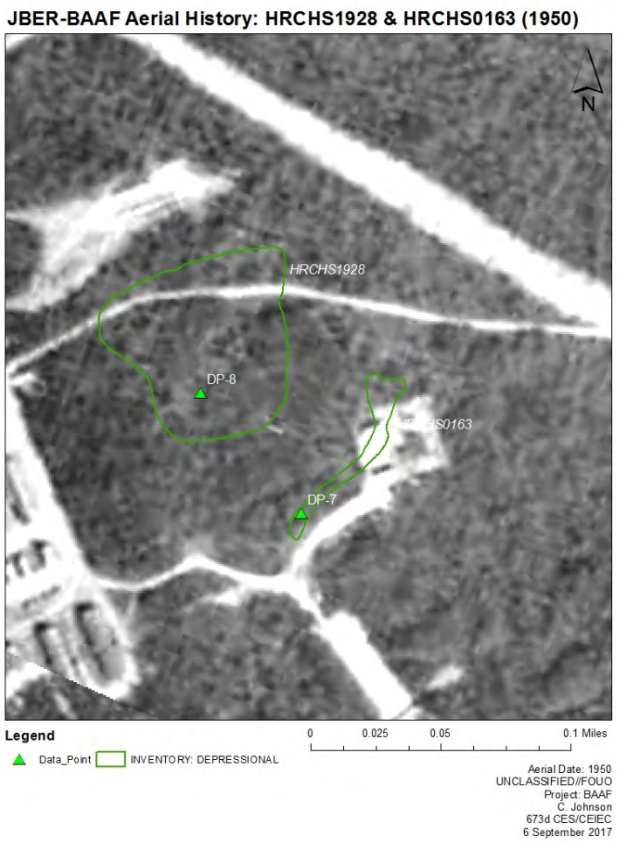


Figure 8: ca. 1950 shows early construction of roadways through subject areas. Areas appear forested similarly to adjoining forest.

Figure 9: ca. 1981. Areas cleared for training; likely graded, but does not appear that fill material would have been added to alter hydrology from wetland. Roadway visible through HRCHS0163. Disturbance accounts for successive vegetation patterns.

Figure 10: Circa 2009: Restoration of vegetation apparent.

Figure 11: Circa 2012, post flood event. No ponding of water visible.

Figure 12: Circa 2015. Continued recolonization of vegetation apparent.

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 6898
JBER, AK 99506-0898

DEC 1 2 2017

Regulatory Division
POA-2017-511

Mr. Brent A. Koenen, GS-13, DAF
673 CES/CEIEC
724 Postal Service Loop #4500
JBER, Alaska 99505-4500

Dear Mr. Koenen:

This is in response to your October 06, 2017, letter regarding a jurisdictional determination for a parcel of land located within Section 33, T. 14 N., R. 2 W., Seward Meridian; Municipality of Anchorage; the review area is north of D Street, west of 6th Street, south of Davis Highway, and east of Glenn Highway. Essentially, the streets listed above serve as the perimeter of the review/project area. The applicant requests a jurisdictional determination regarding wetlands located in proximity to a United States Air Force (USAF) project area, termed "BAAF BASH/WEZ Safety project", located on Joint Base Elmendorf-Richardson (JBER), Alaska within the above described area.

Based on our review of the information you provided and available to us, and an on-site assessment conducted by your agent on June 22-23, 2017 and August 29, 2017, and USACE field visits conducted on October 23 and November 2, 2017, we have determined the subject parcel does not include waters of the U.S. under our regulatory jurisdiction. The wetlands in your project area are isolated, intrastate, non-navigable, and have no connection to interstate or foreign commerce. Therefore, pursuant to the federal guidance on the Solid Waste Agency of Northern Cook County vs. U.S. Army Corps of Engineers, a Department of the Army (DA) permit is not required.

A copy of the Approved Jurisdictional Determination form is available at: www.poa.usace.army.mil/Missions/Regulatory/JurisdictionalDeterminations under the above file number.

This jurisdictional determination does not establish any precedent with respect to any other jurisdictional determination under Section 404 of the Clean Water Act.

Your proposed project area was reviewed pursuant to Section 404 of the Clean Water Act which requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including wetlands, prior to conducting the work (33 U.S.C. 1344).

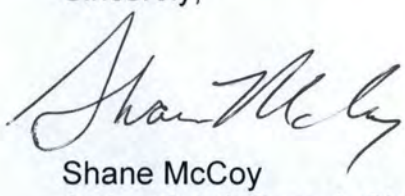
For regulatory purposes, the Corps of Engineers defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

This approved jurisdictional determination is valid for a period of five years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date. Also, enclosed is a Notification of Administrative Appeals Options and Process and Request for Appeal form regarding this approved jurisdictional determination (see section labeled "Approved Jurisdictional Determination").

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Please contact Mr. Jesse DeWitt via email at Jesse.L.Dewitt@usace.army.mil, by mail at the address above, by phone at (907) 753-2735, or toll free from within Alaska at (800) 478-2712, if you have questions. For more information about the Regulatory Program, please visit our website at www.poa.usace.army.mil/Missions/Regulatory.

Sincerely,



Shane McCoy
Acting South Branch Chief

Enclosures:
1. Appeal Form

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: 673 CES/CEIEC	File Number: POA-2017-511	Date: 12/11/17
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Jesse DeWitt Alaska District Corps of Engineers CEPOA-RD-S P.O. Box 6898 JBER, AK 99506-0898 (907) 753-2719	Regulatory Program Manager U.S. Army Corps of Engineers, Pacific Ocean Division CEPOD-PDC, Bldg 525 Fort Shafter, HI 96858-5440

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 6898
JBER, AK 99506-0898

NOV 07 2017

Regulatory Division
POA-2017-511

673 CES/CEIEC
Attention: Mr. Brent Koenen
724 Postal Service Loop #4500
JBER AK 99505-4500

Dear Mr. Koenen:

This is in response to your October 6, 2017, letter regarding a jurisdictional determination for a parcel of land 0.4-acre in size. The parcel of land is located within Section 33, T. 14 N., R. 2 W., Seward Meridian; USGS Quad Map Anchorage A-8; Latitude 61.2641° N., Longitude 149.6828° W.; on Joint Base Elmendorf-Richardson; the parcel is south of Davis Highway, west of Tuma Road, east of 6th Street, and north of Westbrook Avenue. The parcel of land under review is part of a larger review/project area for a planned airfield safety improvement project for Bryant Army Airfield. It has been assigned project number POA-2017-511, Ship Creek, which should be referred to in all correspondence with us.

Based on our review of the information you provided and information available to us, we have determined the subject parcel does not contain waters of the United States (U.S.) under Corps of Engineers (Corps) jurisdiction. Therefore, a DA permit is not required. A copy of the Approved Jurisdictional Determination form is available at the following address: www.poa.usace.army.mil/Missions/Regulatory/Jurisdictional-Determinations/Jurisdictional-Determination-Archive/ under the above file number. Please contact us if you decide to alter the method, scope, or location of your proposed activity.

This approved jurisdictional determination is valid for a period of five (5) years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date.

Enclosed is a Notification of Administrative Appeal Options and Process and Request for Appeal form regarding this approved jurisdictional determination (see section labeled "Approved Jurisdictional Determination").

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Alaska District.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Please contact Mr. Jesse DeWitt via email at jesse.l.dewitt@usace.army.mil, by mail at the address above, by phone at (907) 753-5567, or toll free from within Alaska at (800) 478-2712, if you have questions. For more information about the Regulatory Program, please visit our website at www.poa.usace.army.mil/Missions/Regulatory.

Sincerely,

Amanda Heath
Project Manager

Enclosures

DRY LAND APPROVED JURISDICTIONAL DETERMINATION FORM[1]
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): October 16, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: POA-2017-511

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Alaska County/parish/borough: Municipality of Anchorage City: Joint Base Elemendorf-Richardson
Center coordinates of site (lat/long in degree decimal format): Lat. 61.2641°, Long. -149.6828 °
Universal Transverse Mercator: V6
Name of nearest waterbody: Ship Creek
Name of watershed or Hydrologic Unit Code (HUC): 19020401

☑ Check if map/diagram of review area is available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☑ Office (Desk) Determination. Date: October 16, 2017

☐ Field Determination. Date(s): June 22, 2017 performed by JBER Wetland Ecologist Charlene Johnson

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

SECTION III: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Bryant Army Airfield-BASH/WEZ Area Hazard Mitigation Project Joint Base Elmendorf-Richardson Preliminary Jurisdictional Determination Report

☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

- ☑ Office concurs with data sheets/delineation report. Appendix 3: JBER Wetland Delineation: BAAF Wetlands: HRCHS0167. Deleneation conducted on 22JUN2017 shows the review area, 0.4-acre in size, to be composed of uplands. USACE concurs with results.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: N/A

☐ U.S. Geological Survey Hydrologic Atlas: N/A

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☐ U.S. Geological Survey map(s). Cite scale & quad name: N/A

☐ USDA Natural Resources Conservation Service Soil Survey. Accessed NRCS 16OCT2017 which identified non-hydric soils within the review area.

☑ National wetlands inventory map(s). National Wetland Inventory Mapper was accessed 16OCT2017 and shows not WOTUS to be present within the review area.

☑ State/Local wetland inventory map(s): Municipality of Anchorage Wetland Inventory Database shows not WOTUS to be present within the review area.

☐ FEMA/FIRM maps: N/A

☐ 100-year Floodplain Elevation is: N/A

☑ Photographs: ☑ Aerial (Name & Date): Google Earth accessed and downloaded on 16OCT2017

☐ or ☑ Other (Name & Date): Applicant provided photographs of a site visit and aerial/satellite imagery spanning from 1950-2015 provided by the applicant's agent.

☐ Previous determination(s). N/A

☐ Applicable/supporting case law: N/A

☐ Applicable/supporting scientific literature: N/A

☐ Other information (please specify): SimSuite USACE database; accessed 16OCT2017.

B. REQUIRED ADDITIONAL COMMENTS TO SUPPORT JD. EXPLAIN RATIONALE FOR DETERMINATION THAT THE REVIEW AREA ONLY INCLUDES DRY LAND: The review area was previously identified as a scrub-shrub wetland (PSS1B) within the

JBER wetland inventory database presumably from interpretation of aerial imagery. However, both a field delineation conducted by the applicant's agent as well as review of local and national wetland databases by USACE revealed the area to be uplands with no historic information indicating the review area to be classified as anything other than uplands. The area was found to be dominated by a healthy community of white-spruces (*Picea glauca*) and upland mosses and lichens. NCRS soil classification for the review area was listed as 428-Kashwitna-Kichatna complex which is not a hydric soil.

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 6898
JBER, AK 99506-0898

NOV 07 2017

Regulatory Division
POA-2017-511

673 CES/CEIEC
Attention: Mr. Brent Koenen
724 Postal Service Loop #4500
JBER AK 99505-4500

Dear Mr. Koenen:

This is in response to your October 6, 2017, letter regarding a jurisdictional determination for a parcel of land 1.6 acres in size. The parcel of land is located within Section 33, T. 14 N., R. 2 W., Seward Meridian; USGS Quad Map Anchorage A-8; Latitude 61.2564° N., Longitude 149.6588° W.; on Joint Base Elmendorf-Richardson; the parcel is south of Ruff Road, west and north of Glenn Highway and east of D Street. The parcel of land under review is part of a larger review/project area for a planned airfield safety improvement project for Bryant Army Airfield. It has been assigned project number POA-2017-511, Ship Creek, which should be referred to in all correspondence with us.

Based on our review of the information you provided and information available to us, we have determined the subject parcel does not contain waters of the United States (U.S.) under Corps of Engineers (Corps) jurisdiction. Therefore, a DA permit is not required. A copy of the Approved Jurisdictional Determination form is available at the following address: www.poa.usace.army.mil/Missions/Regulatory/Jurisdictional-Determinations/Jurisdictional-Determination-Archive/ under the above file number. Please contact us if you decide to alter the method, scope, or location of your proposed activity.

This approved jurisdictional determination is valid for a period of five (5) years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date.

Enclosed is a Notification of Administrative Appeal Options and Process and Request for Appeal form regarding this approved jurisdictional determination (see section labeled "Approved Jurisdictional Determination").

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Alaska District.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Please contact Mr. Jesse DeWitt via email at jesse.l.dewitt@usace.army.mil, by mail at the address above, by phone at (907) 753-5567, or toll free from within Alaska at (800) 478-2712, if you have questions. For more information about the Regulatory Program, please visit our website at www.poa.usace.army.mil/Missions/Regulatory.

Sincerely,

Amanda Heath
Project Manager

Enclosures

DRY LAND APPROVED JURISDICTIONAL DETERMINATION FORM[1]
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): October 16, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: POA-2017-511

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Alaska County/parish/borough: Municipality of Anchorage City: Joint Base Elemendorf-Richardson
Center coordinates of site (lat/long in degree decimal format): Lat. 61.2564°, Long. -149.6588 °
Universal Transverse Mercator: V6
Name of nearest waterbody: Ship Creek
Name of watershed or Hydrologic Unit Code (HUC): 19020401

☑ Check if map/diagram of review area is available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☑ Office (Desk) Determination. Date: October 23, 2017

☑ Field Determination. Date: June 23, 2017 performed by JBER Wetland Ecologist Charlene Johnson

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

SECTION III: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Bryant Army Airfield-BASH/WEZ Area Hazard Mitigation Project Joint Base Elmendorf-Richardson Preliminary Jurisdictional Determination Report

☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant. Sheet 1 JBER Wetland Delineation: BAAF Wetlands: HRCHS0168. Approximately 1.6 acres under review.

- ☑ Office concurs with data sheets/delineation report. Office concurs with the results.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: N/A

☐ U.S. Geological Survey Hydrologic Atlas: N/A

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☐ U.S. Geological Survey map(s). Cite scale & quad name: N/A

☐ USDA Natural Resources Conservation Service Soil Survey. Accessed NRCS 19OCT2017 which identified the review area as containing Disappear-Pioneer Peak complex which is considered a hydric soil.

☑ National wetlands inventory map(s). National Wetland Inventory Mapper was accessed 19OCT2017 and shows not WOTUS to be present within the review area.

☑ State/Local wetland inventory map(s): Municipality of Anchorage Wetland Inventory Database shows not WOTUS to be present within the review area.

☐ FEMA/FIRM maps: N/A

☐ 100-year Floodplain Elevation is: N/A

☐ Photographs: ☑ Aerial: Google Earth accessed and downloaded on 19OCT2017

☐ or ☑ Other: Agent provided photos dated 23JUN2017. Photos depict field conditions and vegetative communities that show no indication of latent wetland conditions.

☐ Previous determination(s). N/A

☐ Applicable/supporting case law: N/A

☐ Applicable/supporting scientific literature: N/A

☐ Other information (please specify): SimSuite USACE database; accessed 16OCT2017.

B. REQUIRED ADDITIONAL COMMENTS TO SUPPORT JD. EXPLAIN RATIONALE FOR DETERMINATION THAT THE REVIEW AREA ONLY INCLUDES DRY LAND: A site assessment (visual only) was conducted of 1.6 acres by the applicant's agent whose findings confirm data assessed by USACE via the National Wetland Inventory which concluded that there are no known wetlands within the

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 6898
JBER, AK 99506-0898

NOV 07 2017

Regulatory Division
POA-2017-511

673 CES/CEIEC
Attention: Mr. Brent Koenen
724 Postal Service Loop #4500
JBER, Alaska 99505-4500

Dear Mr. Koenen:

This is in response to your October 6, 2017, letter regarding a jurisdictional determination for two parcels of land consisting of .3-acre and 2.4 acres in size. The parcels of land are located within Section 33, T. 14 N., R. 2 W., Seward Meridian; USGS Quad Map Anchorage A-8; Latitude 61.2741° N., Longitude 149.6392° W.; on Joint Base Elmendorf-Richardson; the parcels are south of Davis Highway, west of Glen Highway, east of Army Guard Road and approximately 25 feet north of a helicopter landing pad adjacent to a parking area. The parcels of land under review are part of a larger review area for a planned airfield safety improvement project for Bryant Army Airfield. It has been assigned number POA-2017-511, Ship Creek, which should be referred to in all correspondence with us.

Based on our review of the information you provided and information available to us, we have determined the subject parcels do not contain waters of the United States (U.S.) under Corps of Engineers (Corps) jurisdiction. Therefore, a DA permit is not required. A copy of the Approved Jurisdictional Determination form is available at the following address: www.poa.usace.army.mil/Missions/Regulatory/Jurisdictional-Determinations/Jurisdictional-Determination-Archive/ under the above file number. Please contact us if you decide to alter the method, scope, or location of your proposed activity.

This approved jurisdictional determination is valid for a period of five (5) years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date.

Enclosed is a Notification of Administrative Appeal Options and Process and Request for Appeal form regarding this approved jurisdictional determination (see section labeled "Approved Jurisdictional Determination").

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Alaska District.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Please contact Mr. Jesse DeWitt via email at jesse.l.dewitt@usace.army.mil, by mail at the address above, by phone at (907) 753-5567, or toll free from within Alaska at (800) 478-2712, if you have questions. For more information about the Regulatory Program, please visit our website at www.poa.usace.army.mil/Missions/Regulatory.

Sincerely,

Amanda Heath
Project Manager

Enclosures

DRY LAND APPROVED JURISDICTIONAL DETERMINATION FORM[1]
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): October 25, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: POA-2017-511

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Alaska County/parish/borough: Municipality of Anchorage City: Joint Base Elemendorf-Richardson
Center coordinates of site (lat/long in degree decimal format): Lat. 61.2741°, Long. -149.6392 °
Universal Transverse Mercator: V6
Name of nearest waterbody: Ship Creek
Name of watershed or Hydrologic Unit Code (HUC): 19020401

- ☑ Check if map/diagram of review area is available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☑ Office (Desk) Determination. Date: 10/25/2017
- ☑ Field Determination. Date: 06/23/2017 Performed by JBER Wetland Ecologist Charlene Johnson

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

SECTION III: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: October 6, 2017 Bryant Army Airfield-BASH/WEZ Area Hazard Mitigation Project Joint Base Elmendorf-Richardson Preliminary Jurisdictional Determination Report
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☑ Office concurs with data sheets/delineation report. BAAF Wetlands Determination: Appendix 6 HRCHS0163; 0.3-acre and HRCHS1928; 2.4-acres. USACE concurs with the results.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: N/A
- ☐ U.S. Geological Survey Hydrologic Atlas: N/A
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: N/A
- ☐ USDA Natural Resources Conservation Service Soil Survey. Accessed NRCS 24OCT2017 which identified the review area as containing Kashwitna-Kichatna complex soils. These soils are found in Hydrologic Soil Group B and are not considered Hydric soils.
- ☑ National wetlands inventory map(s). National Wetland Inventory Mapper was accessed 19OCT2017 and shows not WOTUS to be present within the review area.
- ☑ State/Local wetland inventory map(s): Municipality of Anchorage Wetland Inventory Database shows not WOTUS to be present within the review area.
- ☐ FEMA/FIRM maps: N/A
- ☐ 100-year Floodplain Elevation is: N/A
- ☐ Photographs: ☑ Aerial: Google Earth accessed and downloaded on 19OCT2017
  - ☐ or ☑ Other: Agent provided photos dated 23JUN2017. Photos depict field conditions and vegetative communities that show no indication of latent wetland conditions.
- ☑ Previous determination(s). POA-2013-1124. The current review areas were covered under an AJD issued July 1, 2013 in which USACE conducted a field wetland determination. The AJD determined the review area, which was 43-acres in size and included both parcels currently under review, as consisting of uplands.
- ☐ Applicable/supporting case law: N/A
- ☐ Applicable/supporting scientific literature: N/A
- ☐ Other information (please specify): SimSuite USACE database; accessed 16OCT2017.

B. REQUIRED ADDITIONAL COMMENTS TO SUPPORT JD. EXPLAIN RATIONALE FOR DETERMINATION THAT THE REVIEW AREA ONLY INCLUDES DRY LAND: Both review areas were previously determined to be within uplands under an AJD issued by USACE July 1, 2017 which expires July 1, 2018. The delineations conducted by the applicant's agent re-confirmed the status of the parcels of land as being uplands. No new information was provided or found that would indicate the subject areas have changed in classification.