Fort Wainwright Cultural Resources Annual Report, 2019

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List of Acronyms

AHRS – Alaska Heritage Resources Survey
AR 200-1 – Army Regulation 200-1
ARPA – Archaeological Resources Protection Act
BAX – Battle Area Complex
BP – Before Present
BRTA – Black Rapids Training Area
CEMML – Center for Environmental Management of Military Lands
cm - centimeters
cmbs – centimeters below surface
CRM – Cultural Resources Manager
CRTC – Cold Regions Test Center
DOE – Determination of Eligibility
DTA – Donnelly Training Area
FAI – Fairbanks
GRTA – Gerstle River Training Area
HD – Historic District
ICRMP – Integrated Cultural Resources Management Plan
JPARC – Joint Pacific Alaska Range Complex
m – meter
masl – meters above sea level
NAGPRA – Native American Graves Protection and Repatriation Act
NHL – National Historic Landmark
NHPA – National Historic Preservation Act
NLUR– Northern Land Use Research, Inc.
NRHP – National Register of Historic Places
NWTC – Northern Warfare Training Center
SDZ – Surface Danger Zone
SHPO – State Historic Preservation Officer
TFTA – Tanana Flats Training Area
USAF –United States Air Force
USAG Alaska – United States Army Garrison Alaska
UTM – Universal Transverse Mercator
XBD – Big Delta
XMH – Mount Hayes
YTA – Yukon Training Area

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Introduction

Army Regulation 200-1 (AR 200-1), Chapter 6, ensures that installations make informed decisions regarding cultural resources under their control in compliance with public laws, in support of the military mission, and consistent with sound principles of cultural resources management. In addition to having an updated, 5-year, Integrated Cultural Resources Management Plan (ICRMP) and an established government-to-government relationship with Federally-recognized tribes, the Army must comply with three federal laws: the Native American Graves Protection and Repatriation Act (NAGPRA); the Archaeological Resources Protection Act (ARPA); and the National Historic Preservation Act (NHPA). This report provides an annual review of United States Army Garrison Alaska's (USAG Alaska) compliance with AR 200-1 and Federal laws.

When NAGPRA was enacted in 1990, it required Federal agencies to return Native American human remains, funerary objects, and objects of cultural patrimony to the lineal decedents and culturally affiliated tribes. USAG Alaska worked with University of Alaska's Museum of the North (the Federally-approved repository for cultural remains discovered on Army-managed lands in Alaska) to ensure there were no items meeting NAGPRA standards in storage. An inadvertent discovery plan that includes ceasing all work when human remains, bones, or artifacts are encountered, noting the coordinates of the remains, notifying the Alaska State Troopers in the event of human remains, and contacting the garrison Cultural Resources Manager was enacted. This plan is articulated to project managers, training supervisors, and the public, and is included in all Memorandums of Agreement (MOA) for undertakings impacting historic properties.

ARPA aims to protect archaeological sites on public lands that are at least 100 years old. It stipulates criminal and civil penalties for the looting of archaeological sites and the trafficking of artifacts. It also requires Federal agencies to monitor and protect their archaeological sites from looting and to report violations. While to date USAG Alaska has encountered no APRA violations, it is also responsible for permitting scientific excavations for research. USAG Alaska has established an application process whereby researchers can request to excavate archaeological sites on Army-managed lands. This permit is signed by the Garrison Commander and is reinforced by a MOA. Summaries of these permits and updates on the excavations are provided in this report.

The NHPA (54 U.S.C. § 470 et seq.) was enacted in 1966 to ensure that every federal agency establishes a preservation program for the identification, evaluation, and care of historic and

archaeological sites. Title I of the statute established the National Register of Historic Places (NRHP), administered by the National Park Service, and State Historic Preservation Officers, partners of the national historic preservation program. Both Sections 106 and 110 of the statute are contained in Title I. Section 106 requires that federal agencies provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on undertakings that have the potential to impact historic properties on or eligible for the NRHP. It also establishes a procedure (regulated in 36 CFR § 800) determining the effects of an undertaking on historic properties as well as a consultation process to inform stakeholders and resolve adverse effects. Fort Wainwright complies with these regulations through annual reporting of undertakings covered in the Operations and Maintenance Programmatic Agreement (FW-PA-1601) and individual letters on undertakings that include ground disturbance or alterations to historic properties. This report summarizes the undertakings requiring Section 106 consultation for archaeology and historic buildings that took place in 2019.

Section 110 of the NHPA requires that federal agencies establish their own historic preservation programs for the identification, evaluation, and protection of historic properties using standards established by the Secretary of the Interior. Although AR 200-1 requires full compliance with federal law, most Section 110 inventories and evaluations in Army training lands take place in coordination with Section 106 reviews of project undertakings. In recent years, Fort Wainwright's Cultural Resources Manager (CRM) has begun a consultation process with Range Control at Fort Wainwright and Donnelly Training Area (DTA) to establish potential development zones (PDZs) based upon projected training needs. These PDZs are located in the major training areas outside Fort Wainwright's Main Post cantonment in areas that the Army plans to develop in the 2 to 10-year time range. Identification of PDZs has allowed the CRM to focus archaeological and historic survey efforts, in conjunction with Section 106 reviews, in the areas of Fort Wainwright's 1.6 million acres considered most critical.

This report summarizes all cultural resources fieldwork conducted on Fort Wainwright training lands during the 2019 field season. First, it describes all activities on USAG Alaska-managed lands that required consultation under NAGPRA or required permitting under ARPA during the current year and provides an update on activities from previous year permits. The report then provides a brief summary of all Army undertakings that took place in 2019 that required Section 106 consultation under the NHPA and had previously been described in detail in individual letters to the State Historic Preservation Officer (SHPO). Next, it provides descriptions of all buildings surveyed during the year that were not previously tracked by the cultural resources program. It then outlines all cultural resources surveys during 2019 related to future Army project areas under Section 110 of the NHPA that were not described in individual Section 106 letters. All newly found resources on USAG Alaska-managed lands are described in the text and new AHRS cards are found in an appendix. Next, a list of register eligible or not yet determined

archaeological and structures monitored during the current year and their condition and recommendation is provided along with any new site protection measures installed over the same period. Determinations of eligibility for historic and archaeological sites, structures, and trails are then reported. Finally, this report summarizes the total acreage of archaeological surveys since 2002 and total number of archaeological or historic sites known from the Fort Wainwright cantonment and training areas for use in the ICRMP, Federal data calls, and the geographic information systems-based Spatial Data Standards for Facilities, Infrastructure, and Environment. This report is organized into sections by Fort Wainwright training areas. No work took place in the following training areas or other areas managed by USAG Alaska in 2019: Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Seward Military Resort, Sears Creek Pump Station, and Haines Fuel Terminal.

All archaeological fieldwork was conducted by CEMML employees under the direct supervision of Julie Esdale, Ph.D., an archaeologist meeting the professional standards outlined in the Secretary of the Interior's "Professional Qualifications Standards" as defined in 36 CFR § 61 Appendix A. Two crews comprised of three to five archaeologists conducted the fieldwork. All building and structure surveys were conducted by CEMML employees under the direct supervision of Casey Woster, M.A., an architectural historian meeting the professional standards outlined in the Secretary of the Interior's "Professional Qualifications Standards" as defined in 36 CFR § 61 Appendix A.

Setting and Environment

Fort Wainwright consists of the Main Post cantonment area and associated training lands, which include three main areas: the Yukon Training Area (YTA), the Tanana Flats Training Area (TFTA), and the Donnelly Training Area (DTA). These are located in central Alaska, north of the Alaska Range in the Tanana River Valley (Figure 1). The post lies 120 miles south of the Arctic Circle near the cities of Fairbanks and North Pole in the Fairbanks North Star Borough. Fort Wainwright has the northern continental climate of the Alaskan interior, characterized by short, moderate summers; long, cold winters; and little precipitation or humidity (Alaska Climate Research Center 2020).

Figure 1. USAG Alaska training lands.

Prehistoric Context

Interior Alaska has been continuously inhabited for the last 14,000 years, and evidence of this continuum of human activity has been preserved within and around USAG Alaska's training lands. Interior Alaska's ice-free status during the last glacial period provided a corridor connecting the Bering Land Bridge and eastern Asia to North America. This allowed small bands of nomadic peoples to colonize Alaska, and the rest of the continent, and began a period of habitation in Interior Alaska that has persisted through the entire Holocene, the arrival of European traders in the late 1810s, the Klondike Gold Rush of the late 19th and early 20th centuries, and the military development of the Interior during the middle of the 20th century. Fort Wainwright's cantonment and associated training lands comprise a vast and still relatively unsurveyed region with areas of high potential for yielding evidence of this activity.

Alaska has long been regarded as the gateway to the Americas and has held archaeological interest as the possible location for the oldest archaeological sites in the New World. This is due to more than Alaska's proximity to Asia and ice-free condition at the end of the Pleistocene. Similarities between archaeological assemblages in Siberia and Alaska and the discovery of lanceolate projectile points in the muck deposits around Fairbanks in the early 1900s (which bore a resemblance to Clovis points of some antiquity in the American Southwest) also sparked interest in Alaska as a source area for all Native Americans. In recent years, the Tanana Valley has proven to be an early New World population center with a number of reliably dated archaeological sites placing humans in the area at the end of the last glacial period. These sites

include McDonald Creek, a 13,900[1] year old bison processing site with stone tool resharpening debris (Goebel et al. 2014, Graf et al. 2018) located in the TFTA, as well as Swan Point, dating to 14,150 years ago (Holmes 2011), and Holzman, at 13,600 years ago, (Wygal et al. 2018), all three of which are located within a 10-mile radius. These sites have stone tool debris, human-worked bone, and remains of extinct Pleistocene fauna in well stratified sediments with radiocarbon dates from charcoal and faunal material in cultural contexts. No other regional complex of well-dated pre-Clovis sites exists anywhere else in North or South America.

After initial colonization, archaeologists generally divide Interior Alaska's prehistory into three broad time periods: the Paleoarctic Tradition (12,000-7,000 years ago), the Northern Archaic Tradition (7,000-1,500 years ago), and the Athabaskan Tradition (1,500-800 years ago) (Potter 2008a, 2008b). Archaeological materials from these cultures are generally limited to lithic artifacts such as projectile points, cutting tools, scrapers, waste flakes from tool manufacturing, faunal remains, and hearths.

Reconstructions of paleoecological evidence suggest that the end of the Pleistocene was marked by a warming trend in Interior Alaska that may have contributed to initial colonization of the area (Bigelow and Powers 2001). Several sites in areas surrounding Army-managed lands demonstrate that people were well established in Interior Alaska by 13,000 years ago. Significant sites in the Tanana Valley dating between 13,500-12,000 years ago include Healy Lake (Cook 1996), Walker Road (Goebel et al. 1996), Mead (Holmes 2001), Upward Sun River (Potter et al. 2014), Keystone Dune (Reuther et al. 2016), Broken Mammoth (Holmes 1996), and Delta River Overlook (Potter et al. 2018). The Younger Dryas cooling event from 13,000-12,000 years ago may have led to a temporary population decline (Potter 2008a, 2008b) in the Interior before permanent, wide-spread, colonization.

The Paleoarctic Tradition is a term now generally used by archaeologists to refer to the first settled people known from all over Alaska. It was originally defined by Anderson[2] (Anderson 1968, 1970) as the earliest microblade-using tradition in the American Arctic, with a proposed relationship to late Pleistocene northeast Asian cultures based on similarities in these distinctive artifact types. Archaeological evidence indicates that early settlers camped on terraces, lakeshores, buttes, and bluffs. By using these locations on higher ground, they could locate and track prey that included large mammals such as mammoth and bison. Evidence from the Upward Sun River site, located on the south side of the Tanana River between Army training areas, for example, demonstrates that hunter-gatherers in Interior Alaska were concentrating on harvesting bison and wapiti at the end of the Pleistocene (the Upward Sun

[1] All dates are given in calendar years before present.
[2] Anderson called it the "American Palaeoarctic Tradition," but most researchers use the shortened version.

River site is also known for one of the earliest burials in the Americas [Potter 2008a, 2008b; Potter et al. 2008; Potter et al. 2011]). The nearby McDonald Creek site on Army-managed land yielded artifacts in association with bison, waterfowl, and small game (Esdale et al. 2012c, Gaines et al. 2011, Goebel et al. 2014, Graff et al. 2018). Delta River Overlook, in DTA, also contained an archaeological record with early diet indicators. This site was visited twelve times between 12,000 and 2,000 years ago, and its earliest inhabitants were big game hunters concentrating on the procurement bison and wapiti (Potter et al. 2018). It is likely that the treeless environment and nomadic nature of these peoples had a direct impact on the kinds of tools they fashioned. Stone, bone, antler, and ivory provided the most abundant material for manufacturing weapons and cutting tools. Artifacts typically associated with this culture include small stone microblades, microblade cores, bifacial projectile points, and unifacial scraping tools.

In Interior Alaska, this tradition historically included two cultural divisions called the Nenana and Denali Complexes. The Nenana Complex was identified by Powers and Hoffecker from sites in the Nenana Valley (Powers and Hoffecker 1989). This complex began approximately 11,000 years ago with an artifact assemblage that included triangular or teardrop-shaped, bifacially worked projectile points ("Chindadn" points [Cook 1969, 1975; Holmes and Cook 1999]); large unifacial chopper-like tools; and flake tools. The Nenana Complex is defined as lacking microblades, microblade cores, and burins, and was proposed to predate the microblade-rich Denali Complex. Many Nenana Complex archaeological sites are located in the Tanana Valley, adjacent to Army training areas (Broken Mammoth [Holmes 1996; Yesner et al. 1999], Chugwater [Lively 1996], Donnelly Ridge in DTA [West 1967, 1996; Donnelly Ridge], Healy Lake [Cook 1989], Delta River Overlook in DTA [Potter et al. 2018], Mead [Holmes 2007], McDonald Creek in TFTA [Graf et al. 2018], and Swan Point [Holmes et al. 1996; Holmes 1998, 2007]).

The Denali Complex, dated roughly to 10,500 to 8,500 years ago, was originally defined by West (West 1967, 1975) and includes distinctive wedge-shaped microblade cores, core tablets and their derivative microblades, large blades, biconvex bifacial knives, certain end-scraper forms, and burins. West later defined the Denali Complex as a regional variant of the American Paleoarctic Tradition (West 1981). Denali sites in the vicinity of USAG Alaska's training lands include Mount Hayes (West 1996), Swan Point (Holmes et al. 1996; Holmes 1998, 2007), and Gerstle River (Potter 2001). Several sites in DTA and the Tanana Flats have been dated to this period (including Delta River Overlook [Potter et al. 2018] and Hurricane Bluff [Esdale et al. 2015]).

The relationship between the proposed Nenana and Denali Complexes is as of yet unresolved. As discussed above, some researchers view the Nenana Complex as a bifacial industry that

predates the microblade-based Denali Complex. However, current research at sites such as Swan Point and Broken Mammoth indicates that microblades and burins were used by the earliest known cultures in Interior Alaska, with a later co-occurrence with Chindadn points—the defining artifact type of the Nenana Complex. Although some archaeologists still believe that there is a cultural distinction between the Nenana and Denali complexes (e.g., Dumond 2001), the general understanding of Interior Alaskan archaeologists is that there is a behavioral explanation for the presence or absence of microblades in different assemblages (Holmes 2001; Potter 2008a, 2008b; Yesner and Pearson 2002). Moreover, both Nenana and Denali technology persist in central Alaska throughout the Holocene (Bever 2006).

The site density declined in the areas around Fort Wainwright in the early Holocene, suggesting a slight depopulation during a period of climate change that initiated the widespread establishment of spruce forests (Potter 2008a, 2008b). The boreal forest in Interior Alaska was established by 8,000 years ago (Bigelow and Powers 2001). Sites from this time period are less well publicized than the older sites, but include Houdini Creek (circa 8,600 years old) (Bever 2001), Lucky Strike (Potter et al. 2007) (c. 8,500 years old), Blair Lakes in TFTA (c. 8,000 years old) (Esdale et al. 2017), Delta River Overlook (several components) (Potter et al. 2018), Delta Creek (c. 8,000) (Doering pers. comm. 2018), and the Campus Site (c. 7,700 years old) (Pearson and Powers 2001; Potter et al. 2007; Potter 2008). Bison, wapiti, and birds were the most important subsistence game during this period (Potter 2007, 2008a, 2008b).

The site density increased again after about 6,000 years ago in Interior Alaska (Potter 2008a, 2008b). This population increase coincides roughly with the emergence of the Northern Archaic Tradition and the appearance of side-notched projectile points. Anderson originally defined the Northern Archaic Tradition to specifically address notched point-bearing stratigraphic horizons that did not contain microblades at the Onion Portage site in northern Alaska (Anderson 1968). Alaskan notched points were generally similar to Archaic-age dart points in the contiguous United States. Time has shown middle Holocene assemblages in Alaska to be quite diverse, however, and it is questionable whether this trait is related to southern forms or if it is a reliable indicator of cultural affiliation (Clark 1992; Cook and Gillispie 1986). Artifact assemblages associated with this culture can vary but generally contain a myriad of tools ranging from bifacial knives and microblades to end scrapers and side-notched projectile points. Middle Holocene hunter-gatherers had a subsistence economy focused on seasonally abundant game including caribou, fish, and moose (Potter 2008a, 2008b). Notched point assemblages occur in many sites in Interior Alaska, including over one dozen on Army-managed lands (XBD-00277, XMH-00277, XMH-00283, XMH-00303, XMH-00309, XMH-00874, XMH-00950, XMH-01130, XMH-01168, and XMH-01300). Several sites (XBD-00270, XMH-00915, XMH-00925), including the excavated Banjo Lake site in DTA (XMH-00874), have also produced middle

Holocene dates from hearth charcoal. The 6,300-6,700 year old dates from Banjo Lake were also associated with a microblade component (Robertson et al. 2008).

Use of microblade and burin-based industries appears to continue through the middle and late Holocene in Interior Alaska (Esdale 2008; Potter 2004). By the late Holocene, archaeologists see a shift from seasonal large mammal hunting with a nomadic lifestyle to a focus on seasonally over-abundant resources, use of storage, and more permanent settlements (Potter 2008b). Artifact assemblages do not drastically change until the last millennium of the Holocene when microblades gradually disappear from the archaeological record (Potter 2008a, 2008b).

Linguistic evidence suggests that the Athabascan culture may have appeared in the Tanana Valley as early as 2,500 years ago, or earlier (Kari 2016; Kari and Potter 2010). Through ethnography, oral history, and a broad array of cultural items, much has been learned about Athabascan culture and history in the region. The artifacts associated with the Athabascan culture are exceptionally diverse and include bone and antler projectile points, fishhooks, beads, buttons, birch bark trays, and bone gaming pieces. In the Upper Tanana region, copper was available and used in addition to the traditional material types to manufacture tools such as knives, projectile points, awls, ornaments, and axes (Clark 1981). A late prehistoric Athabascan occupation is recognized at several sites in and around Army training lands (Andrews 1975; Andrews 1987; Cook 1989; Mishler 1986; Sheppard et al. 1991; Shinkwin 1979; Yarborough 1978). Of particular interest in this regard is a copper projectile point found in a buried context at DTA (XBD-00272) (Robertson et al. 2009).

The Athabaskan Tradition includes late prehistoric and proto-historic cultures generally believed to be the ancestors of Athabascan tribes who currently inhabit Interior Alaska. Excavated Athabaskan sites in the interior are rare, but the limited body of evidence allows for several generalizations. The raw material usage was reorganized in the Athabaskan Tradition, which de-emphasized stone tool making and increased the emphasis on the manufacture of items from native copper and organic materials (Dixon 1985). Assemblages include ground and pecked stone artifacts and an increased use of expedient tools. There was a broadening and diversifying of the resource base at this time to include small mammals and freshwater marine animals such as fish and mollusks (McFadyen Clark 1981; McFadyen Clark 1996; Ream 1986; Sheppard et al. 1991; Shinkwin 1979). Athabaskan sites tend to occur in resource-rich areas near lakes, streams, and rivers and are generally characterized by large house pit and cache pit features. Proto-historic Athabaskan assemblages include Euro-American trade goods such as glass beads and iron implements. Sites of this time period reflect an increased reliance on outside trade and include log cabins co-occurring with traditional house pits, as well as a

change in site location to maximize trading opportunities (Andrews 1975; Andrews 1977; Andrews 1987; McFadyen Clark 1981; VanStone and Goddard 1981).

Athabascan settlement patterns depended greatly on the availability of subsistence resources, and Interior bands lived a nomadic lifestyle. They often traversed vast areas to support themselves and spent considerable time engaged in subsistence activities. It was often necessary for bands to divide into smaller groups to find game, and preserved fish were used as a staple of the diet in addition to fresh game (Andrews 1975).

Four Athabascan linguistic and geographic groups have inhabited the Tanana Valley: the Upper Tanana, Tanacross, Tanana, and Koyukon. Each group is further distinguished according to geographic location. The bands of the Tanana and Tanacross groups are historically associated with the geographic area that embodies Forts Wainwright and Greely. Salcha, Chena, Wood River, Goodpaster, and Healy Lake bands have inhabited the region since proto-historic times and possibly even prehistoric times (Andrews 1975). Use of the region varied from one band to the next. The Salcha, Chena, Goodpaster, and Wood River bands of the Tanana Athabascans and the Healy Lake band of the Tanacross Athabascans used certain parts of what are now Army-managed lands (McKennan 1981). Several villages have been reported on or near Fort Wainwright. One occupied by the Wood River band is said to have been located in the southern part of TFTA but has not been found (Dixon 1980; Reynolds 1986). The Blair Lakes Archaeological District (FAI-00335) in TFTA may relate to the prehistory of the Athabaskan Tradition. Euro-American historic archaeological sites are also present (Gamza 1995; Phillips 1984).

Historic Context

With the beginning of Euro-American contact in Interior Alaska in the early 19th century, trade influences and influxes of new populations began to change life in the region. Land use patterns shifted from traditional indigenous uses to activities based on Euro-American economic and political systems. USAG Alaska-managed training lands fall within an area occupied at the time of Euro-American contact by Lower-Middle Tanana Athabascans, including bands described generally as the Salcha, Big Delta-Goodpaster, Wood River, and Chena bands (McKennan 1981; Andrews 1975; Mishler 1986). Historical accounts document traditional settlement patterns that were focused on a widely mobile seasonal round, with the fall caribou hunt playing a pivotal role in subsistence preparations for the winter and summer activities focused at fish camps, on berry and root collecting, and in sheep hunting. These activities were frequently communal, with several local bands connected by common interest, geography, and intermarriage. Despite anthropological attempts to define boundaries for the peoples living in

the lower Tanana River Valley, natural terrain served as the only definable boundary to settlement patterns (McKennan 1981).

As Euro-American traders, miners, missionaries, and explorers moved into the Tanana River Valley, the traditional life ways of local Athabascan groups were disrupted. Access to trade goods and the development of the fur trade not only affected traditional material culture, but also began to dramatically affect subsistence activities and settlement patterns. Similarly, the arrival of missionaries in the Alaskan interior profoundly influenced traditional social organization. The introduction of mission schools for Native children and the doctrine of new religious beliefs contributed to an erosion of traditional practices (McKennan 1981).

Russian fur traders began settling Interior Alaska starting in the 1810s, establishing a post at Nulato on the Yukon River and one at Taral on the Copper River. British traders established Fort Yukon in 1847. Trade goods from these posts may have passed to Tanana Athabascans and Upper Tanana Athabascans through intra-Native trade networks. Direct contact between Tanana Athabascans and white traders increased after the 1860s. With the U.S. purchase of Alaska in 1867, control of trading stations and the fur trade passed to Americans. Through the 1880s, American traders established several additional posts on the Yukon and Tanana rivers including locations at Nuklukayet or Nuchalawoyya (modern-day Tanana), Belle Isle (modern-day Eagle), and Fort Yukon.

Trade goods introduced by Euro-American settlers influenced the Native lifestyle. Clothing, food, staples, tools, and other necessities could be obtained through trade. Guns allowed hunters to obtain game with greater efficiency. Gradually, Athabascan groups began to alter their traditional nomadic patterns in favor of more permanent settlements. However, while significant, this contact would not have as dramatic an impact on the region as the discovery of gold in the Interior during the last decades of the 19th century. The towns established by Euro-American settlers at the turn of the 20th century, in response to the Klondike Gold Rush and the eventual military development of the region, would rapidly and permanently change the demography and economy of Interior Alaska.

The gold strikes in the Fortymile River region, Birch Creek area, and the Canadian Klondike began drawing miners and prospectors north in the 1880s and 1890s. In response to this gold rush, E.T. Barnette established a trading post on the Chena River in 1901. The following year, prospector Felix Pedro discovered gold nearby, and a new gold rush soon led to the founding of Fairbanks at the site of Barnette's original trading post. Most mining activities in the region occurred on creeks north of Fairbanks, with the town serving as a supply center. Agricultural and other commercial activities, such as logging, also developed to support mining activities in

the Fairbanks area. Homesteads existed on parts of what is today the main post of Fort Wainwright as early as 1904.

In 1898, the discovery of gold in the Tanana uplands began a rush of Euro-American settlement into the Tanana River Valley. As the economic importance of the Tanana Valley increased, the need for reliable transportation routes and communication systems rose in tandem. Existing trails, such as the Bonnifield, Donnelly-Washburn, and Valdez-Fairbanks trails, saw increased use and development in the first decade of the 20th century. This increase in activity also resulted in the establishment of several roadhouses and posts. In 1906, Congressional appropriations led to improvement of the Valdez-Fairbanks Trail, crossing the Alaska Range south of Delta Junction, following the Tanana River to Fairbanks. Completion of the Alaska Railroad in 1923 was followed two decades later by construction of the Alaska Highway in 1942, firmly tying the Alaskan interior to the outside.

As Fairbanks grew in the first decade of the 20th century, several agricultural homesteads were developed on lands now encompassed by sections of the Fort Wainwright cantonment. These homesteads provided Fairbanks with a variety of agricultural products and wood for fuel, but were subsumed when lands were withdrawn for the creation of Ladd Field, which later became Fort Wainwright (Price 2002).

Riverboats were the primary means of getting people and supplies into the Interior at the turn of the 20th century. The Fairbanks town site was located at the upper limit of navigation for stern-wheeler riverboats on the Chena River. Upriver from that point, residents navigated the river using shallow-draft boats in summer and sleds in winter. As commerce in the area increased, roads and trails were constructed, sometimes following earlier indigenous routes. The major overland route to the coast was the Valdez-Fairbanks Trail, which began as a military trail from Valdez to Eagle in 1899.

Transportation and communication networks, including the Alaska Railroad, were developed to serve new settlements in Interior Alaska. A branch of the railroad route was extended to Fairbanks in 1904. Roadhouses along the route catered to travelers. Some were located on what are now Army training lands. One property was on the Bonnifield Trail in TFTA, and two roadhouses and a seasonal tent operation existed along the Donnelly-Washburn Trail in the current DTA. Secondary routes connected Fairbanks to the surrounding mining districts.

By 1910, most of the easily accessible placer gold deposits were exhausted, and capital-intensive technologies became necessary to extract remaining deposits. These methods were not possible with the existing transportation infrastructure. The completion of the Alaska Railroad in 1923 expanded transportation options for the region, connecting Fairbanks to

Seward and making large-scale dredging operations economically feasible. Aviation also became a key component of Interior transportation, beginning in earnest in the 1920s. However, it was not until 1931 that Weeks Field, originally constructed in 1923, was officially dedicated as an airfield. Industrialized corporate activity became the hallmark of the region's mining in the remaining years before World War II.

The development in the Alaskan interior increased dramatically with the onset of World War II and subsequent military build-up in Alaska. Of particular significance was the development of airfields near Delta Junction (Fort Greely), Fairbanks (Ladd Field, later Fort Wainwright), and North Pole (Eielson Air Force Base). These locations began as Lend-Lease airfields and cold weather testing centers, but soon expanded with the increased need for military support during World War II and, later, the Cold War.

Full historic contexts of early mining, transportation, and homesteads on Fort Wainwright have been completed. These studies have determined that there are no properties eligible for the NRHP under these contexts. Several village sites associated with the early contact period have been reported near Fort Wainwright. One was reported near Wood River Buttes, two just northwest of the installation's boundary, and one near Fairbanks (Reynolds 1986). None have been reported or located on the Main Post.

During the summer of 1934, then Lieutenant Colonel Henry H. (Hap) Arnold lead *The Alaska Flight*, a contingency of ten B-10 bombers, to scout for potential airfield sites. This resulted in selection of land outside Fairbanks being chosen for Ladd Field's authorization by Congress in 1935. Construction began on the small cold weather testing station in 1939; and, by 1940, Ladd Field was operational.

Cold weather testing at Ladd Field helped to improve the aircraft and equipment used by front-line aircrews. The Cold Weather Test Detachment's experimental tests contributed to the development of aircraft design, ground procedures, and personnel equipment with stateside research agencies and manufacturers. After the start of World War II, Ladd Field also served as the transfer point for the Alaska Siberia (ALSIB) Lend-Lease aid to the Soviet Union. From 1942 to the end of the war in 1945, Ladd Field saw 7,926 aircraft and associated cargo change hands. Though it was controversial, the Lend-Lease aid to the Soviet Union played a part in the eventual defeat of Nazi Germany. Ladd Field also served as an air depot for the repair and supply of aircraft under the Air Transport Command, processing thousands of passengers as well as tons of cargo and mail.

In 1985, Ladd Field was listed on the NRHP. Ladd Field was designated a National Historic Landmark for the themes of cold weather testing; aircraft repair, supply depot, and air transfer hub; and transfer point for aircraft and cargo transiting the ALSIB route to the Soviet Union.

In 1947, the Air Force became a separate service and Ladd Field became known as Ladd Air Force Base (AFB). Missions flown out of Ladd AFB played a significant role in the early years of the Cold War confrontation with the Soviet Union. Early in the Cold War, military planners decided on a heartland concept for Alaskan defense, concentrating on bases near Anchorage and Fairbanks as the strategic anchor points. Ladd AFB became the Northern Sector Headquarters for the Alaskan Air Command, and its foremost missions during the Cold War were air defense, strategic reconnaissance, and arctic research.

Ladd AFB's air defense mission was part of the plan to deter the Soviet Union from taking Alaskan territory and using it as a base from which to threaten the continental United States. Ladd AFB hosted tactical fighter intercept squadrons and combat alert cells. An Air Defense Command Center located on Ladd AFB was responsible for directing air battles in Alaska's northern sector. It also provided support to segments of the Distant Early Warning Line. In the earliest years of the Cold War, Ladd AFB hosted some of the first long-range strategic aerial reconnaissance units.

Ladd AFB was also the scene of significant Cold War arctic research. The cold weather equipment testing, begun during World War II, continued through the Cold War and expanded to include the Arctic Aeromedical Laboratory (AAL). The AAL studied human adaptation to arctic and sub-arctic climates with an eye toward military applications.

In 2001, the Ladd AFB Cold War Historic District was determined eligible for the NRHP. It was determined to be significant for its role in the early Cold War missions of the 46th/72nd Air Reconnaissance unit and for the fighter intercept squadrons stationed here.

In 1960, Ladd AFB was transferred to the Army and was renamed Fort Jonathan Wainwright on January 1, 1961. In Alaska, Cold War missions were predominately under the command of the Air Force, with the Army providing ground force defense and logistical supply. The Army also carried out cold weather training tactics and cold weather equipment testing. The onset of the Vietnam War and its high costs drained the Army's resources; troops at Wainwright were reassigned or deployed, causing a significant decrease in the post's population. In 1986, the mission of the post changed once again with the assignment of the 6th Light Infantry Division to Fort Wainwright. Since 1986, Fort Wainwright's mission has been to support worldwide deployment.

Status of Archaeological Sites

Archaeological research on Fort Wainwright training areas has resulted in numerous technical reports (Bacon 1978; Bacon and Holmes 1979; Bradley et al. 1973; Carlson et al. 2016; Dixon et al. 1980; Esdale et al. 2019, 2018 a, 2018 b, 2017a, 2017c, 2016, 2015b, 2015c, 2014, 2013, 2012a, 2012b, and 2012c; Esdale and McLaren 2014, 2013; Esdale and Pelto 2017; Esdale and Robertson 2007; Espenshade 2010; Gaines 2009; Gaines et al. 2010a, 2010b; Hedman et al. 2003; Higgs et al. 1999; Holmes 1979b; Johnson and Bozarth 2008; Marshall 2007; Potter et al. 2018; Potter 2005; Potter et al. 2000, 2007a; Rabich and Reger 1978; Raymond-Yakoubian and Robertson 2006; Raymond-Yakoubian and Robertson 2005; Robertson et al. 2004, 2006, 2007, 2008, 2009b, 2013; Staley 1993), and scientific papers (Esdale et al. 2017 b, 2015a; Holmes and Anderson 1986; West 1967, 1975).

Fort Wainwright and its training lands contain 719 known archaeological sites, one traditional cultural property, and six archaeological districts. Eighty-one sites are eligible for the NRHP, 523 sites have not been evaluated, and 115 additional sites have been determined not eligible for the NRHP. Of the eligible or un-evaluated sites, 7 are historic and 597 are prehistoric sites.

Archaeological surveys of the Fort Wainwright Main Post area began in 1979. Jim Dixon surveyed the north side of the Chena River and Birch Hill area, discovering and relocating several prehistoric archaeological sites (FAI-00040, 00041, 00042, 00043, 00199, and 00200) (Dixon et al. 1980). Surveys of the Main Post building areas continued in the 1980s by Julia Steele (Steele 1992, 1983) and Georgeanne Reynolds (Reynolds 1983, 1985). No sites were found in these previously disturbed areas. John Cook surveyed the River Road pond in 1996 and found one site (FAI-00509), which has failed to be relocated in subsequent attempts. In 2001, the Army began partnering cultural resources surveys and evaluations with Colorado State University's Center for Environmental Management of Military Lands (CEMML). Surveys by several different principal investigators have targeted areas of construction undertakings. Two historic sites (FAI-01603 and 01604) and one additional prehistoric site (FAI-01990) were found in these investigations. In 2011 and 2012, CEMML completed survey of the entire cantonment, north and south of the Chena River, discovering three additional historic sites (FAI-02117, FAI-02197, and FAI-02198). Two sites were evaluated for the NRHP in 2013 (FAI-00199 and FAI-00200). Of the 11 archaeological sites known from the Fort Wainwright cantonment, 10 have been determined not eligible and one has been determined eligible (FAI-00040) for the NRHP. This total does not include any historic buildings related to the Ladd Field National Historic Landmark or the Ladd AFB Cold War Historic District.

Archaeological sites were first identified in the TFTA in 1973 by Zorro Bradley and others who conducted a survey in the Blair Lakes area (Bradley et al. 1973). James Dixon continued surveys

for archaeological district designations in the regions of Blair Lakes (District FAI-00335), Clear Creek Butte (District FAI-00336), and Wood River Buttes (District FAI-00337) (Dixon et al. 1980). In 1993, proposed work in the Clear Creek Butte area prompted a contract to relocate several archaeological sites (Staley 1993). These three districts have been revisited by CEMML archaeologists a few times over the last decade, and, notably, 92 new sites were found in 2009-2010 during survey of the Wood River Buttes, Salmon Loaf, and north and east of Blair Lakes. The district boundaries were adjusted in 2016 to accommodate the new discoveries (Carlson et al. 2017). Recent surveys have focused on the Blair Lakes region which has a long history of use dating from late glacial times to the more recent homesteading period and has also been a significant region for military training. This area hosts the second oldest archaeological site in all of Alaska, the McDonald Creek site (FAI-02043), with stone tool debris dating to 13,900 years ago (Esdale et al. 2014, Graf et al. 2018). In total, archaeologists have identified 168 archaeological sites in TFTA. Of these sites, 17 have been determined eligible for inclusion in the NRHP, one site is not eligible (FAI-00053) and 145 remain to be evaluated for eligibility.

The road system in the YTA was the first of many areas to be investigated. Charles Holmes discovered eight sites in a 1978 road survey (Holmes 1979). John Cook conducted a Determination of Eligibility (DOE) evaluation on one of these sites in 1979 (Cook 1979). Michael Kunz surveyed the Stuart Creek area in 1992 but discovered no archaeological sites, and Northern Land Use Research's 1999 survey of Stuart Creek and the YTA road system uncovered one historic site (Higgs et al. 1999). CEMML archaeologists have been surveying portions of YTA in conjunction with construction projects on an annual basis since 2001. Currently, North Beaver Creek, Skyline, Johnson, Quarry, Brigadier, and Manchu Rroads in YTA are almost entirely surveyed, as is the area east of Skyline Road outside of the Stuart Creek Impact Area, McMahon Trench, the Manchu Range, and the majority of Training Areas 307 and 310, north and south of Manchu and Quarry Roads. Twenty-two archaeological sites have been identified in YTA. Seventeen of the sites have been determined not eligible for listing in the NRHP and five have not been evaluated. Surveys continue annually in YTA in association with range control development projects and timber sales.

Archaeological investigations in what is now the DTA began in the 1960s, when Frederick West was searching for sites related to the first Americans (West 1967). He excavated the Donnelly Ridge site (XMH-00005) in 1964 and found an assemblage containing microblade core technology similar to early Holocene Denali Complex sites. Several surveys of Fort Greely and adjacent training lands in the late 1970s documented 64 new sites (Rabich and Reger 1978; Bacon 1978; Holmes 1979b; Bacon and Holmes 1979). Julia Steele surveyed various locations in DTA from 1980-1983, finding four additional new sites (Steele 1980a, 1980b, 1982a, 1982b, 1983a, 1983b), and Georgeanne Reynolds surveyed the Donnelly Dome area in 1988, locating

one more site (Reynolds 1988). Investigations in DTA from 1992-2002 were made by D. Staley (Staley 1993), T. Gamza (Gamza 1995), A. Higgs (Higgs et al. 1999), and D. Odess (Odess 2002). Sixteen new sites were found during this decade of fieldwork, and attempts were made to relocate old sites.

Concentrated efforts to expand survey coverage of DTA East began with W. Hedman in others in 2002 (Hedman et al. 2002). Over 200 new sites were located in the Texas Range, Donnelly Drop Zone, and Eddy Drop Zone in the first half of the decade. In recent years, CEMML research aimed to evaluate many known archaeological sites in DTA for inclusion in the NRHP in conjunction with use of the Battle Area Complex (BAX) and its Surface Danger Zone (SDZ). Sites have also been discovered during surveys for road and trail maintenance. Major excavations have taken place in training area that have greatly increased our understanding of the prehistory of the area, including the middle Holocene Banjo Lake site (Esdale et al. 2013) and the multicomponent Delta River Overlook (XMH-00297) and Hurricane Bluff (XMH-00297) sites (Potter et al. 2018).

Potential expansions into DTA West, west of the Delta River, prompted 2011 and 2012 surveys into new areas such as Molybdenum Ridge, where 21 new sites were discovered in 2011. Eleven surface sites were also found along Dinosaur Ridge in 2016. Because of its remote setting and a lack of military development, however, the archaeology of DTA West is still poorly understood and represents a gap in USAG Alaska's inventory of cultural properties.

To date, 477 archaeological sites have been identified within DTA. Fifty-four sites have been found to be eligible for the NRHP, and 67 were found not eligible. An additional 356 sites remain to be evaluated. Historic archaeology sites are poorly represented in this region, with only five currently known to exist. The Donnelly Ridge Archaeological District (XMH-00388) encompasses Denali Complex sites, identified by Frederick West, south and west of Donnelly Dome. Two new prehistoric districts were identified in 2016, east and west of Jarvis Creek: the Jarvis Creek Archaeological District (XMH-01553) and the Heart among the Glaciers Archaeological District (XMH-01552) (Carlson et al. 2016). Future archaeological studies in DTA will concentrate on completing survey of 100% of the land in DTA East, conducting DOEs on archaeological sites in high traffic areas, and exploring parts of DTA West that are opening up for expansion of military training activities.

In 2019 USAG Alaska reacquired cultural resources responsibilities for the Fort Greely cantonment. Sixteen prehistoric sites are known from this parcel of land and NRHP evaluations were completed for all sites in 2010 (Gaines et al. 2010a). Sites are situated on outwash deposits west of Jarvis Creek, seven are eligible for the NRHP and nine have been found not eligible.

Despite its incomplete nature, the archaeological record known from DTA represents all of the currently recognized prehistoric cultures of the Alaskan interior. Of significance is the role played by sites located on DTA in the definition of the Denali Complex of the American Paleoarctic Tradition (Anderson 1970; West 1967, 1981). The oldest dates for human habitation at DTA are roughly 10,100 years at site XBD-00167 (Higgs et al. 1999) and 12,000 years at Delta River Overlook (Potter et al. 2018); however, undisturbed stratigraphic deposits that are 12,800-12,930 years old indicate the potential for intact archaeological occupations of this age. Sites yielding Northern Archaic side-notched points are common (Robertson et al. 2004, 2005; Raymond-Yakoubian and Robertson 2005). At DTA, the Banjo Lake site yielded an AMS date of 5720 ± 50 BP from hearth charcoal associated with a microblade component (Esdale et al. 2015, Robertson et al. 2008). Euro-American historic archaeological sites are also present (Gamza 1995; Phillips 1984). The Delta River Overlook site (XMH-00297) may prove to be one of the most significant prehistoric sites in the region. The site, overlooking the Delta River from a high bluff, has deeply stratified deposits and contains evidence of at least twelve occupations over the time span of 2,000 to 12,000 years before present (Potter et al. 2018). People using the site were hunting bison in the river valley and processing the animals on the bluff edge. This site provides important evidence concerning changing subsistence strategies and tool technology over time (Potter et al. 2018).

Survey efforts increased in 2013 in the Black Rapids Training Area (BRTA) in advance of military installation of a high-angle marksmanship range. Ten sites, eight of which were discovered during CEMML surveys in 2013, are known from this rocky landscape. Four sites have been determined ineligible for the NRHP, and all sites are small surface lithic scatters and isolated points as there is very little deposition in most of the mountainous training area. An additional surficial prehistoric site, XMH-01504, was found in the small Whistler Creek Training Area (WCTA) to the south of BRTA in 2015.

Six sites were discovered at Tok Fuel Terminal by John Cook in the early 1980s. In recent years, several of these site localities have merged into single sites and new prehistoric sites in other areas have been found. Currently, ten prehistoric sites are located on the Tok Fuel Terminal hill, and two are eligible for the NRHP. One eligible traditional cultural property is also known from this Army-managed property (TNX-00067) (Simon and Gelvin-Reymiller 2002).

The Gerstle River Training Area (GRTA) and Haines Fuel Terminal, also managed by USAG Alaska, have not been thoroughly surveyed for archaeological resources. CEMML archaeologists surveyed small portions of GRTA from 2011 through 2013. Three prehistoric sites (XMH-01359, XMH-01494, and XMH-01509) are known from this training area. One site, XMH-01494 was determined not eligible in 2013 (Esdale et al. 2013b). Sears Creek Pump Station and Seward

Military Resort are two additional small properties that have not yet been surveyed for archaeological sites. One ineligible historic site is known from Haines Fuel Terminal (SKG-00043), but the property has only been partially surveyed (see Bowers et al. 1998).

Status of Buildings and Structures

The Ladd Field National Historic Landmark (NHL) consists of 20 contributing buildings and four contributing structures. Located within the boundaries of the NHL are six noncontributing buildings and two noncontributing structures. During the previous year, the NHL has undergone few changes and most projects have been small and determined to have no adverse effect on the NHL. These include the installation of an electrical switch box and the construction of a new Relocatable Arms Room on the south side of the airfield. The Ladd Air Force Base Cold War Historic District (HD) consists of 37 contributing buildings and structures, with 30 noncontributing. Changes within the boundaries of the HD include the construction of the RAR (no adverse effect) and the construction and completion of the new Gray Eagle hangar at the southwest corner of the airfield. While most projects have resulted in no adverse effect, the infill of the NHL with the construction of the Gray Eagle hangar was determined to be an adverse effect and was mitigated in 2017.

2019 Cantonment

NAGPRA and ARPA Activities

No activities related to NAGPRA or ARPA took place on the cantonment in 2019.

Section 106 Activities

Section 106 consultation took place for six projects on the cantonment in 2019. The SHPO concurred that no historic properties were adversely affected for the Building 2074 Aircraft Parts Storage Addition Project (SHPO concurrence 6 February 2019) and the Building 1556 Switchbox Installation Project (12 July 2019). Adverse effects were decided for the Sage Hill Borrow Pit Project (12 April 2019), but the project was cancelled. Adverse effects were also concurred for the demolition of the Bailey Bridge (1 March 2019) and a MOA (MOA-WC1SH5-1902-5) to mitigate the effects of this project was signed on 18 July 2019. One building was evaluated and a letter was sent to the SHPO and consulting parties. The SHPO concurred that Building 4070 is individually eligible for the NRHP under Criterion A for its significance to Cold War science (8 November 2019).

Section 110 Building and Structure Surveys

No building and structure surveys were conducted on the cantonment in 2019. AHRS cards were updated and submitted to the SHPO for the following sites (Table 1).

Table 1. Cantonment buildings with AHRS card updates in 2019.

AHRS Number						
FAI-00446	FAI-00478	FAI-01266	FAI-01308	FAI-01377	FAI-01435	FAI-01490
FAI-00448	FAI-00481	FAI-01267	FAI-01309	FAI-01378	FAI-01436	FAI-01491
FAI-00449	FAI-00482	FAI-01268	FAI-01310	FAI-01380	FAI-01437	FAI-01495
FAI-00450	FAI-00483	FAI-01269	FAI-01311	FAI-01381	FAI-01464	FAI-01496
FAI-00451	FAI-00485	FAI-01270	FAI-01312	FAI-01382	FAI-01465	FAI-01530
FAI-00452	FAI-00486	FAI-01271	FAI-01313	FAI-01383	FAI-01466	FAI-01536
FAI-00453	FAI-00502	FAI-01272	FAI-01314	FAI-01384	FAI-01467	FAI-01540
FAI-00454	FAI-00505	FAI-01273	FAI-01319	FAI-01385	FAI-01468	FAI-01541
FAI-00455	FAI-00506	FAI-01274	FAI-01320	FAI-01386	FAI-01469	FAI-01545
FAI-00456	FAI-00510	FAI-01275	FAI-01321	FAI-01387	FAI-01470	FAI-01546
FAI-00457	FAI-00533	FAI-01276	FAI-01323	FAI-01388	FAI-01471	FAI-01547
FAI-00458	FAI-00535	FAI-01277	FAI-01324	FAI-01401	FAI-01472	FAI-01548
FAI-00459	FAI-01237	FAI-01278	FAI-01325	FAI-01402	FAI-01473	FAI-01606
FAI-00460	FAI-01248	FAI-01282	FAI-01327	FAI-01404	FAI-01474	FAI-01732
FAI-00463	FAI-01249	FAI-01283	FAI-01328	FAI-01405	FAI-01475	FAI-01746
FAI-00464	FAI-01250	FAI-01284	FAI-01329	FAI-01411	FAI-01477	FAI-01772
FAI-00465	FAI-01251	FAI-01289	FAI-01330	FAI-01424	FAI-01478	FAI-01773

FAI-00466	FAI-01252	FAI-01298	FAI-01333	FAI-01425	FAI-01479	FAI-01776
FAI-00468	FAI-01253	FAI-01299	FAI-01360	FAI-01426	FAI-01480	FAI-01777
FAI-00470	FAI-01254	FAI-01300	FAI-01361	FAI-01427	FAI-01481	FAI-01830
FAI-00471	FAI-01255	FAI-01301	FAI-01362	FAI-01428	FAI-01482	FAI-01834
FAI-00472	FAI-01257	FAI-01302	FAI-01363	FAI-01429	FAI-01483	FAI-01839
FAI-00473	FAI-01259	FAI-01303	FAI-01364	FAI-01430	FAI-01485	FAI-01852
FAI-00474	FAI-01261	FAI-01304	FAI-01365	FAI-01431	FAI-01486	FAI-01853
FAI-00475	FAI-01263	FAI-01305	FAI-01366	FAI-01432	FAI-01487	FAI-01879
FAI-00476	FAI-01264	FAI-01306	FAI-01367	FAI-01433	FAI-01488	FAI-01913
FAI-00477	FAI-01265	FAI-01307	FAI-01376	FAI-01434	FAI-01489	FAI-01916

Section 110 Archaeological Surveys

No new archaeological surveys were conducted on the cantonment in 2019.

Newly Discovered Archaeological Sites

No new archaeological sites were found on the cantonment in 2019.

Post-Review Discoveries

One unexpected discovery took place on the cantonment when Doyon Utilities began excavation for a foundation being added on to an existing wastewater treatment facility. The wing of a B 29 airplane was encountered approximately 2 m below the surface in a military refuse pit amongst other metal debris and garbage (Figure 2, Figure 3, Figure 4) Part of a propeller was also found amongst the rubbish (Figure 5). This discovery was not considered significant as the airplane parts were not in situ and it was customary in the past for the Army to bury trash on the cantonment and construct atop it.

Figure 2. B 29 wing found during excavation for a building addition.

Figure 3. Wing after excavation.

Figure 4. Other debris found in refuse pit.

Figure 5. Propeller parts found during excavation.

Archaeological Site Monitoring and Site Protection Measures

One site was monitored on the cantonment in 2019 (Table 2, Figure 6). Seibert stakes were erected along the edge of the road at the north end of the site. FAI-00040 is in good condition and there are no signs of disturbance beyond the road bed (Figure 7, Figure 8). Five flakes were found exposed on the surface but were not collected.

Table 2. Archaeological sites monitored on Fort Wainwright's cantonment in 2018.

Training Area	AHRS #	Last Visit	2019 Visit	Artifacts Exposed	Surface Condition	Danger of Destruction	Seibert Stakes
114	FAI-00040	2018	8/5/2019	5 flakes on surface	vegetated, road cut on north side of feature	yes: road maintenance	5

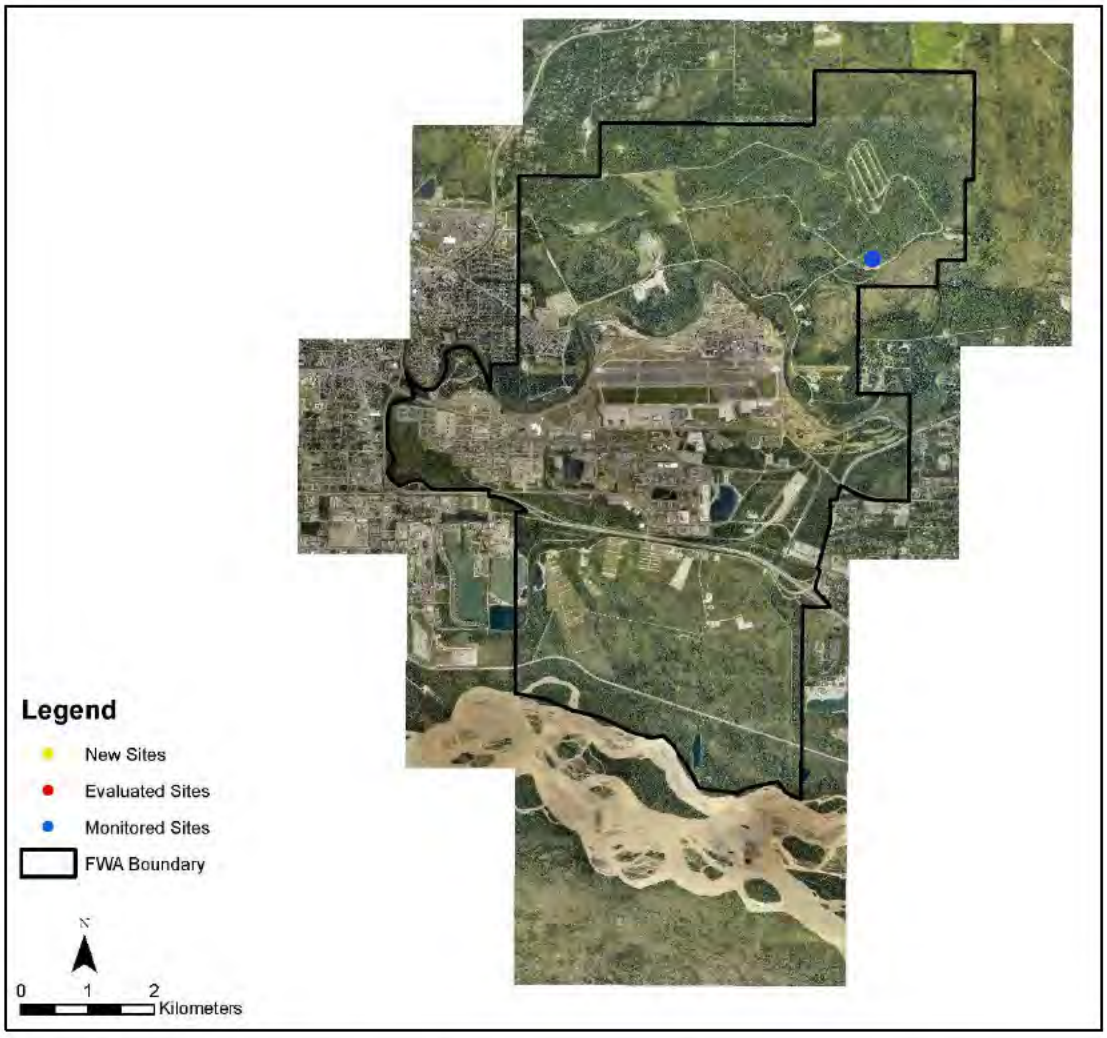

Figure 6. Sites monitored on Fort Wainwright's cantonment in 2019.

Figure 7. View of FAI-00040 to the north.

Figure 8. View of FAI-00040 to the south, Seibert stakes along edge of pull out.

Determinations of Eligibility

No archaeological sites on the cantonment were evaluated for the NRHP during the 2019 field season. Only one historic building, FAI-01283, was evaluated (see note on concurrence above).

Summary of Archaeological Surveys and Sites

A 100% survey of Fort Wainwright's cantonment and adjacent areas (Farmer's Loop and the Permafrost Tunnel) was completed in 2013 (Figure 9). These surveys include 12,500 acres of training lands and undisturbed areas (13,525 acres total including the disturbed Ladd Field footprint). Of the 11 archaeological and historic sites discovered during these surveys, only one prehistoric site (FAI-00040) is eligible for the NRHP. Ten sites have been found not eligible.

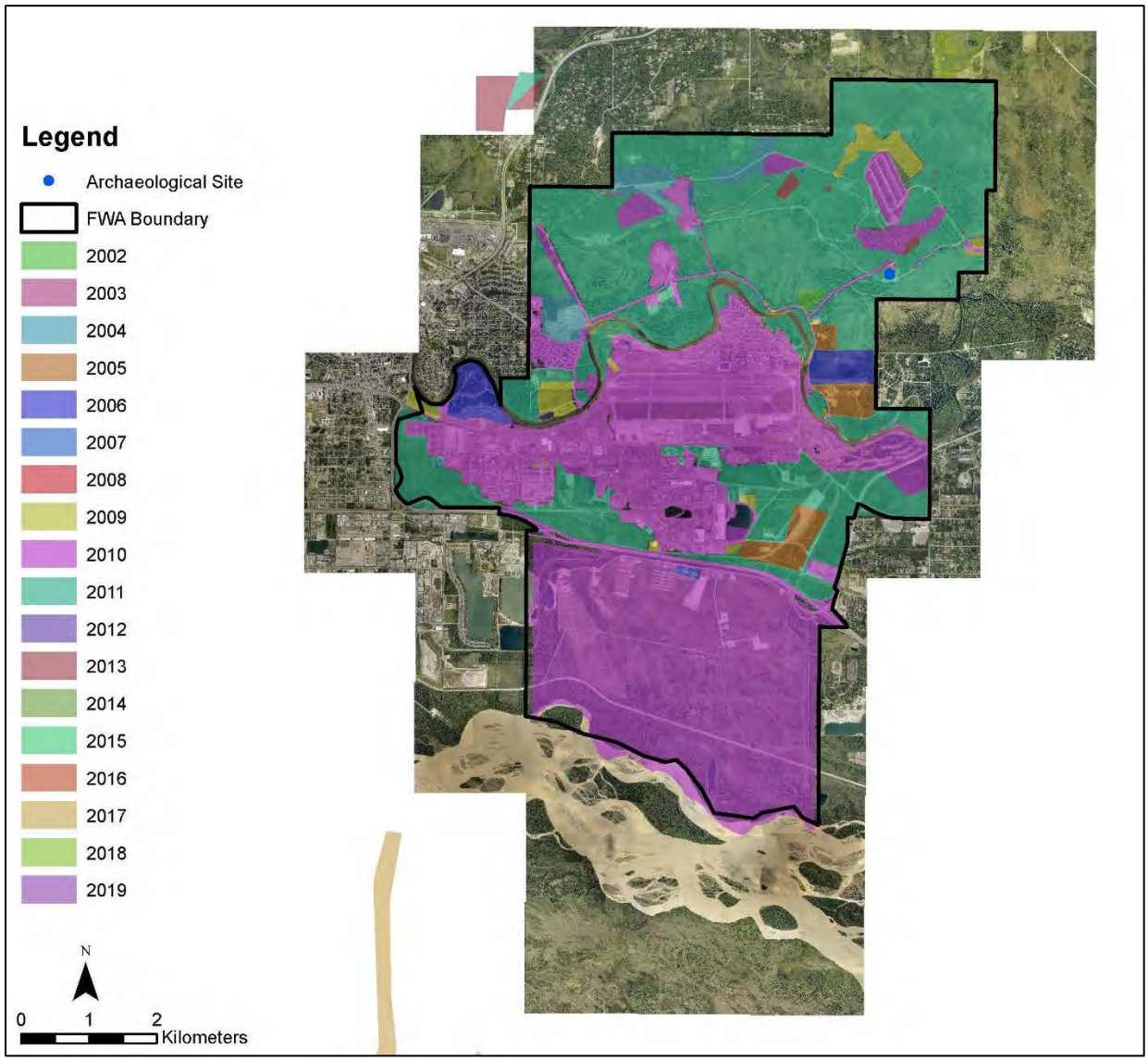

Figure 9. Archaeological sites and surveys on the cantonment, all years.

2019 Tanana Flats Training Area

NAGPRA and ARPA Activities

No activities related to NAGPRA took place in TFTA in 2019. Under ARPA Permit 2016-2 and FW-MOA-1409, a Texas A&M University team led by Kelly Graf continued excavations at the late Pleistocene and Holocene McDonald Creek site located northeast of Blair Lakes.

During the 2019 field season, Graf opened no new excavation squares, but continued to excavate the squares originally opened in 2017, a 21-m^2 block in total. During the first three weeks, the team removed the 2018 back dirt from the block, cleaned the surface of the excavation from 2018, and continued to excavate cultural component 1, which was started in 2018. During the final three weeks of the 2019 field season, work focused on finishing a 14 m^2 portion of the block after recognizing that with the volume of materials and features being recorded, it was impossible to complete the entire block in the time remaining. The 14 m^2 portion of the block was excavated to the bottom of the component 1 deposit and an additional 30-35 cm below to establish the component as the lowest-lying archaeological material in this portion of the site. The entire block was backfilled prior to leaving the site with the view to return in 2020 to finish the remaining 7 m^2 of the block excavation. During the 2019 field season approximately 20,000 lithic artifacts and bones, with several fire-cracked rocks and charcoal samples, were found. In addition to the four features discovered in 2018, a trash pit feature and possible red-ochre feature were recorded. Some highlights of the artifacts found include two bone needle fragments, one complete projectile point and two projectile point fragments. Plans for 2020 include completing component 1 excavations in the large block and probing the site surface to identify other possible high-density living floor features that can help better determine if this site represents the earliest base camp in Beringia.

Section 106 Activities

In 2019, consultation occurred for the evaluation of a historic trapping cabin on Salmon Loaf Butte. The SHPO concurred that the site, FAI-02200 was not eligible for the NRHP (16 September 2019).

Section 110 Building and Structure Surveys

No building and structure surveys were conducted in TFTA in 2019.

Section 110 Archaeological Surveys

No archaeological surveys took place in TFTA in 2019.

Newly Discovered Archaeological Sites

No new sites were discovered in TFTA during 2019.

Post-Review Discoveries

No post-review discoveries were found in TFTA in 2019.

Archaeological Site Monitoring and Site Protection Measures

Seven sites were monitored in TFTA in 2019 (Table 3, Figure 10). Only two sites showed any sign of human disturbance. At FAI-02056, three overgrown military foxholes were noted along with areas of upturned and exposed soil from uprooted trees. No recent disturbances were found and the site does not appear to be in danger at the present. At FAI-02361, an ATV trail crosses the site and has exposed the surface soil over less than 5% of the site area. Other recent military use was also evident including bulldozer push-piles, foxholes, and litter. Site evaluation fieldwork was completed in 2019 to determine whether protection measures were advised.

Table 3. Archaeological sites monitored in TFTA in 2019.

Training Area	AHRS #	Last Visit	2019 Visit	Artifacts Exposed	Surface Condition	Danger of Destruction
207	FAI-02050	2018	7/26/19	No	Vegetated, mixed forest with low shrub understory.	No
207	FAI-02056	2016	7/25/19	No	Vegetated, mixed forest with low shrub understory.	No, only old military disturbances.
207	FAI-02057	2010	7/26/19	No	Vegetated, mixed forest with low shrub understory.	No
207	FAI-02058	2010	7/29/19	No	Vegetated, mixed forest with low shrub understory.	No
207	FAI-02062	2010	7/30/19	No	Vegetated, mixed forest with low shrub understory.	No
207	FAI-02074	2010	7/25/19	No	Vegetated, mixed forest with low shrub understory.	No
207	FAI-02361	2018	7/26/19	No	Vegetated, mixed forest with low shrub understory.	Disturbance from ATV trail crossing the site, also old military disturbance.

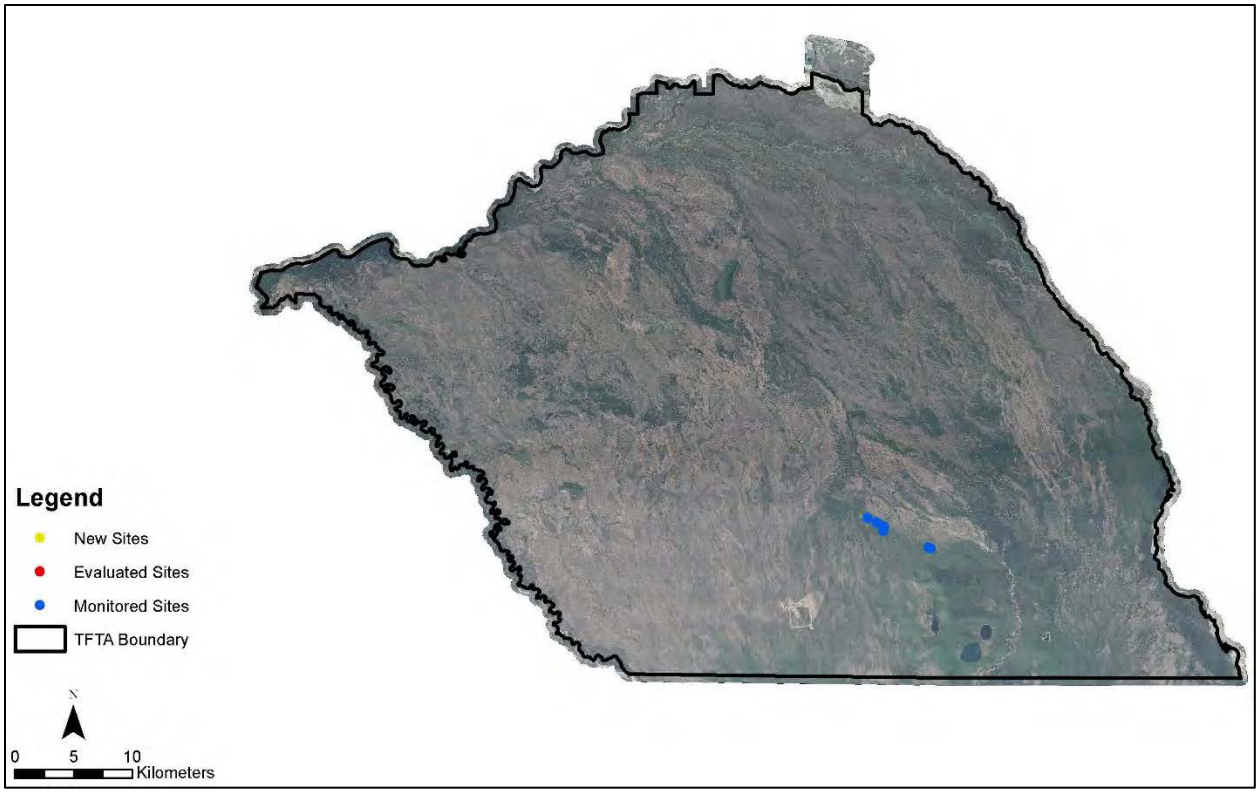

Figure 10. Archaeological sites monitored in TFTA in 2019.

Determinations of Eligibility

Fieldwork for five site evaluations was completed in TFTA in 2019: FAI-02056, 02057, 02058, 02074, and 02361 (Figure 10). Results of this fieldwork will be presented in a multi-property NRHP site evaluation report in 2020. FAI-02200, the trapping cabin on Salmon Loaf Butte was also evaluated during the reporting year (see note about concurrence above).

Summary of Archaeological Surveys and Sites

Between 2002 and 2019, CEMML archaeologists conducted systematic archaeological survey on 29,356 acres of land in TFTA (Figure 11). This accounts for approximately 4.4% of available survey areas (not including impact areas). The majority of upland locations in the training area have had at least preliminary survey but historic features are also known from lowland areas.

There are a total of 168 archaeological sites one historic trail known in the training area and. The majority of the sites are found within three archaeological districts (Blair Lakes Archaeological District: FAI-00335; Clear Creek Buttes Archaeological District: FAI-00336; and Wood River Buttes Archaeological District: FAI-00337). Of the sites located in TFTA, 17 are eligible for the NRHP and 150 have not been evaluated. One site has been found not eligible.

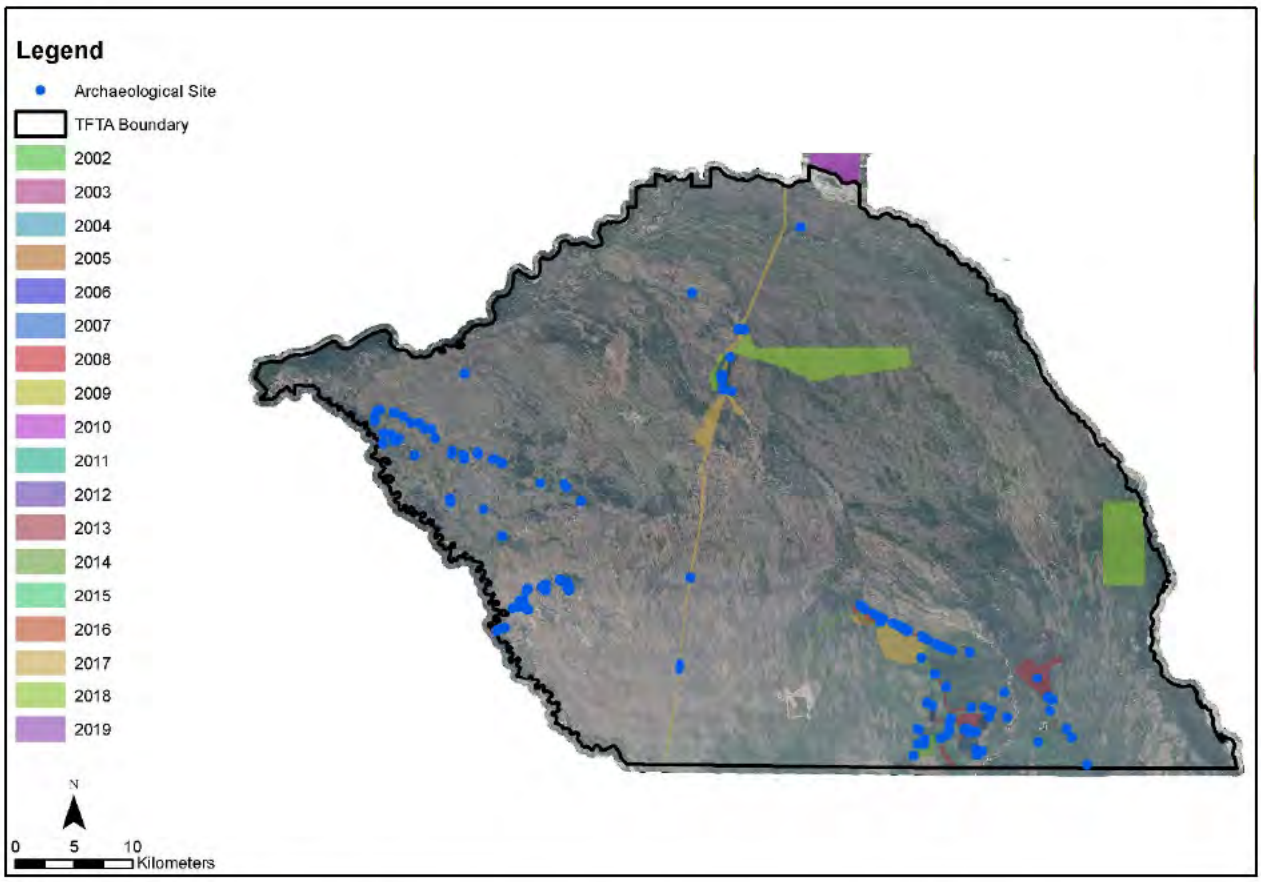

Figure 11. Archaeological sites and surveys in TFTA, all years.

2019 Yukon Training Area

NAGPRA and ARPA Activities

No activities related to NAGPRA or APRA took place in YTA in 2019.

Section 106 Activities

No undertakings requiring section 106 consultation took place in YTA in 2019.

Section 110 Building and Structure Surveys

No building and structure surveys were conducted in YTA in 2019.

Section 110 Archaeological Surveys

A total of 1,419 acres of land in YTA were surveyed for archaeological sites during the 2019 field season by CEMML crews. These surveys were in support of Range Control potential development areas including potential firing point locations and in areas with development that had never been previously examined for archaeological sites (Hill 3265 at the end of Brigadier Road). All 2019 surveyed areas marked in Figure 12 were covered by pedestrian transects, and shovel testing occurred in upland locations. The terrain in YTA is extremely rugged and is largely covered by steep uplands. Ridgelines are the most likely areas to recover cultural materials in the YTA.

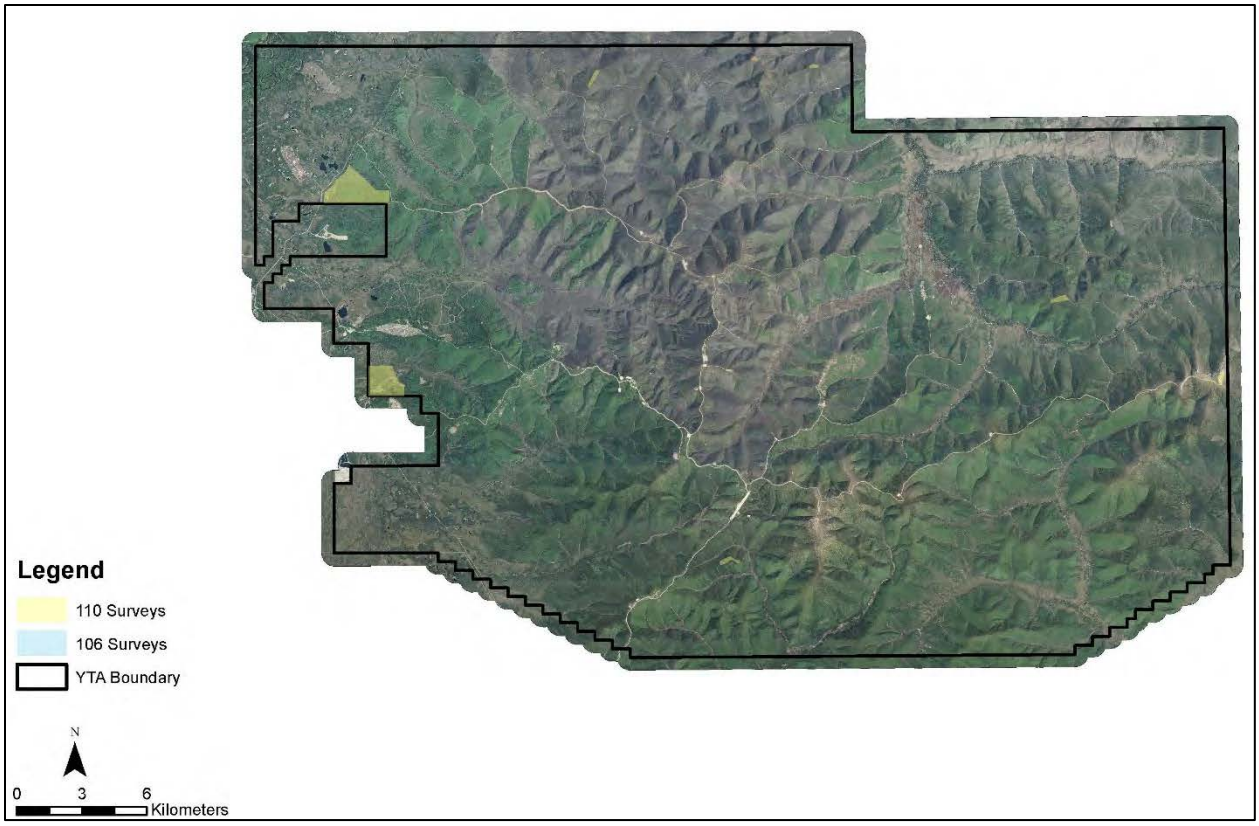

Figure 12. Archaeological surveys in YTA in 2019.

Newly Discovered Archaeological Sites

One new archaeological site was discovered in YTA during 2019 (Figure 13).

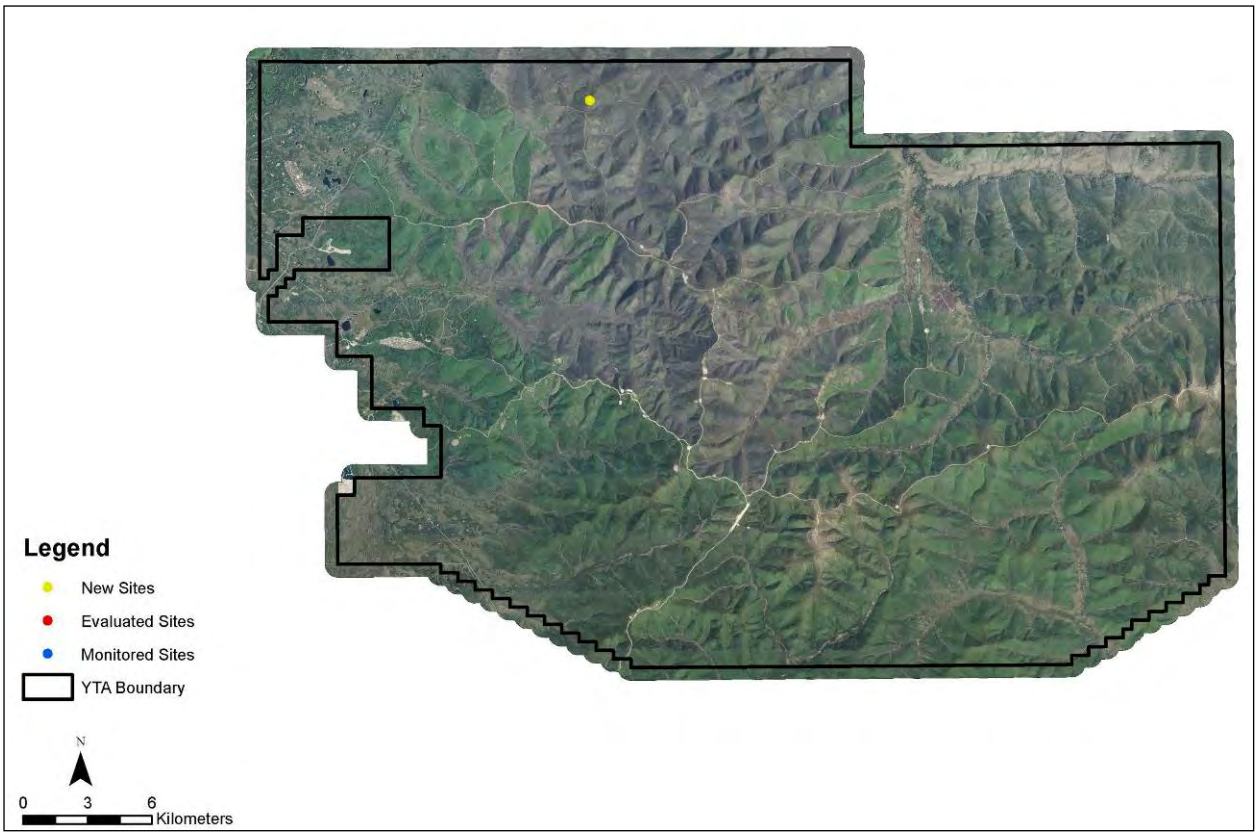

Figure 13. Archaeological sites found in YTA in 2019.

XBD-00452
Latitude: [redacted]
Longitude: [redacted]
UTM: [redacted], Zone 6 (WGS 84)
Determination of Eligibility: Not evaluated

XBD-00452 was discovered on the saddle of a finger ridge 6 km north of Beaver Creek Road in YTA (Figure 13). The saddle is oriented northeast-southwest along the ridge and is just 700 m north of an active ATV trail. The viewshed is filled with burnt and downed hardwood trees from a 2013 wildfire and hills of the surrounding Yukon-Tanana Uplands (Figure 14). Fort Knox is visible to the northwest. Site vegetation includes standing and fallen remnants of the 2013 wildfire, with new spruce, birch, aspen, and willow growing above horsetail, rose, fireweed and grasses. There is no surface visibility and no disturbances were noted. Hunts Creek, located 2.5 km to the east, is the closest water source.

Figure 14. XBD-00452 site overview.

Two shovel tests were excavated during survey (Figure 15). One contained a single basalt flake fragment from 0-10 cmbs, which was collected (UA2019-152-001). No physical datum was installed; the site coordinates are at the positive shovel test. The site deposits are made up of 14 cm of organic matter overlaying windblown silts to 22 cmbs (Figure 16, Figure 17). Degraded bedrock gravels are mixed with silt from 22-41 cmbs. Excavations ended at bedrock.

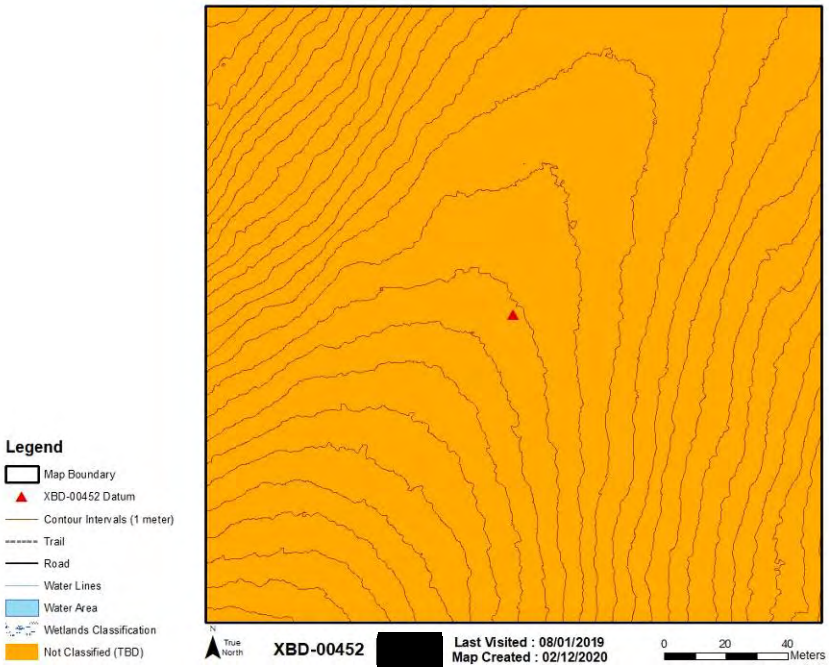

Figure 15. XBD-00452 site map.

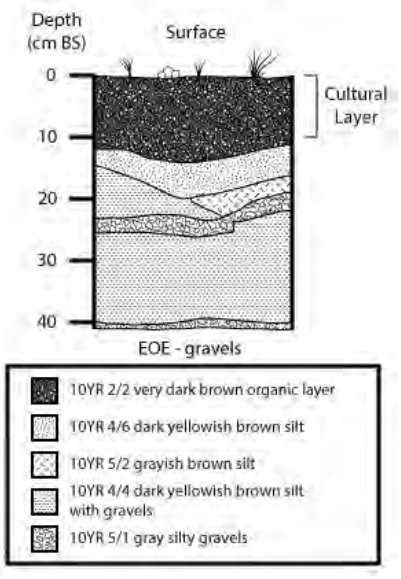

Figure 16. XBD-00452 site stratigraphy.

Figure 17. XBD-00452 test pit.

Post-Review Discoveries

No post-review discoveries were found in YTA in 2019.

Archaeological Site Monitoring and Site Protection Measures

No sites were monitored in YTA in 2019.

Determinations of Eligibility

No sites in YTA were evaluated in 2019.

Summary of Archaeological Surveys and Sites

Between 2002 and 2019, CEMML archaeologists have conducted systematic archaeological survey on 65,811 acres of land in YTA (Figure 18). This accounts for approximately 25.4% of available survey areas. The road system and major training locations have been examined and surveys are expanding into areas of future Range Control development. A total of 22 archaeological sites have been found in the YTA. Fourteen of these have been found not eligible for the NRHP and eight sites have not yet been evaluated.

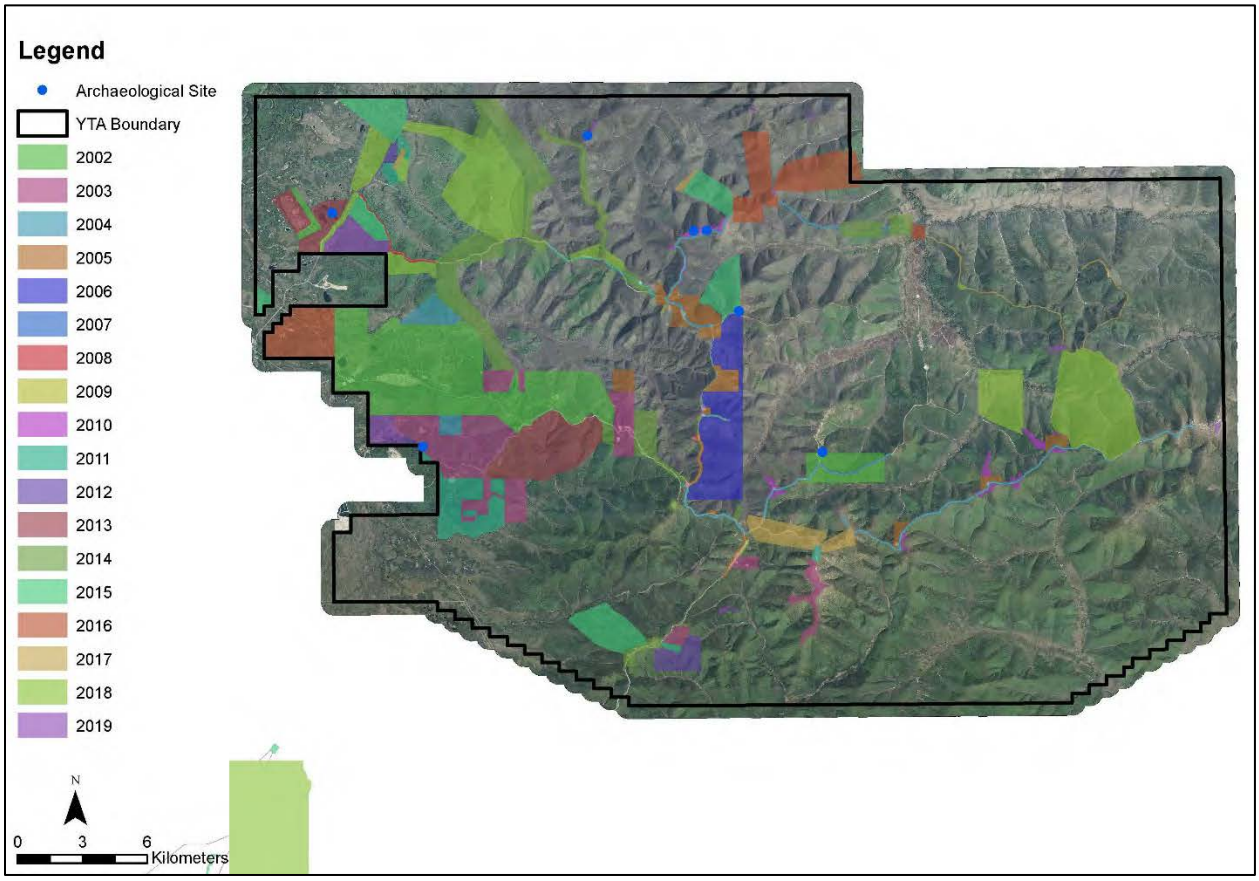

Figure 18. Archaeological sites and surveys in YTA, all years.

2019 Donnelly Training Area

NAGPRA and ARPA Activities

A final report was received from University of Michigan for excavations at XMH-00917 under ARPA permit 2016-001. No other activities related to NAGPRA or ARPA took place in 2019.

Section 106 Activities

Section 106 consultation for one undertaking took place in 2019. The SHPO concurred with a finding of No Historic Properties Adversely Affected for the DTA East Trail Maintenance and Development Project on 17 April 2019.

FW-MOA-1619 between USAG Alaska and the Alaska SHPO was closed on 17 December 2019. All stipulations under the MOA were met after submission of the final report of excavations.

Excavations took place at two sites, XMH-00292 and XMH-00923, during the summer of 2019 for mitigation under FW-MOA-1726. The excavations revealed that substrate damage related to Army training had little impact on the cultural deposits at XMH-00923. Block excavations in disturbed and undisturbed portions of the site found very little evidence of human activity. There are substantial cultural deposits at XMH-00292, however, and excavations at this site will continue during the 2020 field season. All results from these excavations will be provided in a separate final report in 2020.

Section 110 Building and Structure Surveys

Surveys for undocumented buildings and structures occurred in DTA West in 2019. Nineteen buildings and structures were visited (Figure 19, Table 4). None of these structures had previously been recorded by USAG Alaska's Master Planning or the AHRS. None of these sites are nearing 50 years in age and no AHRS numbers are required at this time.

Figure 19. Buildings and structures surveyed in DTA in 2019.

Table 4. Buildings and structures surveyed in DTA in 2019.

ID	Training Area	Location	Latitude/ Longitude	Owner	Building #	Description	Date Surveyed	AHRS
80	546	OP 27 USAF Call Sign ZULU 2	64.029325/ -146.283633	USAF*	N/A	The building is a rectangular plan, one-story, balloon framed building, sitting on an unknown foundation and is oriented east/west. The overall building, including its shed roof, is clad in metal sheeting. The primary, west façade features a wood, two panel door on the right that is missing the bottom panel. The south façade features a small, fixed, window on the upper half of the far left. The building features no other fenestration.	7/21/2019	No
80	546	OP 27 USAF Call Sign ZULU 2	64.029325/ -146.283633	USAF	N/A	The building is a rectangular plan, one-story, metal framed shed, sitting on metal bars and a raised platform foundation and is oriented north/south. The building is clad in metal/fiberglass and its flat roof is clad in metal. The primary, south façade features a centered, metal, latching door, with a small, metal ladder on the right to access the roof, which is surrounded by a metal railing on its perimeter. A set of narrow metal steps provides access to the entrance door. The east façade features a ventilation system attached right of center. The west façade features a square, fixed window right of center with a sheet metal hood, forming an overhang above. The north façade features no fenestration.	7/21/2019	No
80	546	OP 27 USAF Call Sign ZULU 2	64.029325/ -146.283633	USAF	N/A	The building is a rectangular plan, one-story, balloon framed building, sitting on an unknown foundation and is oriented east/west. The building is clad in plywood and its front gabled roof is clad in ribbed metal sheeting. The primary, west façade features a centered, single, flush, plywood door and a wooden platform placed in front of the entrance. The north façade has a small, metal, triangular, trussed tower and solar panels attached to its west end. The south façade features a taller, identical tower on the right and to the left, an attached ventilation system emerging from the building. The south façade features no fenestration.	7/21/2019	No
80	546	OP 27 USAF Call Sign ZULU 2	64.029325/ -146.283633	USAF	N/A	The building is a rectangular plan, one-story, balloon framed building, sitting on an unknown foundation and is oriented east/west. The building is clad in vertical groove plywood and its front gabled roof is clad in ribbed metal siding. The primary, west	7/21/2019	No

						façade features a narrow, single, vertical groove plywood door, located slightly right of center. The building features no other fenestration.		
81	546	OP 27.5	64.034118/ -146.300478	Army	N/A	Metal shed burnt in 100-Mile Fire	7/21/2019	No
82	546	OP 28 USAF Call Sign ZULU 3	64.036637/ -146.308286	USAF	N/A	The building is a rectangular plan, one-story, metal framed shed, sitting on a raised horizontal beam foundation and is oriented north/south. The building is clad in metal/fiberglass and its flat roof is clad in metal. The perimeter of the roof is surrounded by metal railings. The primary, south façade features a latching, metal door with a square, fixed window on the right, attached to the building by four metal strap hinges. A narrow, metal ladder to the left of the door provides access to the building's roof. The east façade features ventilation equipment emerging from the interior of the building. The west façade is covered with attached solar panels. The north façade features no fenestration.	7/21/2019	No
82	546	OP 28 USAF Call Sign ZULU 3	64.036637/ -146.308286	USAF	N/A	The building is a rectangular plan, one-story, balloon-framed shed, sitting on an unknown foundation and is oriented east/west. The building is clad in vertical groove plywood and its front gable roof is clad in ribbed metal siding. The primary, west façade features a narrow, single, vertical groove plywood door, located slightly left of center.	7/21/2019	No
83	546	OP 29	64.039195/ -146.314186	Army	N/A	Metal shed burned in 100-Mile Fire	7/21/2019	No
86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one-story, balloon framed building, sitting on an unknown foundation and is oriented east/west. The building is clad in vertical groove plywood and its front gable roof is clad in ribbed metal siding. The primary, west façade features a centered door flanked by four, identical windows, spanning the rest of the length of the façade. The door and all of the windows have been boarded over with plywood. A porch made of wood boards sits in front of the entrance spanning the length of the first two windows flanking the door and has low, plywood walls on the north and south sides. A metal, louvered vent sits just below	7/21/2019	No

						the gable of the roofline. The west façade consists of a centered window just below the roofline with a small and large window to the far right, all are boarded up with plywood. The north façade features centered, single door with two large windows spanning the left side and a single window to the right of the door. The door and all windows have been boarded up using plywood. The east façade features two large windows on each end and three, identical, irregularly spaced smaller window in between. All of the windows have been boarded up with plywood.		
86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one-story, balloon framed building, sitting on a horizontal wood beam foundation and is oriented east/west. The building is clad in plywood and its side gable roof is clad in asphalt shingles. The west and east ends of the roof extend out slightly forming an overhang on each side. The primary, west façade features a centered, single, plywood door.	7/21/2019	No
86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one-story, balloon framed building, sitting on an unknown foundation and is oriented east/west. The building is clad in plywood and its front gable roof is clad in asphalt sheeting. The primary, west façade features a centered, plywood door. The south façade consists of two sets of solar panels attached to the wall and multiple cables emerging from the building, connected to a nearby small, metal, trussed, triangular tower. The east façade of the building features a large ventilation system attached to the wall and connected to the interior. The north façade consists of a small, metal, trussed, triangular tower attached to the far right.	7/21/2019	No
86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one story, balloon framed building, sitting on an unknown foundation and is oriented east/west. The building is clad in vertical groove plywood and its side shed roof is clad in ribbed metal sheeting. The primary, east façade features double doors made from metal ribbed siding that encompass the whole façade. The north façade features a metal, louvered vent on the upper corner of the far left side. The west façade consists of a short, narrow, centered door made of vertical groove plywood and the roof extends outward forming an overhang. The south façade features a metal, louvered vent on the	7/21/2019	No

						far right, bottom corner and two small, square windows that have been boarded over with plywood on the left side of the façade.		
86	546	OP 26	64.02148/ -146.252727	CRTC**	N/A	The building is a rectangular plan, one-story, metal framed building sitting on a raised, metal beam foundation and is oriented north/south. The overall building, including its front gable roof, is clad in ribbed metal siding. The primary, north façade features a centered, narrow metal door with a small square window. The west façade consists of six, equally spaced, vertical solar panels that cover the full length. The south and east facades of the building feature no fenestration.	7/21/2019	No
86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one-story, metal, with no foundation Conex and is oriented east/west. The overall building, including its flat roof, is clad in metal. The primary, east façade features a centered, single steel slab door. Three identical, square windows with metal shutters flank the door, with two on the left and one on the right. A smaller, square window with metal shutters is on the far upper right side of the façade. The back, west façade of the building features two, identical, square windows with metal shutters, right of center. The north façade of the structure features three access door with metal vents, one large door on the top and two below.	7/21/2019	No
86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one story, metal framed Quonset Hut, sitting on an unknown foundation and is oriented east/west. The overall building, including its barreled roof, is clad in canvas. The primary, east façade mostly consists of plywood, with a large set of centered, outward swinging double doors.	7/21/2019	No
86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one story, metal framed building sitting on a metal framed, raised platform foundation and is oriented north/south. The building is clad in metal/fiberglass and its flat roof is clad metal. The primary south façade features a centered, latching, metal door and a narrow, metal ladder providing access to the roof, which has a metal railing surrounding its perimeter. A set of metal steps provide access to the entrance door. The east façade features a metal ventilation system emerging from the interior. The west façade features a square, fixed window with cameras and a hood overhang made of sheet metal. The north façade features no fenestration.	7/21/2019	No

86	546	OP 26	64.02148/ -146.252727	USAF	N/A	The building is a rectangular plan, one-story, balloon framed building, sitting on a horizontal metal beam foundation and is oriented east/west. The building is clad in corrugated metal and its side gable roof is clad in ribbed metal sheeting. The primary, west façade features a flush, wood door right of center with a wood board platform in front of the entrance. Aligned to the top of the door on the immediate left is a small, horizontal slider window. The east façade of the building features a flush, wood door to the far right. The north and south facades of the building feature no fenestration.	7/21/2019	No
200	546	OP31, RACSAN TASSS	64.047967/ -146.323183	USAF	N/A	The building is a rectangular plan, one-story, metal framed building sitting on a metal framed, raised platform foundation and is oriented north/south. The building is clad in metal/fiberglass and its flat roof is clad in metal. The roof of the building is has a metal railing around the perimeter. The primary, south façade features a single, metal, latching door with a small, square window and a narrow, metal, ladder to the left for accessing the roof. The north façade features an attached, narrow, metal, mesh platform leading to a nearby tower on upper left. The west façade of the building has a multiple solar panels attached, covering the whole wall. The north façade contains no fenestration.	7/21/2019	No
240	543	Dinosaur Ridge Tower	64.009907/ -146.64311	USAF	N/A	The building is a rectangular plan, one-story, metal framed shed sitting on a metal framed, raised platform foundation and is oriented east/west. The building is clad in metal/fiberglass and its flat roof is clad in metal. The primary, east facade features a centered metal door with a narrow, metal, ladder to the right for accessing the roof. The north façade features a ventilation system emerging from the interior of the building on the left. The south side of the building has a set of sixteen, equally sized, solar panels attached to the upper portion. The west façade contains no fenestration.	7/21/2019	No

*United States Air Force, ** Cold Regions Test Center

Section 110 Archaeological Surveys

In 2019, 2,057 acres of archaeological surveys were conducted in DTA East in support of Range Control Potential Development Areas and toward completing a 100% survey of this heavily used training area (Figure 20). The northernmost survey area was 638 acres of TA514 in the Jarvis Creek floodplain (Figure 21). The geomorphology of this area is highly active and no archaeological sites were found. Surveys of 297 acres of glacial moraine at the southern end of TA508 also uncovered no archaeological sites (Figure 22). The sediments here are composed of windblown silt over glacial gravels and vary in depth from 20-80 cmbs (Figure 23). Sparse vegetation allowed for high ground visibility. No archaeological sites were discovered. The final surveyed in the 2019 season was 1,121 acres along Donnelly Ridge in TA531, southwest of Donnelly Dome (Figure 24). Sites had previously been discovered in portions of the survey area, but the ridge had never been systematically surveyed. The majority of the best site locations had already been examined, and no new archaeological sites were discovered.

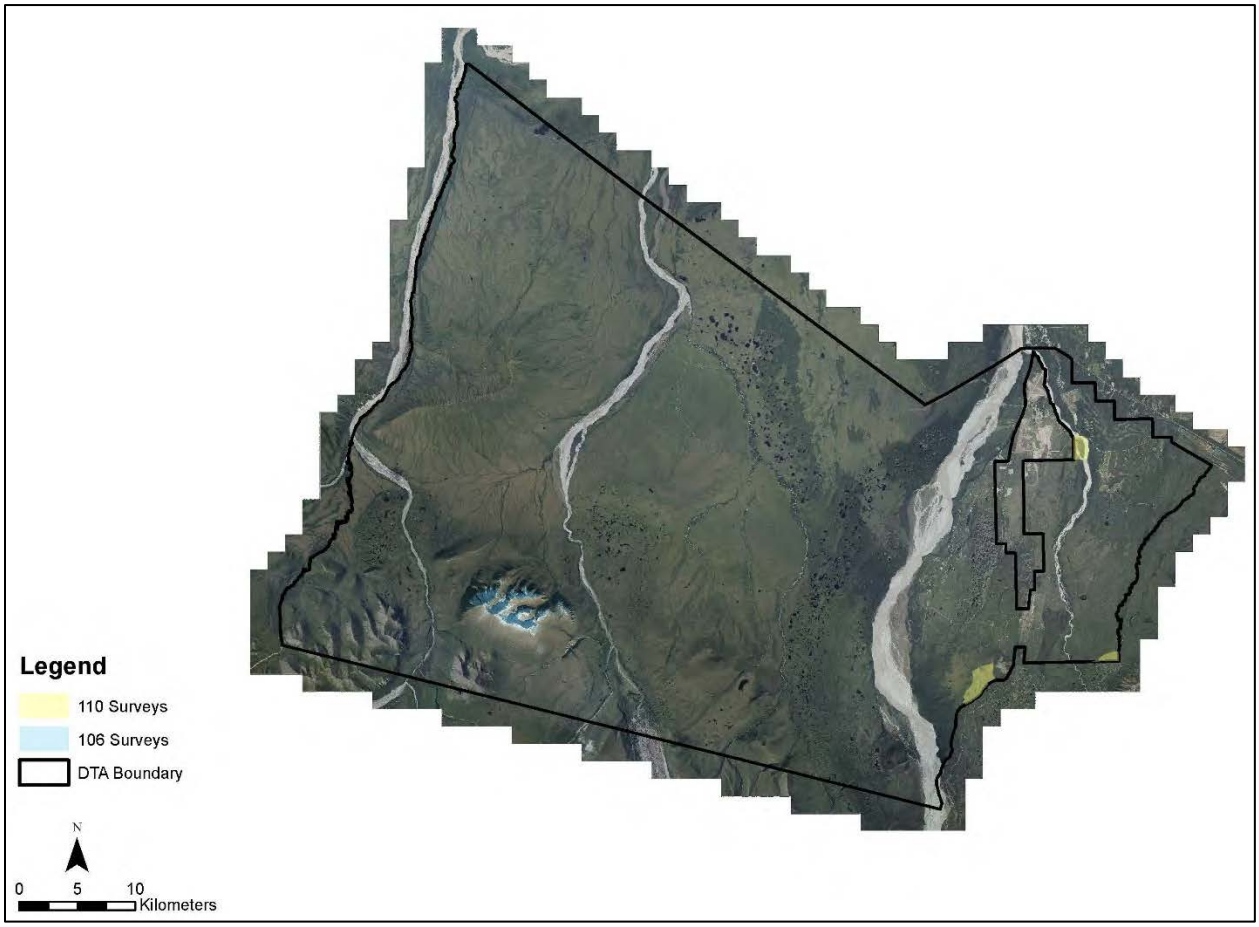

Figure 20. Archaeological surveys in DTA East in 2019.

Figure 21. TA514 survey area, Jarvis Creek floodplain.

Figure 22. TA508 survey area, glacial moraine.

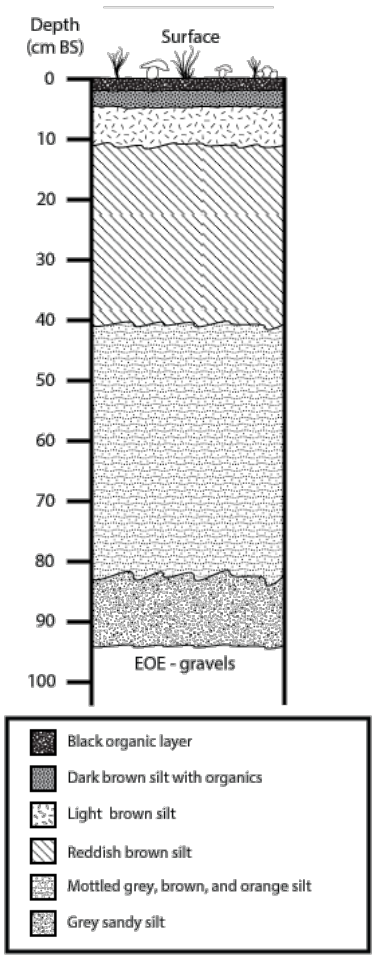

Figure 23. Stratigraphic profile from deepest shovel test in the TA508 survey area.

Figure 24. TA531 survey area, Donnelly Ridge (to the north and south).

Newly Discovered Archaeological Sites

Two new archaeological sites were discovered in DTA East in 2019, a hunting or trapping structure (XMH-01584) and a lithic scatter (XMH-01585) (Figure 25).

Figure 25. Archaeological sites found, monitored, and evaluated in DTA in 2019.

XMH-01584
Latitude: [redacted]
Longitude: [redacted]
UTM: [redacted], Zone 6 (WGS 84)
Determination of Eligibility: Not evaluated

A semi-subterranean structure was discovered in TA at the southern end of TA532 in DTA East, 4 km southwest of Donnelly Dome, 1.2 km north of the Richardson Highway, and 30 km south of Delta Junction (Figure 25).

The structure is collapsed and made of logs and milled lumber with modern nails (Figure 26, Figure 27). It is approximately 1 m high, and 3 x 3 m wide. There is a wood and metal lined hole in the roof. The structure is built into a horseshoe shaped push pile, and is overlain with 2 m of gravel. This is assumed to be a recent recreational structure for hunting or trapping. The milled wood and unfinished logs are not consistent with a military-built structure.

Figure 26. Front view of XMH-01584.

Figure 27. Milled lumber and modern nails composing XMH-01584 structure.

XMH-01585
Latitude: [redacted]
Longitude: [redacted]
UTM: [redacted], Zone 6 (WGS 84)
Determination of Eligibility: Not evaluated

This site was located on a small knoll in TA510 in DTA East (Figure 25). The landform is located 22.4 km southeast of Delta Junction and 4.2 km east of Jarvis Creek. The knoll is approximately 75 m in diameter and provides views in 360°. Donnelly Dome is visible to the southwest and the Granite Mountains are to the east. The nearest water sources are small unnamed lakes 370 m to the north and 765 m to the west. Surface visibility is estimated at 30 percent. Site vegetation consists of low birch trees, dwarf birch, low-bush cranberry, and burned and young spruce (Figure 28).

Figure 28. XMH-01585 site overview.

The site was found through pedestrian survey and consists of one banded gray chert flake (UA2019-100-001) found in one of the two excavated shovel tests (Figure 29). The flake was found 0-5 cmbs, just below the organic layer. The site has been initially classified as a small lithic scatter.

The landform contains extensive silt deposits underscoring the possibility for intact stratigraphy and buried archaeological remains. Shovel testing confirmed that up to forty cm of windblown silt overly outwash gravels on the landform (Figure 30, Figure 31).

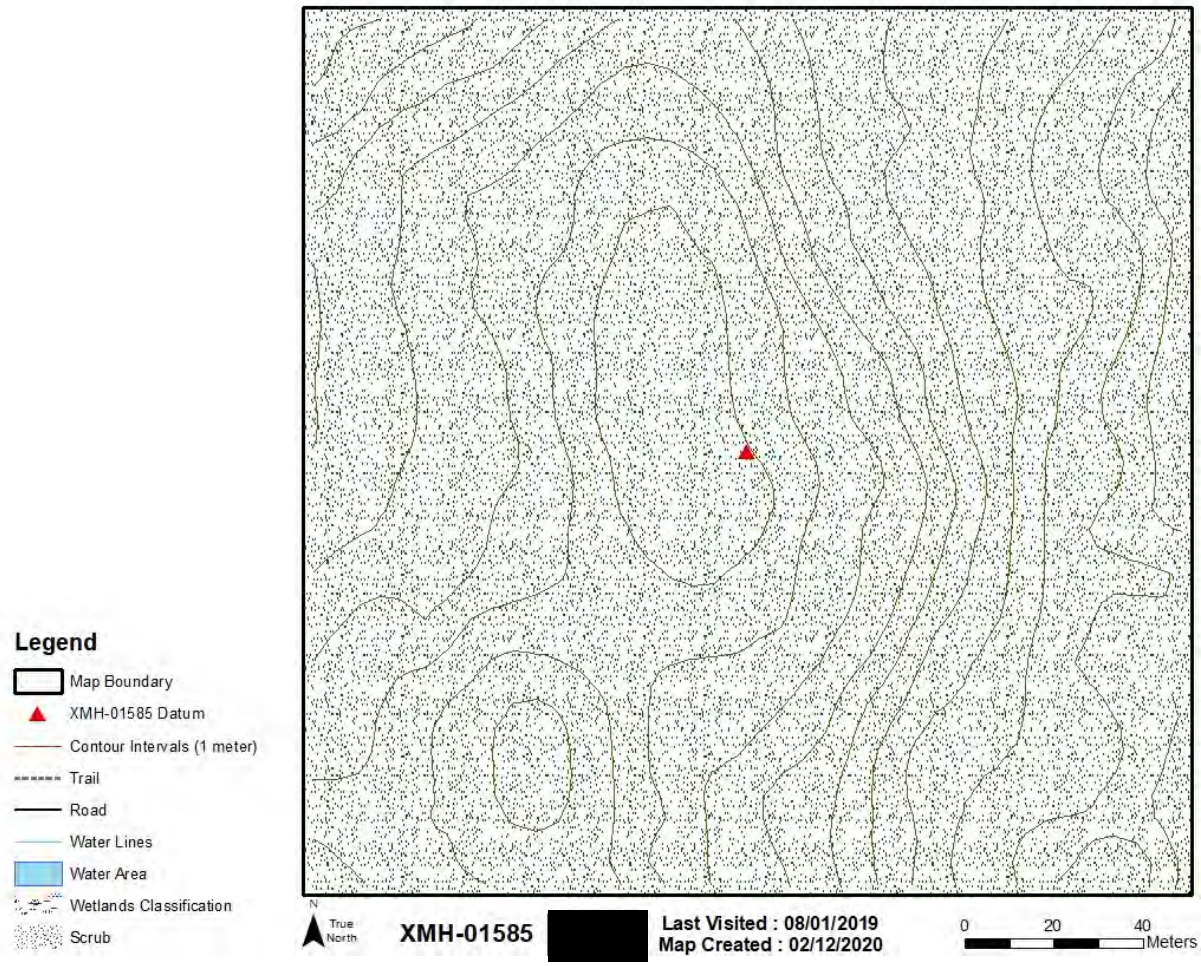

Figure 29. XMH-01585 site map.

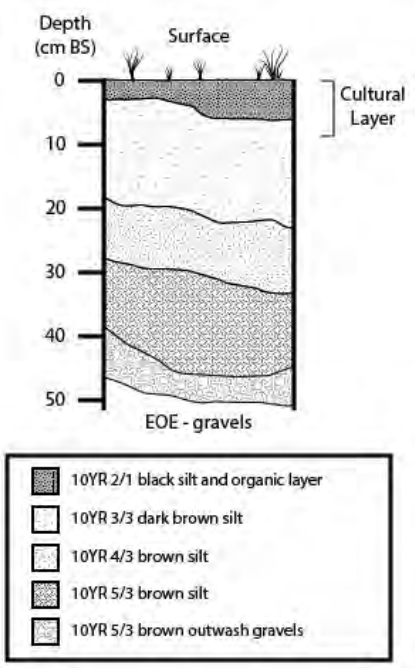

Figure 30. XMH-01585 site stratigraphy.

Figure 31. XMH-01585 test pit.

Post-Review Discoveries

No post-review discoveries were found in DTA in 2019.

Archaeological Site Monitoring and Site Protection Measures

One hundred and eighty-nine sites were monitored in DTA in 2019 (Figure 25, Table 5). Of these, 81 sites show no disturbances. However, many of these sites (n=87) show erosion or other impacts from training or recreation. The most common source of surface erosion of the sites is from trails which often bisect hilltops in the area (n=41). Several of the sites have evidence of recent recreational visits with fire rings (n=6). Current site photos are provided in Appendix 2. The disturbances at the sites were evaluated for management purposes. Fifteen of the sites are recommended to be marked with Seibert stakes to prevent future vehicle impacts to sites. It is recommended that site evaluations take place on eigteen sites to determine if further safety measures are required. Seventeen of the sites monitored during this field season are already marked with Seibert stakes.

Table 5. Sites monitored in DTA in 2019.

Training Area	AHRS #	Last Visit	2019 Visit	Artifacts Exposed	Surface Condition	Danger of Destruction	Seibert Stakes
517	XBD-00271	2005	6/3/2019	No	Vegetated. Some surface visibility. Trail and bulldozer cuts south of site.	None.	No
517	XBD-00272	2008	6/4/2019	No	Vegetated.	None.	No
517	XBD-00273	2008	6/5/2019	No	Vegetated with No surface visibility. There is a trail cut and push pile east and northeast of the site.	None.	No
517	XBD-00333	2007	8/8/2019	Yes	Surface contains an old hunting blind, military trash, and a large hole dug in middle of site. Artifacts eroding out of exposed profile in old 1x2 m. Erosion on side of bluff.	Erosion and military use.	Needs stakes.
531	XMH-00001	2009	7/14/2019	No	Several small blowouts on south slope but otherwise No disturbances.	Minor wind erosion.	No
531	XMH-00005	2015	7/14/2019	No	Wind damage and multiple blowouts,	Minor wind erosion.	No

					previous excavations pits still slightly visible.		
531	XMH-00006	2015	7/14/2019	No	Unable to relocated site. Possibly combined with XMH-00005 or all surface materials collected).	None.	No
532	XMH-00007	2009	7/24/2019	No	Drainage erosion through site.	Minor drainage erosion.	No
532	XMH-00008	2209	7/24/2019	No	Drainage erosion through site.	Minor drainage erosion.	No
531	XMH-00010/0009	2015	9/5/2019	No	Site has been hydroaxed and grated. Ground is exposed on surface.	Minor wind erosion in exposed area.	Boulder
531	XMH-00011	2009	7/14/2019	No	Site not relocated.	Unknown.	No
528	XMH-00012	2006	6/13/2019	No	Surface vegetated, No disturbances.	None.	No
528	XMH-00016	2002	6/11/2019	Yes	Surface entirely exposed, with sparse vegetation. An ATV trail runs through the site. Site is disturbed by foxholes.	Military and recreation use of the sites.	*DOE
531	XMH-00019	1984	7/14/2019	No	Site not relocated.	Unknown.	No
531	XMH-00020	1984	7/14/2019	No	Site not relocated.	Unknown.	No
531	XMH-00023	2016	7/14/2019	No	Recent use noted, fire pit on site.	Recreation use of site.	No
527	XMH-00265	2016	7/22/2019	No	Foot trail through site, trash.	Recreation use of site.	No
527	XMH-00266	2016	7/22/2019	No	Game trail through site.	Minor trampling from trail use.	No
527	XMH-00267	2016	6/18/2019	No	Recent use noted, fire pit on site. Minor truck ruts.	Recreation use of site.	No
526	XMH-00268	2016	7/16/2019	No	Sparse vegetation, ATV trail runs through site.	Vehicle traffic is eroding site surface.	Yes, *DOE
526	XMH-00269	2016	7/18/2019	No	Vegetated, low surface visibility.	None.	No
510	XMH-00270	2016	7/17/2019	No	Vegetated, ATV trail bisects the site.	Vehicle traffic is eroding site surface.	*DOE
513	XMH-00272	2016	7/25/2019	Yes	Vegetated with 10% exposure. ATV and foot trails near the site.	Recreation use of the site and mild wind erosion.	Yes
508	XMH-00274	2018	6/28/2019	Yes	Vegetated with 40% surface visibility. A large exposed area is	Recreation and vehicle traffic is	Yes, *DOE

					used for parking and camping and a drivable trail bisects the site.	eroding site surface.	
517	XMH-00280	2004	9/19/2019	No	Old archaeological excavations relocated, also soldier digging on side of landform.	Military use.	No
528	XMH-00281	2016	8/19/2019	No	Vegetated. ATV trail and military equipment present.	Military use.	No
529	XMH-00283	2006	6/20/2019	No	Vegetated.	None.	No
529	XMH-00285	2006	6/20/2019	No	Rodent burrowing.	Some sediment mixing.	No
528	XMH-00286	2016	6/19/2019	No	Site greatly disturbed by road, parking lot, and boat launch. Surface is almost entirely exposed gravel.	Extreme erosion by vehicles, recreational use, and wind.	*DOE
506	XMH-00292	2018	8/28/2019	Yes	Site is disturbed by 33-mile Loop bisecting cultural areas, Stryker ruts, and road maintenance.	Military use, vehicle traffic.	Yes
531	XMH-00294	2016	7/14/2019	No	Site has been hydroaxed but no ground disturbance.	None.	No
531	XMH-00295	2016	43660	No	Vegetated, five open shovel tests.	None.	No
532	XMH-00297	2009	8/8/2019	No	Open excavations. Animal burrowing and water damage in open excavation, recent-use garbage.	Wind erosion and military use.	No
532	XMH-00838	2017	8/8/2019	No	Exposed bluff with animal burrowing.	Wind and animal (bison) erosion.	No
531	XMH-00843	2016	7/14/2019	No	Vegetated, some areas of exposed gravel.	None.	No
517	XMH-00871	2010	6/6/2019	No	Vegetated.	None.	No
528	XMH-00900	Unknown	7/22/2019	No	Vegetated.	None.	No
502	XMH-00923	2018	8/28/2019	No	Large areas of exposure, trail bisects site, Stryker ruts.	Military use, vehicle traffic.	Yes
527	XMH-00930	2016	7/18/2019	No	Vegetated, with military trash.	Minor from military use, vehicle use near site.	No
527	XMH-00931	2016	7/18/2019	No	Road cut through site, exposed ground surface.	High, vehicle erosion.	Needs stakes.

527	XMH-00932	2016	7/18/2019	No	Vegetated, with military trash.	Minor from military use.	No
527	XMH-00933	2016	7/18/2019	No	Vegetation disturbed by animal den.	Minor, animal digging.	No
527	XMH-00934	2016	7/22/2019	No	Vegetated.	None.	No
527	XMH-00939	2016	7/18/2019	No	Vegetated, but road within 10 m of the site.	No immediate danger but possible vehicle erosion.	Needs stakes.
527	XMH-00940	2016	8/1/2019	No	Some ground disturbance and recreation trash.	Danger from recreation.	Needs stakes.
527	XMH-00941	2016	8/1/2019	No	Vegetated.	None.	No
527	XMH-00942	2016	7/22/2019	No	Vegetated.	None.	No
528	XMH-00944	2016	6/13/2019	No	Vegetated, road west of site and military trash on site.	Minor, military use and potential vehicle disturbance.	No
527	XMH-00947	2016	7/23/2019	No	Vegetated with game trails.	Minor from trampling.	No
527	XMH-00948	2016	8/1/2019	No	Military disturbance including vegetation removal and push piles	High, military use.	Needs stakes.
528	XMH-00949	2007	7/22/2019	No	Vegetated with some bare spots.	Minor from wind erosion and ATV trail within 5 m of the site.	No
528	XMH-00950	2016	7/23/2019	No	Vehicle and game trails run through site.	High, from vehicle erosion.	Needs stakes.
528	XMH-00951	2007	7/22/2019	No	Vegetated.	None.	No
528	XMH-00955	2016	7/15/2019	No	Vegetated with patches of exposed surface. Road is adjacent to site.	Potential risk from road maintenance.	No
529	XMH-00956	2009	6/20/2019	Yes	Vegetated, on flake on surface.	None.	No
528	XMH-00957	2002	7/24/2019	Yes	Exposed gravels over 90% of surface.	Mild disturbance by military and wind erosion.	No
528	XMH-00958	2002	7/17/2019	No	Vegetated with 5% surface exposure.	None	No
528	XMH-00959	2002	6/13/2019	Yes	Vegetated with 50% surface exposure.	Wind erosion.	No
528	XMH-00960	2007	7/23/2019	No	Gravel surface, low vegetation, mainly exposed. Game trail to the site.	None.	No
527	XMH-00961	2007	7/23/2019	No	Vegetated with some bare spots.	None.	No

527	XMH-00962	2016	7/23/2019	No	Vegetated, trail through site.	Minor from trail use, but not maintained.	No
528	XMH-00963	2007	7/22/2019	No	Vegetated, trail through site.	Moderate, from ATV trail.	No
528	XMH-00964	2007	7/22/2019	No	Vegetated site with erosion spots and game trails.	Moderate surface erosion from site use.	No
528	XMH-00966	2009	7/22/2019	No	Vegetated.	None.	No
527	XMH-00967	2007	7/24/2019	No	Vegetated.	None.	No
528	XMH-00968	2007	7/22/2019	No	Vegetated.	None.	No
528	XMH-00969	2016	8/1/2019	Yes	Vegetated with partial surface exposure. Trail runs through site, military equipment sits on top.	Heavy erosion by vehicles and military use.	Needs stakes, *DOE
528	XMH-00971	2016	8/18/2019	Yes	Vegetated with 20% surface exposure, trail bisects the site.	Vehicle and wind erosion.	No
528	XMH-00973	2016	8/18/2019	No	Sites has 100% surface exposure, road bisects.	Vehicle and wind erosion.	Needs stakes, *DOE
528	XMH-00975	2016	7/22/2019	No	Vegetative with some bare spots.	None.	No
528	XMH-00976	2016	7/22/2019	No	Disturbed areas on surface and recent trash.	Moderate, military use.	No
528	XMH-00977	2016	7/22/2019	No	Surface disturbed by large trench and push pile, recent trash present.	High, from vehicle erosion and soldier digging.	Needs stakes.
528	XMH-00978	2016	7/22/2019	No	Vegetated with some exposed patches because of game trail.	Low, erosion from trampling.	No
529	XMH-00979	2016	6/20/2019	No	Vegetated.	None.	No
527	XMH-01052	2008	6/20/2019	No	Vegetated, ant hills evident, ATV trail leads to site.	Low, from vehicle use.	No
527	XMH-01053	2016	6/20/2019	No	Vegetated, recent fire pit on surface.	Low, recreational use.	No
527	XMH-01054	2016	6/20/2019	No	Vegetated, ant hills evident.	None.	No
527	XMH-01055	2007	6/20/2019	No	Vegetated, ant hills evident.	None.	No
527	XMH-01056	2007	6/20/2019	No	Vegetated, ant hills evident.	None.	No
527	XMH-01057	2007	6/20/2019	No	Vegetated.	None.	No
513	XMH-01058	2003	6/11/2019	Yes	Vegetated with up to 80% surface visibility.	None.	No
517	XMH-01061	2008	6/13/2019	No	Vegetated.	None.	No

517	XMH-01062/1063	2009	6/13/2019	Yes	Flakes and projectile point base in exposed patches on site.	None.	No
517	XMH-01067	2009	6/13/2019	No	Vegetated with foot trails and recent trash.	Moderate, trampling and wind erosion.	No
517	XMH-01068	2009	6/13/2019	No	Vegetated with erosion from game trails.	Minor erosion on game trails.	No
517	XMH-01069	2009	6/13/2019	No	Vegetated with erosion from game trails.	Minor erosion on game trails.	No
513	XMH-01078	2003	6/11/2019	Yes	Sparsely vegetated, ATV trail bisects the site.	Wind and vehicle erosion.	*DOE
513	XMH-01084	2016	6/17/2019	Yes	Vegetated with 20% surface exposure and trail bisecting site.	Wind erosion and vehicle use.	No
513	XMH-01143	2007	6/13/2019	No	Vegetated with erosion from game trails.	Minor erosion on game trails.	No
513	XMH-01144	2016	6/18/2019	No	Vegetated with 20% surface exposure. A trial bisects the site.	Minor wind erosion.	*DOE
513	XMH-01145	2007	6/13/2019	No	Road cut through site, exposed ground surface. Recent use including a fire pit.	High from road maintenance and recreation.	Needs stakes.
513	XMH-01146	2007	6/13/2019	No	Road cut through site, exposed ground surface. Recent use noted.	High from road maintenance and recreation.	No
513	XMH-01147	2007	6/13/2019	No	Vegetated.	None.	No
513	XMH-01153	2016	7/30/2019	Yes	Vegetated.	None.	No
513	XMH-01154	2016	7/30/2019	Yes	Vegetated with 90% exposed ground surface.	None.	No
513	XMH-01155	2016	8/13/2019	Yes	Vegetated with some exposure, trail bisects part of site.	Mild disturbance by trail maintenance and wind erosion.	No
513	XMH-01156	2016	8/12/2019	Yes	Vegetated with 40% surface visibility.	Mild vehicle erosion.	Yes
513	XMH-01157	2016	8/14/2019	Yes	Vegetated, trail on western edge of site.	Minor vehicle erosion in trail.	No
513	XMH-01158	2016	7/29/2019	No	Vegetated.	None.	No
513	XMH-01159	2016	7/29/2020	Yes	Vegetated with 40% surface visibility, trail bisects the site.	Moderate erosion from trail use.	*DOE
513	XMH-01162	2007	6/13/2019	No	Vegetated.	None.	No
517	XMH-01168	2010	6/6/2019	No	Vegetated, road cute on west side.	None.	No

519	XMH-01169	2016	6/18/2019	Yes	Vegetated with exposed gravel, flakes on surface.	Minor erosion.	Yes
519	XMH-01170	2016	6/18/2019	No	Vegetated.	None.	Yes
528	XMH-01195	2016	6/18/2019	No	Vegetated, ATV trail bisects site.	Moderate, erosion in trail.	No
530	XMH-01197	2016	7/12/2019	No	Vegetated.	None.	No
502	XMH-01198	2016	6/19/2019	Yes	Vegetated with 5% surface exposure. ATV trails circle the hill and push piles are evident.	Moderate erosion from vehicles in the trail and military use.	No
529	XMH-01199	2016	7/22/2019	No	Vegetated with 50% surface exposure.	Minor erosion in exposed areas.	No
528	XMH-01200	2006	7/22/2019	No	Vegetated with 30% surface exposure and rodent burrows.	Minor erosion in exposed areas.	No
530	XMH-01201	2006	7/22/2019	No	Site 90% exposed.	Moderate, wind erosion in exposure.	No
528	XMH-01202	2006	6/13/2019	No	Vegetated, ATV trail bisects site.	Moderate, erosion in trail.	No
528	XMH-01203	2016	6/17/2019	Yes	Vegetated with exposed area and trail on western edge of site.	Wind and vehicle erosion.	No
530	XMH-01206	2005	6/19/2019	No	Low shrubs with 90% surface exposure.	None.	No
528	XMH-01207	2009	6/18/2019	No	Vegetated.	None.	No
528	XMH-01208	2012	6/13/2019	No	Vegetated, ATV trail bisects site.	Moderate, erosion in trail.	No
528	XMH-01209	2006	6/13/2019	No	Vegetated with exposures and ant hills.	Minor erosion in exposed areas.	No
528	XMH-01210	2006	6/13/2019	No	Vegetated.	None.	No
528	XMH-01211	2016	6/13/2019	No	Vegetated with ant hills.	None.	No
527	XMH-01213	2012	6/18/2019	No	Vegetated.	None.	No
528	XMH-01214	2006	6/13/2019	No	Vegetated.	None.	No
528	XMH-01215	2006	6/13/2019	No	Vegetated with erosion from game trails and ant hills.	Minor erosion in game trails.	No
528	XMH-01216	2006	7/23/2019	No	Vegetated with animal burrows.	Minor erosion from burrows.	No
519	XMH-01217	2016	7/20/2019	Yes	Vegetated with some surface exposures and animal burrows. Scraper collected from surface.	Minor erosion from wind and burrows.	No

519	XMH-01218	2016	6/19/2019	No	Surface largely exposed but No human disturbance.	Minor wind erosion in exposed areas.	No
528	XMH-01219	2006	7/22/2019	Yes	Vegetated with 40% surface exposure and exposed flakes.	Minor wind erosion in exposed areas.	No
526	XMH-01220	2005	7/17/2019	No	Vegetated with 5% surface exposure.	None.	No
519	XMH-01221	2016	8/8/2019	No	Vegetated.	None.	No
519	XMH-01222	2016	6/6/2019	No	Vegetated.	None.	No
517	XMH-01227	2010	6/6/2019	No	Evidence of bulldozer destruction of site.	High.	*DOE
532	XMH-01237	2016	7/24/2019	No	Vegetated.	None.	No
519	XMH-01278	2016	6/10/2019	Yes	Vegetated with high surface exposure in some areas, push piles and fox holes noted on site.	Military use.	No
519	XMH-01279	2016	6/6/2019	No	Vegetated.	None.	No
519	XMH-01280	2016	6/6/2019	No	Vegetated.	None.	No
519	XMH-01281	2016	6/6/2019	No	Vegetated.	None.	No
530	XMH-01282	Unknown	7/22/2019	No	Vegetated.	None.	No
530	XMH-01283	Unknown	7/22/2019	No	Vegetated with patches of exposed surface, game trails through site.	Minor erosion in exposed areas and game trails.	No
530	XMH-01285	Unknown	7/22/2019	No	Vegetated with 80% surface exposure and rodent burrows.	Moderate wind erosion in exposed areas.	No
530	XMH-01286	Unknown	7/22/2019	No	Site surface exposed 90%, recent use evident, construction debris and vehicle tracks on site.	Heavy erosion possible from exposed surface and military use.	Needs stakes.
519	XMH-01287	Unknown	7/22/2019	No	Vegetated and undisturbed in main part of site but gravel borrow pit is excavated on the western edge of the site and may impact archaeological material.	Heavy disturbance possible from borrow pit.	*DOE
528	XMH-01288	Unknown	8/8/2019	No	Site is vegetated but disturbed by hand digging	Heavy disturbance from soldier digging.	Needs stakes.
528	XMH-01289	Unknown	7/22/2019	No	Vegetated with 50% surface exposure.	Minor erosion in exposed areas.	No

528	XMH-01290	Unknown	7/22/2019	No	Vegetated with 60% surface exposure and rodent burrows.	Moderate wind erosion in exposed areas.	No
530	XMH-01291	2016	7/12/2019	Yes	Vegetated with 30% surface exposure.	None.	No
530	XMH-01292	2018	7/13/2019	No	Vegetated with 25% surface exposure.	None.	No
519	XMH-01293	2016	6/6/2019	No	Vegetated.	None.	No
519	XMH-01294	2016	6/6/2019	No	Vegetated.	Minor wind erosion.	No
519	XMH-01295	2016	6/6/2019	No	Vegetated.	None.	No
519	XMH-01296	2016	6/6/2019	Yes	Vegetated with 60% surface exposure and flakes on surface in exposed areas, game trail through site.	Moderate wind erosion in exposed areas.	No
530	XMH-01297	2016	6/6/2019	No	Vegetated.	None.	No
519	XMH-01298	2016	6/9/2019	No	Vegetated with 50% surface exposure.	None.	No
519	XMH-01299	2016	6/6/2019	No	Vegetated.	None.	No
519	XMH-01300	2016	6/6/2019	No	Vegetated.	None.	No
519	XMH-01301	2016	6/6/2019	Yes	Flakes on surface in exposed areas.	Moderate wind erosion in exposed areas.	No
519	XMH-01302	2016	6/6/2019	No	Vegetated, fox hole located northeast of datum.	Minor disturbance from soldier digging.	Needs stakes.
528	XMH-01334	2016	6/18/2019	No	Vegetated, with game trail through site.	None.	No
528	XMH-01335	2013	6/18/2019	No	Vegetated.	None.	No
528	XMH-01336	Unknown	6/18/2019	No	Vegetated.	None.	No
519	XMH-01356	2016	6/20/2019	No	Vegetated.	None.	No
519	XMH-01357	2016	6/20/2019	No	Vegetated.	None.	No
519	XMH-01358	2016	6/18/2019	No	Vegetated.	None.	No
508	XMH-01360	2018	7/1/2019	No	Vegetated with intersecting trails over the site and push piles.	Moderate disturbance from trail use and military use.	Needs stakes, *DOE
510	XMH-01361	2018	7/6/2019	No	Vegetated, ATV trail bisects site.	Minor vegetation disturbance in ATV trail.	Needs stakes, *DOE
510	XMH-01364/1365	2018	7/2/2019	Yes	Vegetated with 15% surface exposure, ATV trails east and south sides of site.	Minor wind erosion.	Yes
510	XMH-01366	2018	8/5/2019	No	Vegetated with some surface visibility, ATV trail east of the site.	None.	Yes

510	XMH-01367	2017	7/2/2019	No	Vegetated with some bare spots ATV trail north of site.	Minor wind erosion.	No
510	XMH-01368	2017	6/24/2019	Yes	Vegetated with low surface cover. ATV trails bisect the site.	Minor erosion in trails.	No
508	XMH-01369	2018	7/15/2019	No	Vegetated with 10% surface visibility. ATV trail bisects the site.	Minor erosion in the trail.	Yes
508	XMH-01370	2008	7/12/2019	Yes	Vegetated with 15% surface exposure, ATV trail bisects the site, fire pit and excavation areas noted.	Minor disturbance from recreation.	Yes
508	XMH-01371	2018	7/16/2019	Yes	Vegetated with 50% surface exposure, ATV trail bisects the site, fire pit noted on top.	Erosion in the trail.	Yes, *DOE
508	XMH-01372	2018	7/8/2019	Yes	Vegetated with some surface visibility, trail bisects the site.	Vehicle erosion in trail.	Yes
510	XMH-01377	2018	7/4/2019	Yes	Vegetated with large exposed areas and an ATV trail bisecting the site.	Moderate erosion from vehicles on the trail.	Yes, *DOE
510	XMH-01384	2017	6/26/2019	Yes	Vegetated with 40% surface visibility.	Minor wind erosion.	No
532	XMH-01455	2014	8/8/2019	No	Vegetated.	None.	No
528	XMH-01456	2011	7/24/2019	No	Vegetated.	None.	No
528	XMH-01458	2011	7/25/2019	No	Vegetated with 30% surface exposure, some rodent burrows, and foot trail through the site.	Minor disturbance from foot trails.	No
528	XMH-01459	2011	7/22/2019	No	Vegetated.	None.	No
528	XMH-01460	2011	7/22/2019	No	Vegetated with 40% surface exposure and rodent burrows.	Moderate wind erosion in exposed areas.	No
505	XMH-01524	2018	8/7/2019	No	Vegetated with 5% surface exposure.	None.	Yes
505	XMH-01525	2017	8/14/2019	No	Vegetated.	None.	No
505	XMH-01526	2017	8/12/2019	Yes	Vegetated with 50% surface exposure. Some trash on surface.	None.	No
502	XMH-01527	2017	8/21/2019	No	Vegetated with low surface visibility. A road and trails bisect the site. Multiple push piles are present.	Highly disturbed with vehicle use, road maintenance, and past bulldozer use.	*DOE

531	XMH-01532	2014	7/14/2019	No	Vegetated.	None.	No
531	XMH-01533	2014	7/14/2019	No	Vegetated.	None.	No
531	XMH-01536	2015	7/14/2019	No	Vegetated.	None.	No
531	XMH-01537	2015	7/14/2019	No	Vegetated.	None.	No
530	XMH-01546	2016	7/24/2019	No	Vegetated.	None.	No
530	XMH-01547	2016	7/3/2019	No	Vegetated with 15% surface exposure. Game trail through site.	None.	No
502	XMH-01554	2017	8/19/2019	No	Vegetated with vehicle and game trails.	Minor disturbance from recreation and vehicle use.	No
506	XMH-01555	2017	8/27/2019	Yes	Vegetated with 90% exposed ground surface on top of the ridge. ATV trail bisects the site.	Moderate erosion from vehicles on the trail.	Yes, *DOE

*DOE means DOE recommended.

Determinations of Eligibility

Fieldwork for evaluations of 58 sites was completed in DTA in 2019 (Figure 25, Table 6). The results of these investigations in will be presented in a multi-property NRHP DOE report in 2020.

Table 6. Sites with evaluation fieldwork completed in DTA east in 2019.

AHRS Numbers of Evaluated Sites				
XBD-00271	XMH-00296	XMH-01084	XMH-01220	XMH-01369
XBD-00272	XMH-00955	XMH-01144	XMH-01278	XMH-01370
XBD-00273	XMH-00957	XMH-01153	XMH-01291	XMH-01371
XMH-00016	XMH-00958	XMH-01154	XMH-01292	XMH-01372
/00970	XMH-00959	XMH-01155	XMH-01298	XMH-01377
XMH-00268	XMH-00960	XMH-01156	XMH-01360	XMH-01384
XMH-00269	XMH-00969	XMH-01157	XMH-01361	XMH-01524
XMH-00270	XMH-00971	XMH-01158	XMH-01364	XMH-01526
XMH-00272	XMH-00973	XMH-01159	/01365	XMH-01527
XMH-00274	XMH-01058	XMH-01198	XMH-01366	XMH-01547
XMH-00281	XMH-01076	XMH-01203	XMH-01367	XMH-01554
XMH-00286	XMH-01078	XMH-01206	XMH-01368	XMH-01555

Summary of Archaeological Surveys and Sites

A total of 126,968 acres of land have been surveyed in DTA between 2002 and 2019 (Figure 32). This accounts for 20% of the total land area. The majority of survey has been in DTA East and only portions of 505, 508, and 532 are incomplete. Army trainings and development activities continue to expand in DTA East. A total of 477 archaeological sites have been found in the DTA. Five sites are historic and 472 are prehistoric. Of the total sites, 54 have been found eligible for the NRHP, 67 are not eligible, and the remaining 356 have not yet been evaluated.

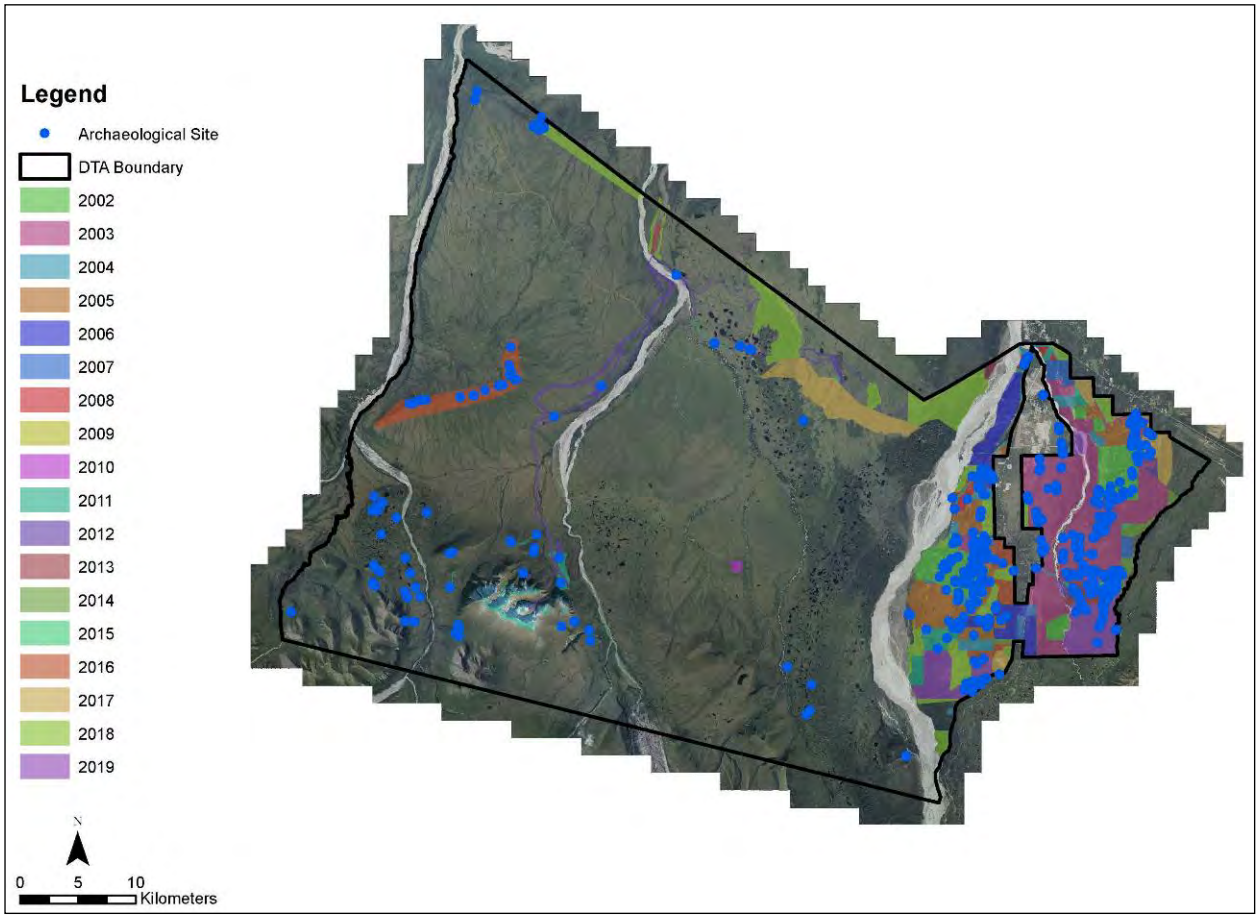

Figure 32. Archaeological sites and surveys in DTA, all years.

2019 Tok Fuel Terminal

NAGPRA and ARPA Activities

No activities related to NAGPRA or APRA took place at Tok Fuel Terminal in 2019.

Section 106 Activities

No undertakings requiring section 106 consultation took place at Tok Fuel Terminal in 2019.

Section 110 Building and Structure Surveys

No building and structure surveys were conducted at Tok Fuel Terminal in 2019.

Section 110 Archaeological Surveys

No archaeological surveys were conducted at Tok Fuel Terminal in 2019.

Newly Discovered Archaeological Sites

No new archaeological sites were discovered at Tok Fuel Terminal in 2019.

Post-Review Discoveries

No post-review discoveries were found at Tok Fuel Terminal in 2019.

Archaeological Site Monitoring and Site Protection Measures

Three archaeological sites were monitored at Tok Fuel Terminal in 2019.

Table 7. Archaeological sites monitored at Tok Fuel Terminal in 2019.

AHRS #	Last Visit	2019 Visit	Artifacts Exposed	Surface Condition	Danger of Destruction
TNX-00231	2016	9/13/19	No	Vegetated, mixed forest with low shrub understory.	No
TNX-00233	2018	9/13/19	No	Vegetated, mixed forest with low shrub understory.	No
TNX-00234	2018	9/13/19	No	Vegetated, mixed forest with low shrub understory.	No

Determinations of Eligibility

Field work for three site evaluations took place at Tok Fuel Terminal in 2019 (TNX-00231, TNX-00233, and TNX-00234). Site boundary testing demonstrated that artifact density did not drop off between the original arbitrary site datums and all three sites were combined under one AHRS number, TNX-00233. The results of these investigations in will be presented in a multi-property NRHP DOE report in 2020.

Summary of Archaeological Surveys and Sites

To date, 58 out of 72 undisturbed acres of land (80.6%) have been surveyed at Tok Fuel Terminal (Figure 33). Another 140 acres of land are managed by Fort Wainwright, but these areas have been heavily disturbed by past activities related to the fuel terminal. There are 10 prehistoric sites located within the fuel terminal boundary. One site has been found ineligible for the NRHP, two sites have been found eligible, and seven sites have not yet been evaluated.

Figure 33. Archaeological sites and surveys at Tok Fuel Terminal, all years.

Summary

In summary, seven Section 106 consultations for Army undertakings in addition to activities covered under the O&M PA took place in 2019, five on the cantonment (Building 1556 Switchbox Installation, Building 2074 Aircraft Parts Storage Addition, Sage Hill Borrow Pit, and Bailey Bridge demolition/development of MOA-WC1SH5-1902-5), and two in DTA (DTA East Trails Maintenance / Development and closure of FW-MOA-1619).

Nineteen structures were located on USAG Alaska training lands and surveyed in 2019 (Table 8). New AHRS numbers were not given to any sites.

Table 8. Building and structure surveys.

Training Area	2019 Sites Surveyed
Cantonment	0
TFTA	0
YTA	0
DTA	19
GRTA	0
BRTA & WCTA	0
Tok Fuel Terminal	0
Seward Military Resort	0
Sears Creek Pump Station	0
Haines Fuel Terminal	0
Total	**19**

Nearly 3,500 acres of land on USAG Alaska-managed lands were surveyed in 2019 (Table 9). Three new archaeological sites were found (XBD-00452, XMH-01584, and XMH-01585). A total of 14.5% of USAG Alaska-managed lands has been surveyed for archaeological sites and historic structures. Seven hundred three sites have been recorded (Table 10).

Table 9. Archaeological surveys.

Training Area	2019 Acres Surveyed	Total Acres Surveyed	Percent Surveyed
Cantonment	0	12,500	100
TFTA	0	29,356	4.4
YTA	1,419	65,811	25.4
DTA	2,057	126,968	20
GRTA	0	279	1.3
BRTA & WCTA	0	1,589	47.9
Tok Fuel Terminal	0	58	80.6
Seward Military Resort	0	0	0
Sears Creek Pump Station	0	0	0
Haines Fuel Terminal	0	94	45.2
Total	**3,476**	**236,655**	**14.5**

Table 10. Archaeological sites and eligibility status.

Training Area	2019 Sites	Total Sites	Eligible	Not Eligible	Not Evaluated
Cantonment	0	11	1	10	0
TFTA	0	168	17	1	150
YTA	1	22	0	14	8
DTA	2	477	54	67	356
GRTA	0	3	0	1	2
BRTA & WCTA	0	11	0	4	7
Tok Fuel Terminal	0	10	2	1	7
Seward Military Resort	0	0	0	0	0
Sears Creek Pump Station	0	0	0	0	0
Haines Fuel Terminal	0	1	0	1	0
Total	**3**	**703**	**74**	**99**	**530**

Exactly 200 archaeological sites were monitored on Fort Wainwright training lands in 2019 (Table 11). The majority of these were located in DTA, but other sites were monitored when surveys or other activities were located in close proximity.

Table 11. Archaeological sites monitored.

Training Area	2019 Sites Monitored
Cantonment	1
TFTA	7
YTA	0
DTA	189
GRTA	0
BRTA & WCTA	0
Tok Fuel Terminal	3
Seward Military Resort	0
Sears Creek Pump Station	0
Haines Fuel Terminal	0
Total	**200**

Two historic properties were evaluated for the NRHP in 2019 (Table 12). These sites included a historic building (FAI-01283) and a historic trapping cabin (FAI-02200). Only building 4070 was found eligible for the NRHP.

Table 12. Historic sites and structures evaluated

Site Number	Determination	Applicable Criteria
FAI-01283	Eligible	A
FAI-02200	Not eligible	
Total	**1 not eligible, 1 eligible**	

Archaeological fieldwork not presented in this report includes excavations at XMH-00292 and XMH-00923 and fieldwork for archaeological site DOEs. The fieldwork and analyses associated with the XMH-00292 and XMH-00923 excavations will be provided in a separate report. DOE fieldwork and eligibility recommendations will be provided in a supplemental volume to the report of archaeological districts in 2021.

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Appendix 1: 2019 AHRS Cards

Reset Form

ALASKA OFFICE OF HISTORY AND ARCHAEOLOGY

AHRS SITE CARD Page 1 of 1

AHRS #: XBD-00452 **Site Name:** H19-1

Site Description

H19-1 is on a saddle oriented NE-SW on a ridgeline c. 6km N of Beaver Creek Road. The viewshed is filled with the surrounding Yukon-Tanana Uplands, except in the NW where Fort Knox is visible. Site vegetation includes standing and fallen remnants of the 2013 wildfire, with new spruce, birch, aspen, and willow growing above horsetail, rose, fireweed and grasses. There is no surface visibility or disturbances noted. Hunts Creek 2.5 m to the E is the closest water source.
Two shovel tests were excavated during survey. One contained a single basalt flake fragment from 0-10 mbs, which was collected. No physical datum was installed; the UTMs are for the positive shovel test.

Location Description:

Site is on a saddle of a finger ridge 700m N of an active ATV trail, and 6km N of Beaver Creek Rd in the Yukon Training Area, Fort Wainwright, Alaska

Latitude:	Longitude:	Geospatial Shape:	Resource Nature:
64.79658477	-146.79264290	Point	Site

USGS quad:

XBD D6

MTRS:

F001S005E29

Period:

Prehistoric

Pertinent Dates:

Significance Statement: (for DOE or NRHP)

Further evaluation needed

Present Condition:

Normal state of weathering, undisturbed by vandalism, construction or abnormal weathering such as flooding or earthquakes (A)

Cultural Affiliation:	Property Owner:	Acres:
	USAG Alaska, BLM	

BIA/BLM #::	Other # (Specify):

Repository:	Accession #:
UAMN	

Danger of Destruction:

None Reported

Comments or Additional Information

Prepared By: Heather Hardy

Date Prepared: 20191022

form updated on 4/3/14

Reset Form

ALASKA OFFICE OF HISTORY AND ARCHAEOLOGY

AHRS SITE CARD Page 1 of 1

AHRS #: XMH-01584 **Site Name:** Military Structure

Site Description

Collapsed hunting or trapping structure about 1m tall, made of logs and milled lumber with modern nails, and a 3m wide square, wood and metal lined hole in the roof. Structure is built into a horseshoe shaped pushpile, with 2m of gravel on top of the structure.

Location Description:

At the southern end of DTA East, southwest of Donnelly Dome, 1.2 km north of the Richardson Highway and 30 km south of Delta Junction.

Latitude:	Longitude:	Geospatial Shape:	Resource Nature:
63.75456493	-145.8577538	Point	Structure

USGS quad:

XMH D4

MTRS:

F013S010E29

Period:

Modern

Pertinent Dates:

Significance Statement: (for DOE or NRHP)

Recent recreational structure (hunting or trapping)Needs further evaluation.

Present Condition:

Partially destroyed (B1)

Cultural Affiliation:	Property Owner:	Acres:
Recreational	USAG Alaska, BLM	

BIA/BLM #::	Other # (Specify):

Repository:	Accession #:

Danger of Destruction:

Weathering

Comments or Additional Information

Prepared By: Julie Esdale

Date Prepared: 12/18/19

form updated on 4/3/14

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ALASKA OFFICE OF HISTORY AND ARCHAEOLOGY

AHRS SITE CARD Page 1 of 1

AHRS #: XMH-01585 **Site Name:** W-19-1

Site Description

The site is located on a small knoll roughly 75m in diameter. The location provides 360° view shed: Donnelly Dome is visible to the southwest; the Granite Mountains are to the east. The nearest water is a small unnamed lake directly south west and another lake roughly 425m to the north. Surface visibility is estimated at 30 percent. Site vegetation consists of low birch trees, dwarf birch, low-bush cranberry, and burned and young spruce. The site was found through pedestrian survey and consists of one banded gray chert flake found in one of the two excavated shovel tests. The flake was found 0-5cmbs just below the organic layer. The site has been initially classified as a small lithic scatter; however, it likely contains additional cultural material that could contribute important information to our understanding of the prehistory of the region. The landform contains extensive silt deposits underscoring the possibility for intact stratigraphy and buried archaeological remains.

Location Description:

Site is located on a small knoll in DTA east, 22.4 km southeast of Delta Junction and 4.2 km east of Jarvis Creek.

Latitude:	Longitude:	Geospatial Shape:	Resource Nature:
63.83202	-145.59503	Point	Site

USGS quad:

XMH D4

MTRS:

F012S011E33

Period:

Prehistoric

Pertinent Dates:

Significance Statement: (for DOE or NRHP)

Further evaluation needed.

Present Condition:

Normal state of weathering, undisturbed by vandalism, construction or abnormal weathering such as flooding or earthquakes (A)

Cultural Affiliation:	Property Owner:	Acres:
	USAG Alaska, BLM	

BIA/BLM #::	Other # (Specify):

Repository:	Accession #:
UAMN	

Danger of Destruction:

None Reported

Comments or Additional Information

Prepared By: Julie Esdale

Date Prepared: 12/18/19

form updated on 4/3/14

Appendix 2: 2019 Monitoring Photos

FAI-0040

Figure 34. FAI-0040, 2006 (NW)

Figure 35. FAI-0040, 2019 (N)

Figure 36. FAI-0040, 2006 (S)

Figure 37. FAI-0040, 2019 (S)

FAI-02050

Figure 38. FAI-02050, 2010

Figure 39. FAI-02050, 2010

FAI-02056

Figure 40. FAI-02056, 2010

Figure 41. FAI-02056, 2010

FAI-02057

Figure 42. FAI-02057, 2010

Figure 43. FAI-02057, 2019

FAI-02058

Figure 44. FAI-0258, 2010 (SW)

Figure 45. FAI-02058, 2019 (NE)

FAI-02062

Figure 46. FAI-02062, 2010

Figure 47. FAI-02062, 2019 (E)

FAI-02074

Figure 48. FAI-02074, 2010

Figure 49. FAI-02074, 2019

FAI-02361

Figure 50. FAI-02361, 2016

Figure 51. FAI-02361, 2019

XBD-00271

Figure 52. XMH-00271, 2019

XBD-00272

Figure 53. XMH-00272, 2008

Figure 54. XMH-00272, 2019

XBD-00273

Figure 55. XMH-00273, 2008

Figure 56. XMH-00273, 2019

XBD-00333

Figure 57. XMH-00333, 2005

Figure 58. XMH-00333, 2019 (SW)

Figure 59. XMH-00333, 2019, erosion

Figure 60. XMH-00333, 2019 (S)

XMH-00001

Figure 61. XMH-00001, 2002 (S)

Figure 62. XMH-00001, 2019 (S)

XMH-00005

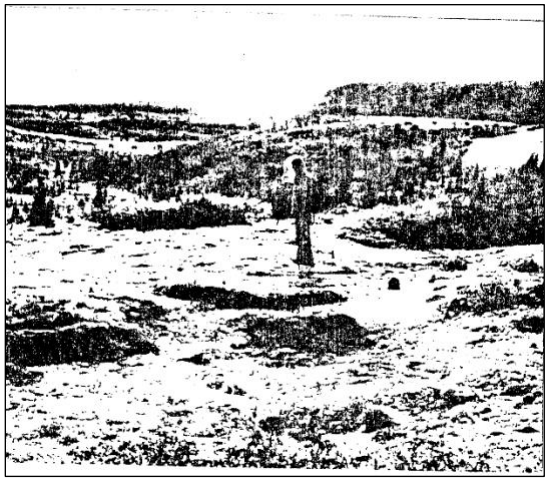

Figure 63. XMH-00005, 1979

Figure 64. XMH-00005, 2002

Figure 65. XMH-00005, 2019 (S)

Figure 66. XMH-00005, 2019 (W)

XMH-00007

Figure 67. XMH-00007, 2019 (S)

Figure 68. XMH-00007, 2019 (N)

XMH-00008

Figure 69. XMH-00008, 2019 (NE)

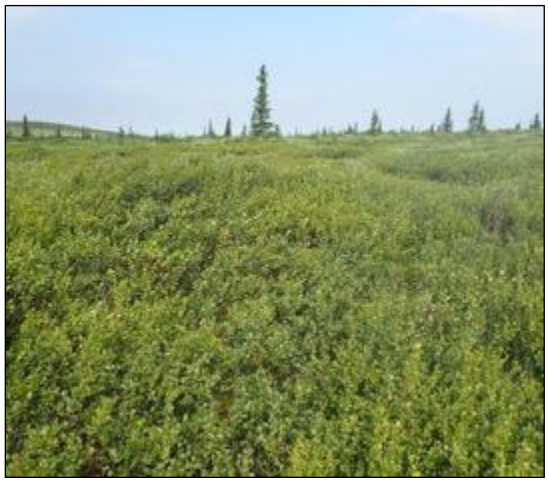

Figure 70. XMH-00008, 2019 (S)

XMH-00009

Figure 71. XMH-00009, 2002 (N)

Figure 72. XMH-00009, 2019 (NE)

Figure 73. XMH-00009, 2019 (W)

Figure 74. XMH-00009, 2019 (SW)

XMH-00010

Figure 75. XMH-00010, 2002 (SE)

Figure 76. XMH-00010, 2019 (S)

XMH-00012

Figure 77. XMH-00012, 2002 (S)

Figure 78. XMH-00012, 2019 (S)

XMH-00016

Figure 79. XMH-00016, 2002

Figure 80. XMH-00016, 2019

XMH-00023

Figure 81. XMH-00023, 2002 (NE)

Figure 82. XMH-00023, 2019, (N)

XMH-00265

Figure 83. XMH-00265, 2002 (N)

Figure 84. XMH-00265, 2019 (N)

XMH-00266

Figure 85. XMH-00266, 2002 (N)

Figure 86. XMH-00266, 2019 (N)

XMH-00267

Figure 87. XMH-00267, 2005 (NW)

Figure 88. XMH-00267, 2019 (W)

XMH-00268

Figure 89. XMH-00268, 2016

Figure 90. XMH-00268, 2019

XMH-00269

Figure 91. XMH-00269, 2016

Figure 92. XMH-00269, 2019

XMH-00270

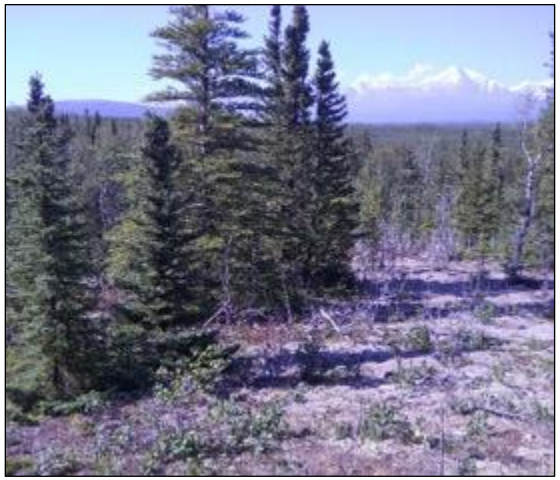

Figure 93. XMH-00270, 2016

Figure 94. XMH-00270, 2019 (NE)

XMH-00272

Figure 95. XMH-00272, 2001

Figure 96. XMH-00272, 2019 (N)

XMH-00274

Figure 97. XMH-00274, 2012

Figure 98. XMH-00274, 2019

XMH-00280

Figure 99. XMH-00280, 1979

Figure 100. XMH-00280, 1979

Figure 101. XMH-00280, 2019 (E)

Figure 102. XMH-00280, 2019 (S)

XMH-00281

Figure 103. XMH-00281, 2002

Figure 104. XMH-00281, 2019

XMH-00283

Figure 105. XMH-00283, 2019 (S)

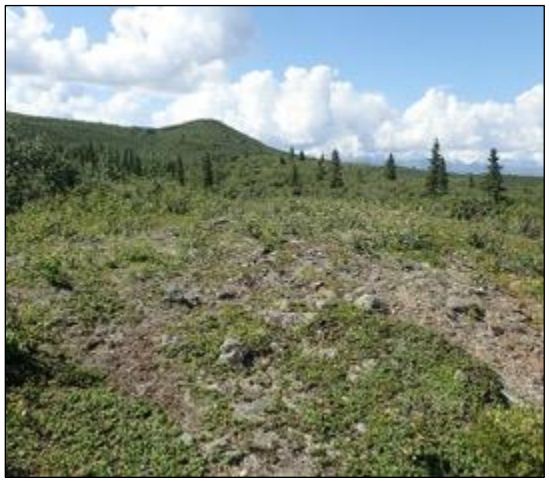

Figure 106. XMH-00283, 2019 (N)

XMH-00285

Figure 107. XMH-00285, 2019 (NE)

Figure 108. XMH-00285, 2019 (SW)

XMH-00286

Figure 109. XMH-00286, 2002 (W)

Figure 110. XMH-00286, 2019 (W)

XMH-00292

Figure 111. XMH-00292, 2004

Figure 112. XMH-00285, 2019

XMH-00294

Figure 113. XMH-00284, 2002 (W)

Figure 114. XMH-0084, 2019 (W)

XMH-00295

Figure 115. XMH-00295, 2002 (E)

Figure 116. XMH-00295, 2019 (W)

XMH-00297 (Delta River Overlook)

Figure 117. XMH-00297, 1985 (N)

Figure 118. XMH-00297, 1998 (W)

Figure 119. XMH-00297, 2005 (NW)

Figure 120. XMH-00297, 2019 (N)

Figure 121. XMH-00297, 2019, erosion

Figure 122. XMH-00297, 2019 (SE)

XMH-00838 (Hurricane Bluff)

Figure 123. XMH-00838, 1998

Figure 124. XMH-00838, 2005

Figure 125. XMH-00383, 2019 (W)

Figure 126. XMH-00383, 2019 (N)

XMH-00843

Figure 127. XMH-00843, 2019 (N)

XMH-00871

Figure 128. XMH-00871, 2010 (SW)

Figure 129. XMH-00871, 2010 (W)

Figure 130. XMH-00871, 2019 (NE)

Figure 131. XMH-00871, 2019 (W)

XMH-00900

Figure 132. XMH-00900, 2002 (NE)

Figure 133. XMH-00900, 2019 (NE)

XMH-00923

Figure 134. XMH-00923, 2012

Figure 135. XMH-00923, 2019

XMH-00930

Figure 136. XMH-00930, 2002 (E)

Figure 137. XMH-00930, 2019 (S)

XMH-00931

Figure 138. XMH-00931, 2002 (E)

Figure 139. XMH-00931, 2019 (NE)

XMH-00932

Figure 140. XMH-00932, 2002 (E)

Figure 141. XMH-00932, 2019 (NE)

XMH-009333

Figure 142. XMH-009333, 2002 (N)

Figure 143. XMH-009333, 2019 (NE)

XMH-00934

Figure 144. XMH-00934, 2002 (N)

Figure 145. XMH-00934, 2019 (NE)

XMH-00939

Figure 146. XMH-00939, 2002 (NE)

Figure 147. XMH-00939, 2019 (NW)

XMH-00940

Figure 148. XMH-00940, 2002 (NE)

Figure 149. XMH-00940, 2019 (N)

XMH-00941

Figure 150. XMH-00941, 2004 (S)

Figure 151. XMH-00941, 2019 (S)

XMH-00942

Figure 152. XMH-00942, 2002 (S)

Figure 153. XMH-00942, 2019 (SE)

XMH-00944

Figure 154. XMH-00944, 2002 (E)

Figure 155. XMH-00944, 2019 (E)

XMH-00947

Figure 156. XMH-00947, 2002 (NE)

Figure 157. XMH-00947, 2019 (NE)

XMH-00948

Figure 158. XMH-00948, 2002 (E)

Figure 159. XMH-00948, 2019 (E)

Figure 160. XMH-00948, 2002 (W)

Figure 161. XMH-00948, 2019

XMH-00949

Figure 162. XMH-00949, 2002 (E)

Figure 163. XMHH-00949, 2019 (SE)

XMH-00950

Figure 164. XMH-00950, 2002 (W)

Figure 165. XMH-00950, 2019 (E)

XMH-00951

Figure 166. XMH-00951, 2002 (NW)

Figure 167. XMH-00951, 2019 (NE)

XMH-00955

Figure 168. XMH-00955, 2002 (S)

Figure 169. XMH-00955, 2019 (S)

XMH-00956

Figure 170. XMH-00956, 2002 (S)

Figure 171. XMH-00956, 2019 (S)

XMH-00957

Figure 172. XMH-00957, 2002 (S)

Figure 173. XMH-00957, 2019 (N)

XMH-00958

Figure 174. XMH-00958, 2002 (S)

Figure 175. XMH-00958, 2019 (S)

XMH-00959

Figure 176. XMH-00959, 2002 (S)

Figure 177. XMH-00956, 2019 (S)

XMH-00960

Figure 178. XMH-00960, 2002 (N)

Figure 179. XMH-00960, 2019 (N)

XMH-00961

Figure 180. XMH-00961, 2002 (N)

Figure 181. XMH-00961, 2019 (N)

XMH-00962

Figure 182. XMH-00962, 2002 (S)

Figure 183. XMH-00962, 2019 (S)

XMH-00963

Figure 184. XMH-00963, 2002 (N)

Figure 185. XMH-00963, 2019 (N)

XMH-00964

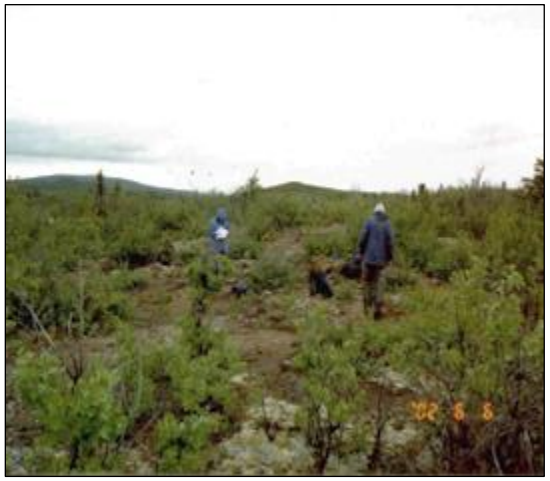

Figure 186. XMH-00964, 2002 (S)

Figure 187. XMH-00964, 2019 (W)

XMH-00966

Figure 188. XMH-00966, 2002 (N)

Figure 189. XMH-00966, 2019 (W)

XMH-00967

Figure 190. XMH-00967, 2002 (E)

Figure 191. XMH-00967, 2019 (E)

XMH-00968

Figure 192. XMH-00968, 2002 (SW)

Figure 193. XMH-00968, 2019 (S)

XMH-00969

Figure 194. XMH-00969, 2002 (S)

Figure 195. XMH-00969, 2019 (SW)

XMH-00971

Figure 196. XMH-00971, 2002 (N)

Figure 197. XMH-00971, 2019 (NW)

XMH-00973

Figure 198 XMH-00973, 2002 (S)

Figure 199. XMH-00973, 2019 (S)

XMH-00975

Figure 200. XMH-00975, 2002 (S)

Figure 201. XMH-00975, 2019 (S)

XMH-00976

Figure 202. XMH-00976, 2002 (NE)

Figure 203. XMH-00976, 2019 (NE)

XMH-00977

Figure 204 XMH-00977, 2002 (N)

Figure 205. XMH-00977, 2019 (NW)

XMH-00978

Figure 206. XMH-00978, 2002 (NE)

Figure 208. XMH-00978, 2019 (E)

Figure 207. XMH-00978, 2019 (NE)

XMH-00979

Figure 209. XMH-00979, 2002 (NW)

Figure 210. XMH-00979, 2019 (W)

XMH-01052

Figure 211. XMH-01052, 2003 (S)

Figure 212. XMH-01052, 2019 (S)

XMH-01053

Figure 213. XMH-01053, 2003 (S)

Figure 214. XMH-01053, 2019 (S)

XMH-01054

Figure 215. XMH-01054, 2003 (S)

Figure 216. XMH-01054, 2019 (W)

XMH-01055

Figure 217. XMH-01055, 2003 (N)

Figure 218. XMH-01055, 2019 (N)

XMH-01056

Figure 219. XMH-01056, 2003 (N)

Figure 220. XMH-01056, 2019 (S)

XMH-01057

Figure 221. XMH-01057, 2003 (S)

Figure 222. XMH-01057, 2019 (S)

XMH-01058

Figure 223. XMH-01058, 2003 (S)

Figure 224. XMH-01057, 2019 (S)

XMH-01061

Figure 225. XMH-01061, 2002 (N)

Figure 226. XMH-01061, 2019 (N)

XMH-01062/01063

Figure 227. XMH-01062/01063, 2002

Figure 228. XMH-01062/01063, 2019

XMH-01067

Figure 229. XMH-01067, 2003 (S)

Figure 230. XMH-01067, 2019 (S)

XMH-01068

Figure 231. XMH-01068, 2003 (SW)

Figure 232. XMH-01068, 2019 (SW)

XMH-01069

Figure 233. XMH-01069, 2003 (S)

Figure 234. XMH-01069, 2019 (N)

XMH-01078

Figure 235. XMH-01078, 2003 (S)

Figure 236. XMH-01078, 2019 (S)

XMH-01084

Figure 237. XMH-01084, 2003 (N)

Figure 238. XMH-01069, 2019 (N)

XMH-01143

Figure 239. XMH-01143, 2001 (N)

Figure 240. XMH-01143, 2019 (N)

XMH-01144

Figure 241. XMH-01144, 2003 (N)

Figure 242. XMH-01144, 2019 (N)

XMH-01145

Figure 243. XMH-01145, 2003 (N)

Figure 244. XMH-01145, 2019 (NW)

Figure 245. XMH-01145, 2019, site disturbance

XMH-01146

Figure 246. XMH-01146, 2004 (S)

Figure 247. XMH-01146, 2019 (SW)

XMH-01147

Figure 248. XMH-01147, 2008 (S)

Figure 249. XMH-01147, 2017 (S)

XMH-01153

Figure 250. XMH-01153, 2003 (S)

Figure 251. XMH-01153, 2019 (S)

XMH-01154

Figure 252. XMH-01154, 2003 (N)

Figure 253. XMH-01154, 2019 (E)

XMH-01155

Figure 254. XMH-01155, 2003 (N)

Figure 255. XMH-01155, 2019

XMH-01156

Figure 256. XMH-01156, 2003 (N)

Figure 257. XMH-01156, 2019 (N)

XMH-01157

Figure 258. XMH-01157, 2003 (E)

Figure 259. XMH-01157, 2019 (E)

XMH-01158

Figure 260. XMH-01158, 2003 (SE)

Figure 261. XMH-01158, 2019

XMH-01159

Figure 262. XMH-01159, 2003 (S)

Figure 263. XMH-01159, 2019 (S)

XMH-01162

Figure 264. XMH-01162, 2002 (SE)

Figure 265. XMH-01162, 2019 (E)

XMH-01168

Figure 266. XMH-01168, 2004 (SW)

Figure 267. XMH-01168, 2004 (S)

Figure 268. XMH-01168, 2019 (SW)

Figure 269. XMH-01168, 2019 (S)

XMH-01169

Figure 270. XMH-01169, 2004 (E)

Figure 271. XMH-01169, 2019 (E)

XMH-01170

Figure 272. XMH-01170, 2004 (E)

Figure 273. XMH-01170, 2019 (S)

XMH-01195

Figure 274. XMH-01195, 2005 (N)

Figure 275. XMH-01195, 2019 (SW)

XMH-01197

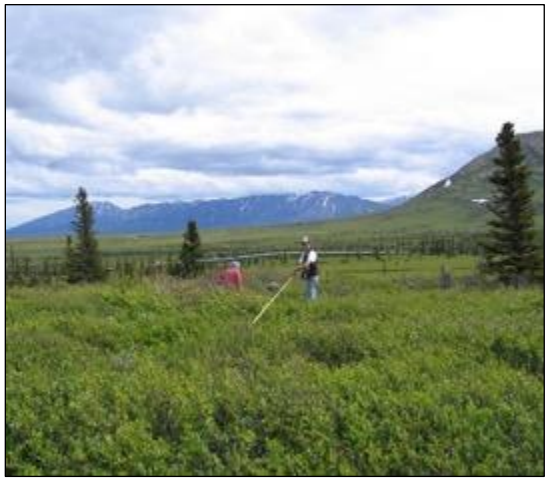

Figure 276. XMH-01197, 2005 (E)

Figure 277. XMH-01197, 2019 (S)

XMH-01198

Figure 278. XMH-01198, 2005 (N)

Figure 279. XMH-01198, 2019 (N)

XMH-01199

Figure 280. XMH-01199, 2005 (SE)

Figure 281. XMH-01199, 2019 (S)

XMH-01200

Figure 282. XMH-01200, 2005 (SW)

Figure 283. XMH-01200, 2019 (S)

XMH-01201

Figure 284. XMH-01201, 2005 (S)

Figure 285. XMH-01201, 2019 (SW)

XMH-01202

Figure 286. XMH-01202, 2005 (N)

Figure 287. XMH-01202, 2019 (N)

XMH-01203

Figure 288. XMH-01203, 2005 (W)

Figure 289. XMH-01203, 2019 (W)

XMH-01206

Figure 290. XMH-01206, 2005 (S)

Figure 291. XMH-1206, 2019 (S)

XMH-01207

Figure 292. XMH-01207, 2005 (NE)

Figure 293. XMH-01207, 2019 (NE)

XMH-01208

Figure 294. XMH-01208, 2005 (E)

Figure 295. XMH-01208, 2019 (NE)

XMH-01209

Figure 296. XMH-01209, 2005 (N)

Figure 297. XMH-01209, 2019 (N)

XMH-01210

Figure 298. XMH-01210, 2005 (W)

Figure 299. XMH-01210, 2019 (N)

XMH-01211

Figure 300. XMH-01211, 2005 (NE)

Figure 301. XMH-01211, 2019 (NE)

XMH-01213

Figure 302. XMH-01213, 2005 (E)

Figure 303. XMH-01213, 2019 (E)

XMH-01214

Figure 304. XMH-01214, 2005 (NE)

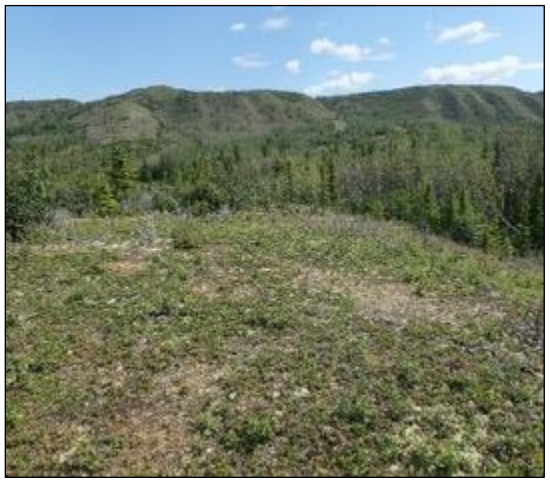

Figure 305. XMH-01214, 2019 (E)

XMH-01215

Figure 306. XMH-01215, 2005 (NE)

Figure 307. XMH-01215, 2019 (NE)

XMH-01216

Figure 308. XMH-01216, 2005 (NE)

Figure 309. XMH-01216, 2019 (NE)

XMH-01217

Figure 310. XMH-01217, 2005 (S)

Figure 311. XMH-01217, 2019 (S)

XMH-01218

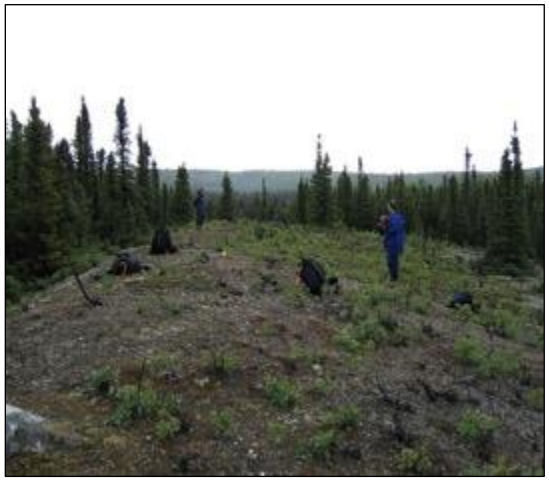

Figure 312. XMH-01218, 2005 (E)

Figure 313. XMH-01218, 2019 (E)

XMH-01219

Figure 314. XMH-01219, 2005 (N)

Figure 315. XMH-01219, 2019 (N)

XMH-01220

Figure 316. XMH-01220, 2005 (E)

Figure 317. XMH-01220, 2019 (E)

XMH-01221

Figure 318. XMH-01221, 2016

Figure 319. XMH-01221, 2019 (SE)

XMH-01222

Figure 320. XMH-01222, 2016 (N)

Figure 321. XMH-01222, 2019 (N)

XMH-01227

Figure 322. XMH-01227, 2005 (NE)

Figure 323. XMH-01227, 2019 (NE)

XMH-01237

XMH-01278

Figure 324. XMH-01227, 2005 (SE)

Figure 326. XMH-01237, 2016 (W)

Figure 328. XMH-01278, 2005 (N)

Figure 325. XMH-01227, 2019 (E)

Figure 327. XMH-01237, 2019 (W)

Figure 329. XMH-01221, 2019 (N)

XMH-01279

Figure 330. XMH-01279, 2006 (S)

Figure 331. XMH-01279, 2019 (S)

XMH-01280

Figure 332. XMH-01280, 2006 (W)

Figure 333. XMH-01280, 2019 (NW)

XMH-01281

Figure 334. XMH-01281, 2006 (S)

Figure 335. XMH-01281, 2019 (W)

XMH-01282

Figure 336. XMH-01282, 2006 (SE)

Figure 337. XMH-01282, 2019 (S)

XMH-01283

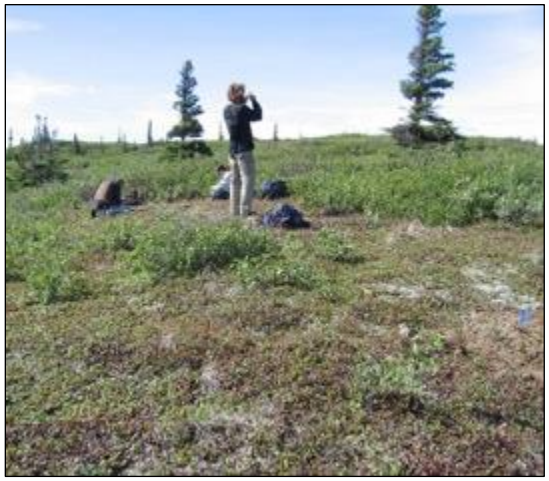

Figure 338. XMH-01283, 2006 (S)

Figure 339. XMH-01283, 2019 (E)

XMH-01285

Figure 340. XMH-01285, 2006 (S)

Figure 341. XMH-01285, 2019 (S)

XMH-01286

Figure 342. XMH-01286, 2006 (S)

Figure 343. XMH-01286, 2019 (S)

XMH-01287

Figure 344. XMH-01287, 2006 (SW)

Figure 345. XMH-01287, 2019 (S)

XMH-01288

Figure 346. XMH-01288, 2006 (S)

Figure 347. XMH-01288, 2019 (S)

XMH-01289

Figure 348. XMH-01289, 2006 (SW)

Figure 349. XMH-01289, 2019 (S)

XMH-01290

Figure 350. XMH-01290, 2006 (NE)

Figure 351. XMH-01290, 2019 (N)

XMH-01291

Figure 352. XMH-01291, 2006 (S)

Figure 353. XMH-01291, 2019 (N)

XMH-01292

Figure 354. XMH-01292, 2005

Figure 355. XMH-01292, 2019 (S)

XMH-01293

Figure 356. XMH-01293, 2006 (N)

Figure 357. XMH-01293, 2019 (NW)

XMH-01294

Figure 358. XMH-01294, 2006 (N)

Figure 359. XMH-01294, 2019 (N)

XMH-01295

Figure 360. XMH-01295, 2006 (N)

Figure 361. XMH-01295, 2019 (NE)

XMH-01296

Figure 362. XMH-01296, 2006 (W)

Figure 363. XMH-01296, 2019 (W)

XMH-01297

Figure 364. XMH-01297, 2006 (E)

Figure 365. XMH-01297, 2019 (N)

XMH-01298

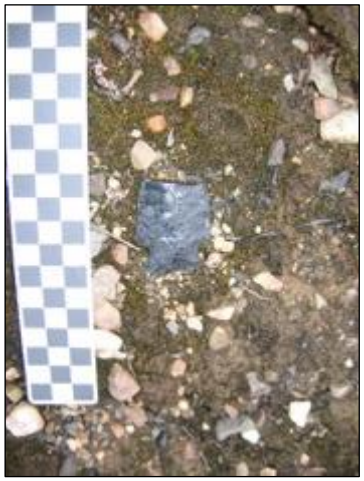

Figure 366. XMH-01298, 2005 (E)

Figure 367. XMH-01298, 2019 (W)

XMH-01299

Figure 368. XMH-01299, 2006 (N)

Figure 369. XMH-01299, 2019 (SE)

XMH-01300

Figure 370. XMH-01300, 2006 (W)

Figure 371. XMH-01300, 2019 (N)

XMH-01301

Figure 372. XMH-01301, 1301 (SW)

Figure 373. XMH-01301, 1301 (SW)

XMH-01302

Figure 374. XMH-01301, 2006 (E)

Figure 375. XMH-01302, 2019 (S)

XMH-01334

Figure 376. XMH-01334, 2007 (NW)

Figure 377. XMH-01334, 2019 (W)

XMH-01335

Figure 378. XMH-01335, 2007 (W)

Figure 379. XMH-01335, 2019 (W)

XMH-01336

Figure 380. XMH-01336, 2007 (S)

Figure 381. XMH-01336, 2019 (SE)

XMH-01356

Figure 382. XMH-01356, 2008 (S)

Figure 383. XMH-01356, 2019 (S)

XMH-01356

Figure 384. XMH-01356, 2008 (NE)

Figure 385. XMH-01356, 2019 (N)

XMH-01358

Figure 386. XMH-01358, 2008 (S)

Figure 387. XMH-01358, 2019 (S)

XMH-01360

Figure 388. XMH-01360, 2012

Figure 389. XMH-01360, 2019 (E)

XMH-01361

Figure 390. XMH-01361, 2010 (E)

Figure 391. XMH-01361, 2019 (SE)

XMH-01364/65

Figure 392. XMH-01364/65, 2012

Figure 393. XMH-01364/65, 2019 (N)

XMH-01366

Figure 394. XMH-01366, 2012

Figure 395. XMH-01366, 2019

XMH-01367

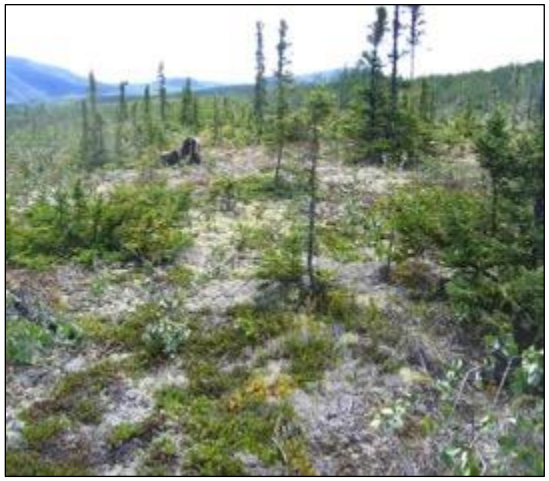

Figure 396. XMH-01367, 2010 (S)

Figure 397. XMH-01367, 2019 (S)

XMH-01368

Figure 398. XMH-01368, 2010 (SW)

Figure 399. XMH-01368, 2019 (S)

XMH-01369

Figure 400. XMH-01369, 2016

Figure 401. XMH-01369, 2019 (E)

XMH-01370

Figure 402. XMH-01370, 2008 (N)

Figure 403. XMH-01370, 2019 (S)

XMH-01371

Figure 404. XMH-01371, 2016

Figure 405. XMH-01371, 2019

XMH-01372

Figure 406. XMH-01372, 2016

Figure 407. XMH-01372, 2019 (S)

XMH-01377

Figure 408. XMH-01377, 2012

Figure 409. XMH-01377, 2019

XMH-01384

Figure 410. XMH-01384, 2010 (SE)

Figure 411. XMH-01384, 2019 (S)

XMH-01455

Figure 412. XMH-01455, 2014

Figure 413. XMH-01455, 2019 (W)

XMH-01456

Figure 414. XMH-01456, 2011 (N)

Figure 415. XMH-01456, 2019 (NE)

XMH-01458

Figure 416. XMH-01458, 2011 (E)

Figure 417. XMH-01458, (S)

XMH-01459

Figure 418, XMH-01459, 2011 (E)

Figure 419. XMH-01459, 2019 (S)

XMH-01460

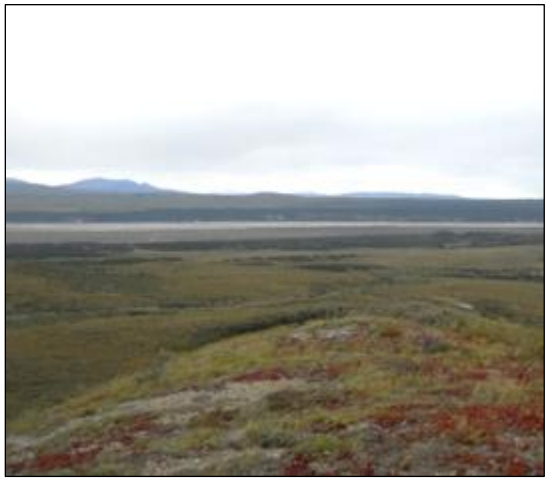

Figure 420. XMH-01460, 2011 (W)

Figure 421. XMH-01460, 2019 (W)

XMH-01524

Figure 422. XMH-01524, 2017 (E)

Figure 423. XMH0-1523, 2019 (NE)

XMH-01525

Figure 424. XMH-01525, 2017 (N)

XMH-01526

Figure 425. XMH-01526, 2017 (N)

Figure 426. XMH0-1526, 2019 (N)

XMH-01527

Figure 427. XMH-01532, 2017 (N)

XMH-01532

Figure 428. XMH-01532, 2002 (N)

Figure 429. XMH0-1532, 2019 (N)

XMH-01533

Figure 430. XMH-01533, 2002

Figure 431. XMH-01533, 2019 (N)

XMH-01536

Figure 432. XMH-01536, 2014 (SE)

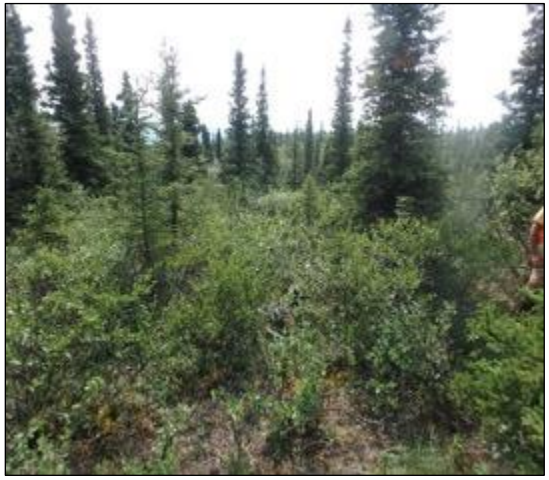

Figure 433. XMH-01536, 2019 (S)

XMH-01537

Figure 434. XMH0-1537, 2014 (N)

Figure 435. XMH-01537, 2019 (N)

XMH-01546

Figure 436. XMH-01546, 2016 (W)

Figure 437. XMH-01546, 2019 (W)

XMH-01547

Figure 438. XMH-01547, 2016

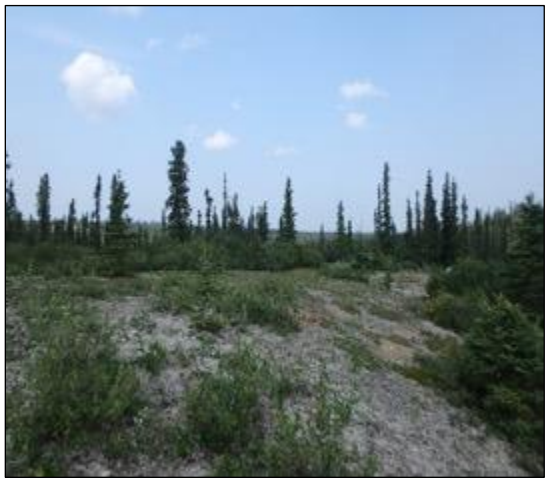

Figure 439. XMH-01547, 2019 (NE)

XMH-01554

Figure 440. XMH-01554, 2017

Figure 441. XMH-01554, 2019 (W)

XMH-01555

Figure 442. XMH-01555, 2016 (W)

Figure 443. XMH-01555, 2019 (W)